

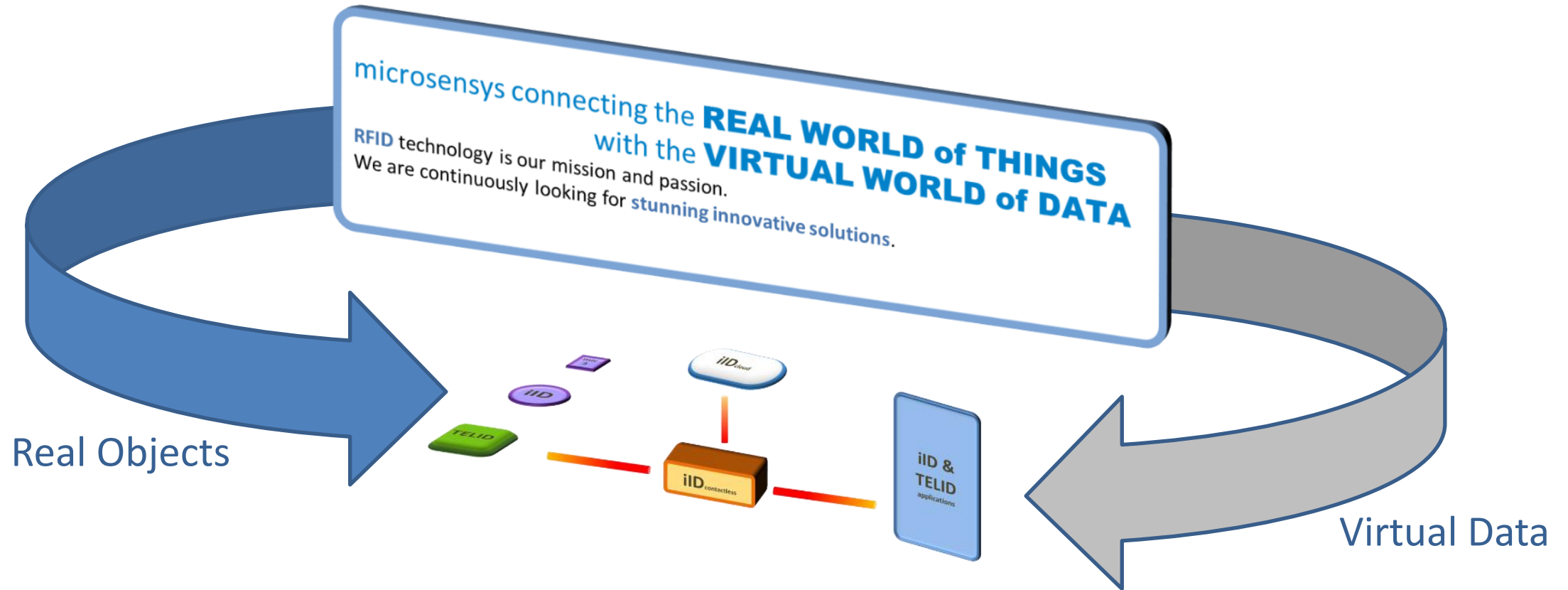
Company Short Presentation

Production and Development of RFID components



Solution Partner
Micro-Sensys GmbH

What we do



our strategy

in-house production and development
operating in niche markets with own product portfolio
competencies in RF, sensor and mobile computing technologies

Our wireless ID and sensor solutions

our offer

- from components up to complete Auto-ID solutions
- from consulting, in-house design, in-house production up to system support
- including customization of hard- and software components
- mix of wireless technologies: HF, UHF, SENSOR, BLUETOOTH
- flexible stationary and mobile data capturing based on deep knowledge in wireless communication and data encoding

mic3®
iID®
TELID®

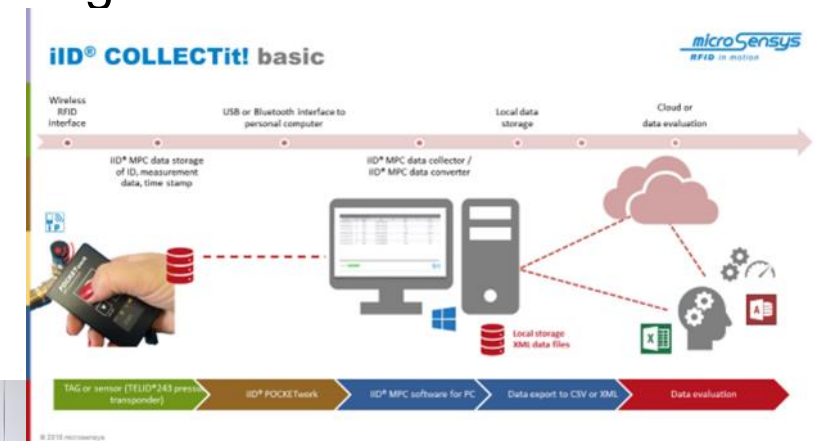
miniaturized transponders
transponders
wireless sensors

iID®contactless
iID®contactless

readers
gateways

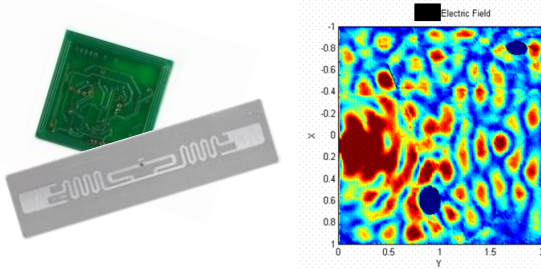
iID® & TELID®
iID®cloud

applications
data Services



Our products

projects, OEM design



- realization concept
- design & simulation
- prototyping
- OEM design & production

PRODUCTION special transponders

- miniaturization
- special packaging
- critical environments



PRODUCTION wireless sensors



- passive
- active ultra low power
- rugged design
- special sensors

PRODUCTION smart readers / reader modules



- mobile
- low power
- smart, innovative

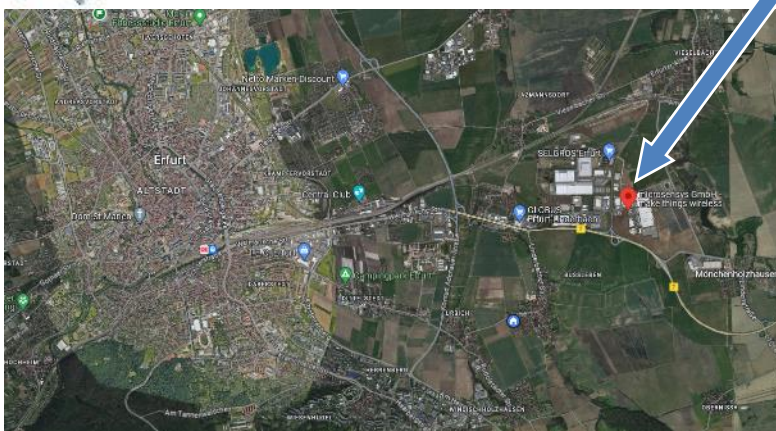
software/ systems



- iID® net
- software & tools for PC, Android, iOS & embedded
- cloud data collection (via partners)



Where to find us



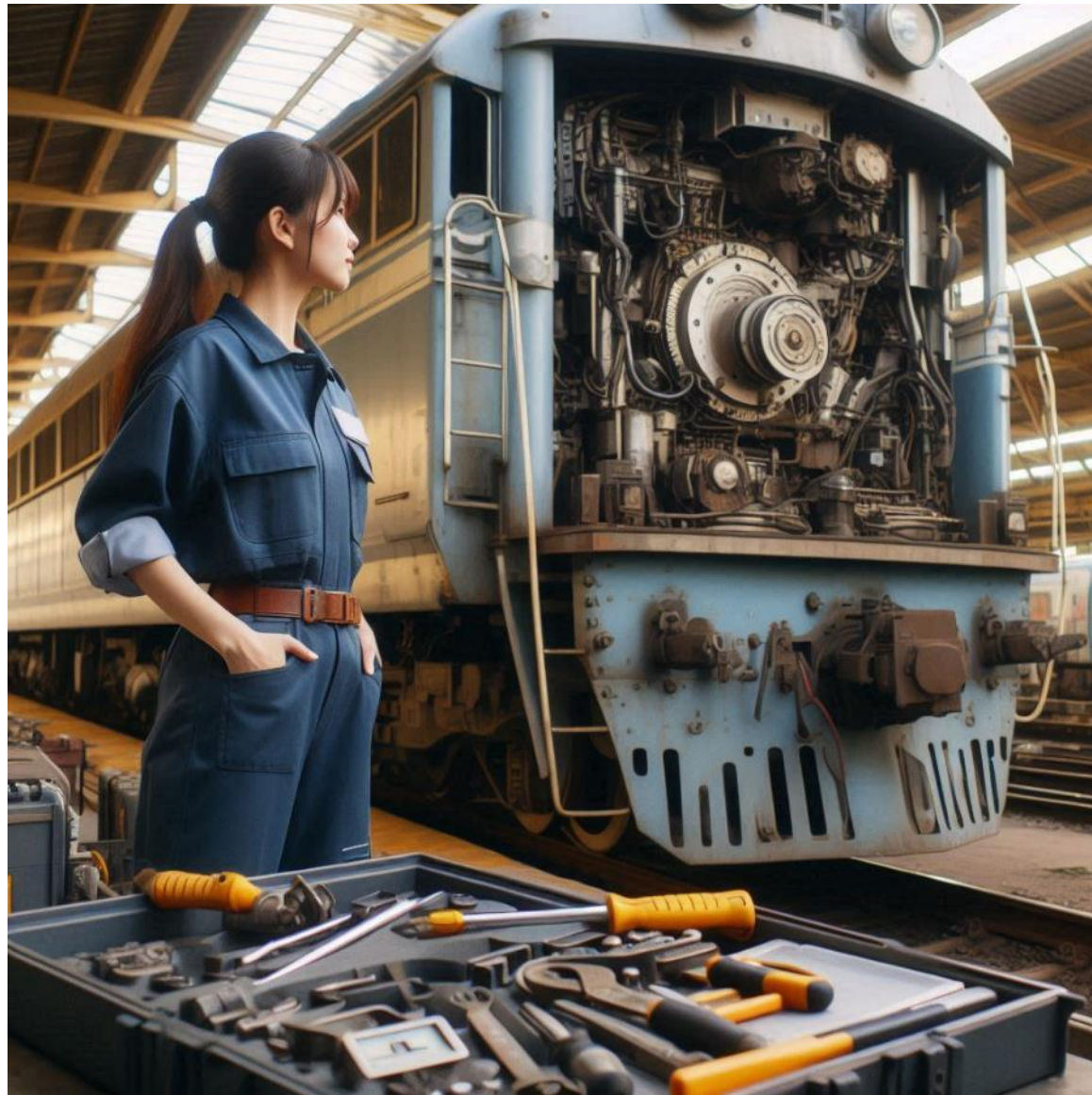
Micro-Sensys GmbH
In der Hochstedter Ecke 2
D 99098 Erfurt

- Founded in 1991
- 35 employees
- 1300m² leased area on three floors
800m² production area
500m² administration and development

Wireless ID & sensors for Railway applications



Identification of component parts



- Identify critical component parts on the train (e. g. axis, breaks, and more)
- Read GS1 compliant serial numbers of robust passive UHF transponders according to GIAI or SGTIN encoding schemes
- Improve the maintenance processes using standard smart devices

Railway optimized components

TAG Type	Picture	Technicals	Remarks
Label 1836 DUAL-TAGspecial HF&UHF		Size: 20x38x4.5mm Communication Distance HF: 0...30mm, UHF: 0...150/500mm (non-metal/metal) Storage Temperature:-40°C...+85°C ISO 15693, ISO 18000-6c, Em echo-V	Dual frequency, shared memory, max. 248 Byte, Printing possible available
Q43S DUAL-TAGspecial HF&UHF		Size: 43x27x5mm Communication Distance: 0...20mm Storage Temperature:-40°C...+85°C ISO 15693, ISO 18000-6c, Em echo-V	Printing or lasering possible, for mounting on metal available
Q40100 DUAL-TAGspecial HF&UHF		Size: 40x100x7mm Communication Distance HF: 0...80mm UHF: 0...6,5m Storage Temperature:-40°C...+85°C ISO 15693, ISO 18000-6c, Em echo-V	customer logo, running number and TAG initializing available
D22V6 DUAL-TAGspecial HF&UHF		Size: D22x5mm Communication Distance HF: 0...50mm UHF: 0...2,5m Storage Temperature:-40°C...+85°C ISO 15693, ISO 18000-6c, Em echo-V	With and without metal plate, customer logo, running number and TAG initializing Samples available, series production Q1/2025

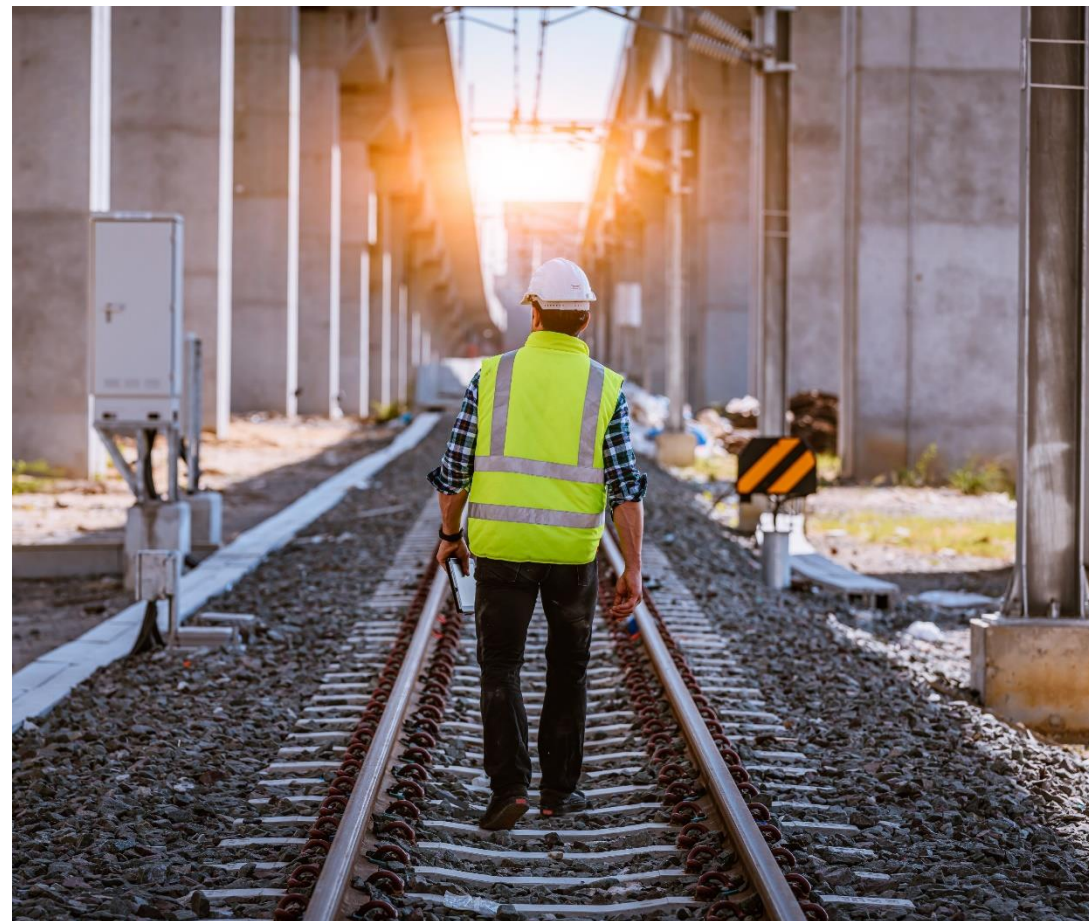
- Robust designs according EN50155 feature sets, supporting ISO/IEC61406
- UHF or NFC plus UHF in one transponder – best fit for component ID
- Special designs supported by EM echo chip
- Smartphone AND UHF mid range / long range capability

Railway optimized components

TAG Type	Picture	Technicals	Remarks
UHF Plate2570 UHF	 A rectangular black tag with a QR code on the right, a circular NFC symbol in the center, and text on the left: 'SBB Asset ID', 'Do not remove', and 'AssetID: (8004) 7813289 4 0000 0000 0000'.	Size: 25x70x4mm Thickness stainless steel plate 0,5 mm Communication Distance: 0...1 m Storage Temperature:-45°C...+125°C ISO18000-6c: AILIN HIGGS 9	using under very harsh environmental conditions, uniform bending transverse direction (min. R100mm) available
Plate3075 DUAL-TAGspecial HF&UHF	 A rectangular black tag with a QR code on the right, a circular NFC symbol in the center, and text on the left: 'microSensys', 'Do not remove', and 'AssetID: (8004) 428253881 9 0000 0000 0002'.	Size: 30x75x4mm Communication Distance HF: 0...50mm UHF: 0...2,5m Storage Temperature:-40°C...+85°C ISO 15693, ISO 18000-6c, Em echo-V	using under very harsh environmental conditions, uniform bending transverse direction (min. R100mm) Dual frequency, shared memory, max. 248 Byte,

- Robust designs according EN50155 feature sets, supporting ISO/IEC61406
- UHF or NFC plus UHF in one transponder – best fit for component ID
- Special designs support ed by EM echo chip
- Smartphone AND UHF mid range capability

Serialization solutions



Serialization solutions

TAG-modules & integration

microsensys RFID
(HF/NFC, UHF,
DUAL)
TAG-module

&

Blank metal plate



Blank metal plate with
integrated empty TAG-
module



GS1
Electronic Product Code (EPC)
Tag Data Standard (TDS)

&

Fully customized/serialized
- Printed / laser engraved

- GIAI (-96, -202, +)
- SGTIN (-96, -198, +)



TAG-module initialization

Preinitialized TAG module
with the required data



OR

On-site initialization with
Mobile reader



OR

On-site initialization with a
Stationary reader



Data carriers

Option 1: Fully customized/serialized



Option 2: Blank plate with integrated TAG-module



Option 3: Blank plate + Separate TAG-module



Flexible identification for railway components

- Robust, railway-ready designs aligned with relevant EN 50155 requirements
- Available as UHF-only or dual-frequency NFC + UHF transponders
- Smartphone access and IEC 61406-1 Identification Links via NFC, combined with mid- to long-range reading via UHF

Factory-customized and ready to use

- Unique serialization using the customer's or microsensys' GS1 Company Prefix (GCP)
- Identification printed or permanently engraved
- RFID/NFC data pre-programmed before delivery



Data encoded in compliance with the GS1 EPC Tag Data Standard (TDS), Release 2.3.



The Global Language of Business

EPC Tag Data Standard TDS

defines the Electronic Product Code™ and specifies the memory contents of Gen 2 RFID Tags

Release 2.3, Ratified, Oct 2025

UHF only transponders:

- EPC encoding
 - (8004) GIAI-96, GIAI-202, GIAI+
 - (01)+(21) SGTIN-96, SGTIN-198, SGTIN+
- User memory encoding
 - (10) Batch/Lot · (11) Production Date · (17) Expiration Date · (240) Additional Product ID · (241) Customer Part Number · (410) Ship-to GLN

UHF+HF dual transponders:

- Digital Link as URL NDEF
- EPC URI as Text NDEF
- Smartphone access and IEC 61406-1 Identification Links via NFC, combined with mid-to long-range reading via UHF

Programming tools

For on-site programming

Mobile solution



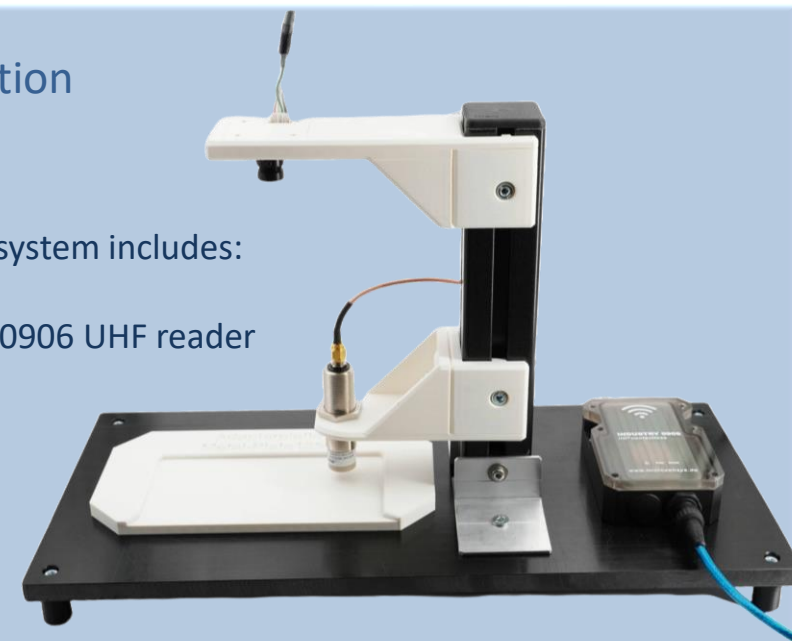
- Metal plate with integrated TAG-module
- iID® PENSolid PRO
- iID® EPCprogrammer Android App

Stationary solution

UHF programming system includes:

- HD camera
- iID® INDUSTRY 0906 UHF reader
- M18 Antenna
- Mini PC
- Web interface

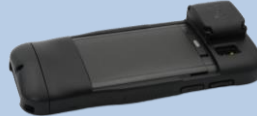
```
LOG
[12:00:06] Writing tag...
[12:00:14] Validating...
[12:00:14] ✓ Tag programmed successfully
EPC: 3019032000000000-
[12:00:16] Waiting for DataMatrix...
[12:00:16] Barcode:
018361654012023721AKB052480TR0000082513
[12:00:16] Place tag and press Program
[12:09:35] Pipeline stopped
[12:23:34] ~ live ~
[12:23:59] Connecting camera and reader...
[12:24:01] Waiting for DataMatrix...
[12:24:01] Barcode:
018361654012023721AKB052480TR0000082513
[12:24:01] Place tag and press Program
```



- iID® programming system UHF
- Stationary solution for production use*

Data input: File import · ORM / text recognition · Manual entry

Supports EPC decoding in accordance with the GS1 Tag Data Standard (TDS).

Mobile reader	Picture	OEM modules	Picture	Fixed readers	Picture
<i>iID®PENsolid PRO UHF</i>		<i>iID®module TC78 BML UHF LEGIC</i>		<i>iID®INDUSTRY 0906 HF /UHF</i>	
<i>iID®POCKETwork PRO HF LEGIC</i>		<i>CT47 SLED HF/UHF RFID Reader</i>		<i>iID®M30 HEAD HF/UHF</i>	
				<i>iID®M18 HEAD HF/UHF</i>	
• Support Bluetooth connectivity to tablets and smartphones. • Standalone EPC decoding into GS1 element strings using integrated firmware and scripts. • Outputs decoded data as keyboard input in GS1 element string format.		<i>iID®board Q8/Q10</i>		<i>iID®M8 HEAD UHF</i>	
		Handheld devices supporting UHF RFID and employee badge reading.		Readout and decoding using software installed on the host device.	

Sensor applications



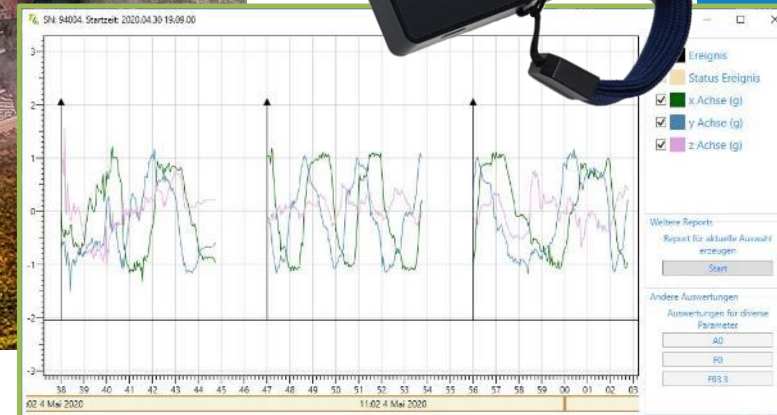
Checking screw connections



- Improve the safeness of trails with monitoring of fixation of screws
- Long term monitoring of screw connections for **rails, rail switches and sound barrier walls** based on passive RFID sensor transponders TELID® 260
- Intelligent nut allows preload forces on screw connections to be measured contactless and in real time without changing the connection in any way

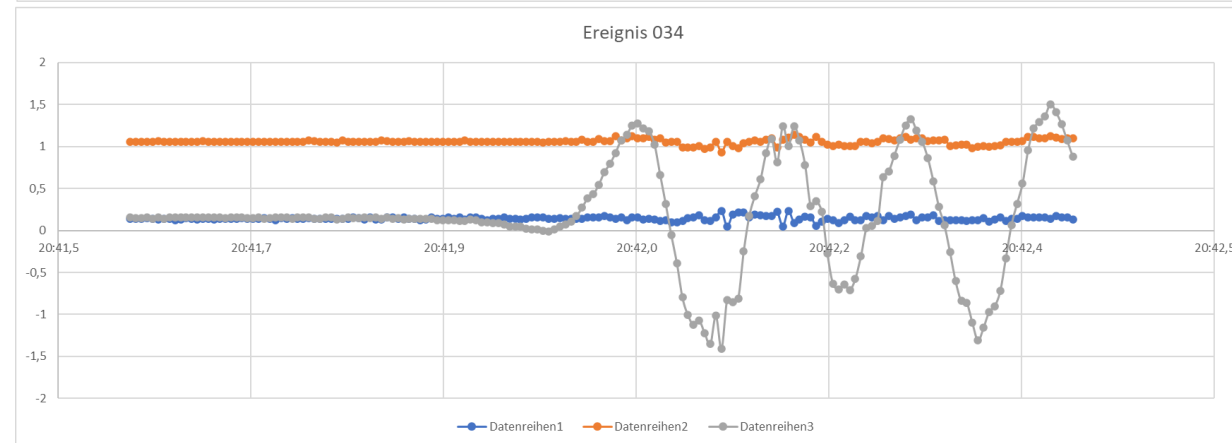
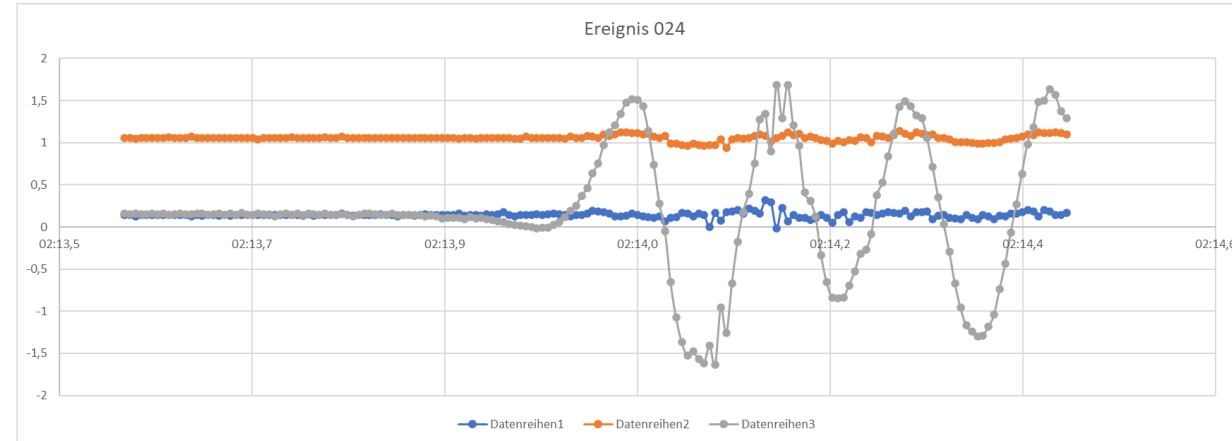


Predictive maintenance – for trains & rails



- Reduce your costs and planning effort for the maintenance process for trains
- Based on the course of the vibration, material and environmental related changes during use can be recognized at an early stage
- Detect material fatigue and reduce unplanned downtime

Acceleration sensor for Infrastructures





microSensys

MAKE THINGS WIRELESS

Please contact info@microsensys.de

microsensys GmbH
In der Hochstedter Ecke 2
D 99098 Erfurt
Germany

TEL	+49 361 59874 0
FAX	+49 361 59874 17
EMAIL	info@microsensys.de
WEB	www.microsensys.de