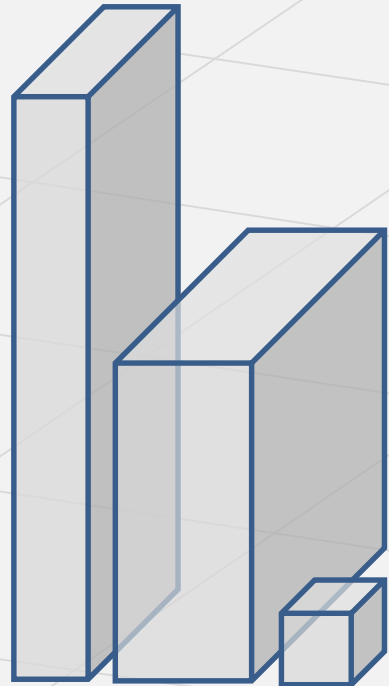


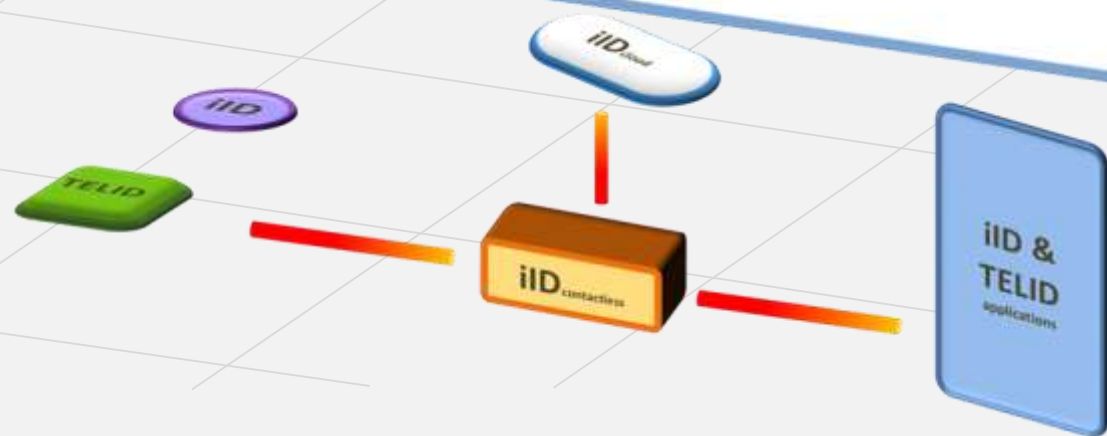
# Monitoring of medical technology accessories using RFID

# Where is microsensys technology placed, our goal and mission



Real Objects

microsensys connecting the **REAL WORLD of THINGS**  
with the **VIRTUAL WORLD of DATA**  
RFID technology is our mission and passion.  
We are continuously looking for stunning innovative solutions.



Virtual Data

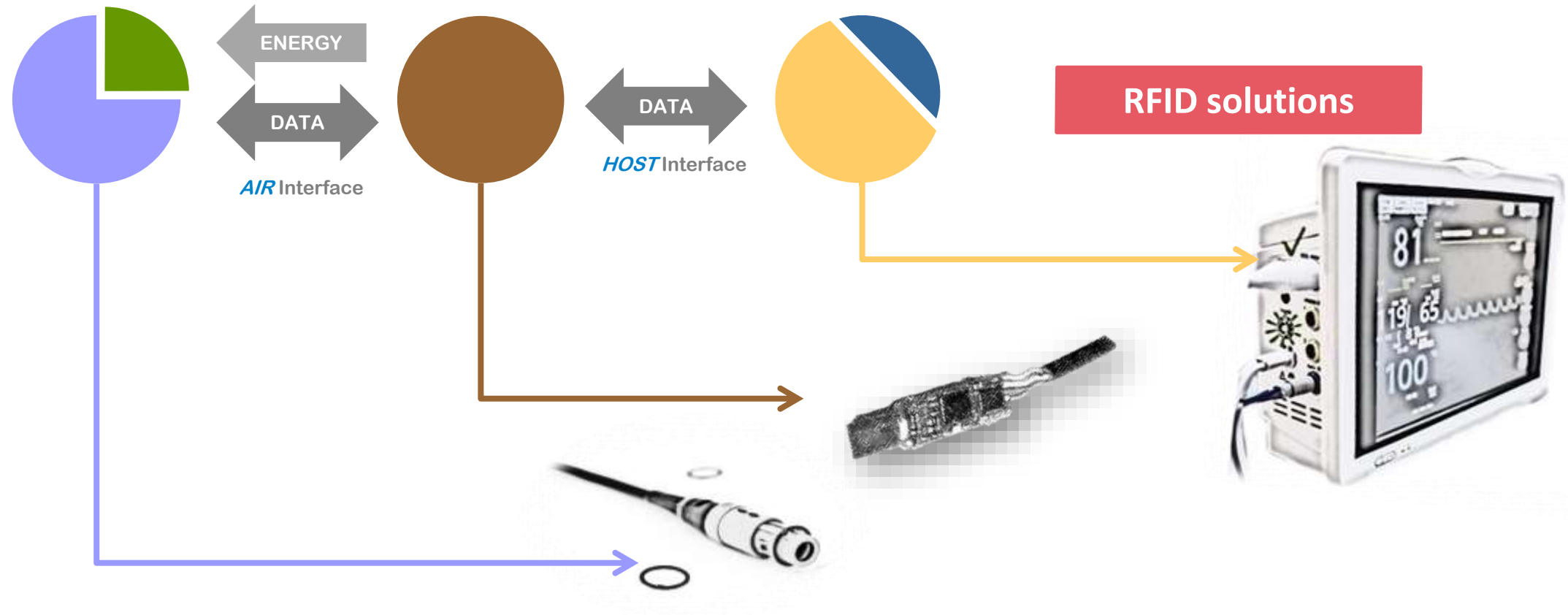
# RFID Components and System Structure

Transponder  
Sensor

Read/Write Units and  
Modules

Host Device

System Integration

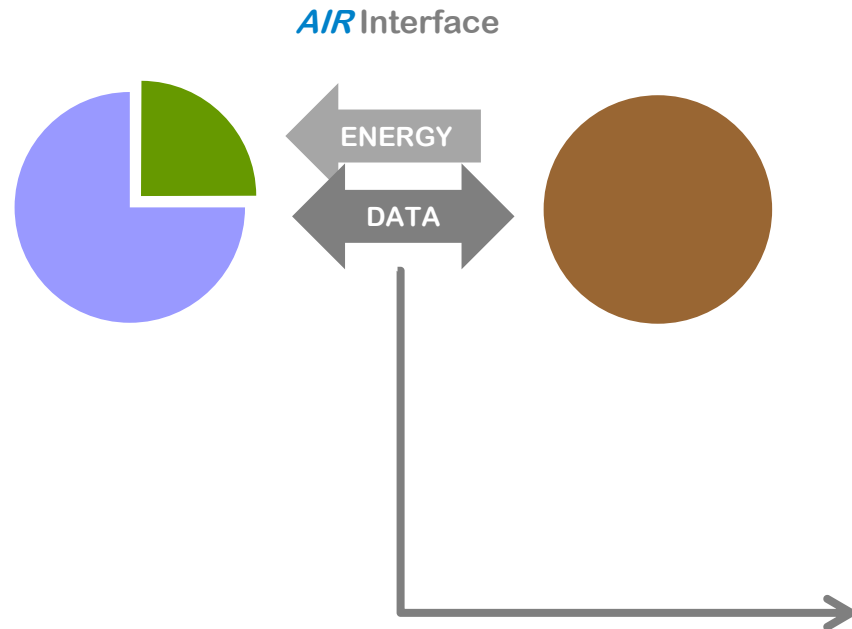


# RFID Air Interface

## frequencies and protocols

Transponder  
Sensor Transponder

Read/Write Units



worldwide ISM regulation:

advantages / disadvantages

### LF – 125-134KHz

based on inductive coupling, mid range comm. distance, **low data rate**

### HF – 13.56MHz

based on inductive coupling, **short distance**, **high data rate** (up to 848kbps), **worldwide one frequency**, **high power transmission** (1mW)

### UHF – 868, 915, 940MHz

based on electromagnetic waves, **long distance comm.** (up to 2m), **bulk data capture**, **very low power transmission** (1μW), **very high field absorption in water**

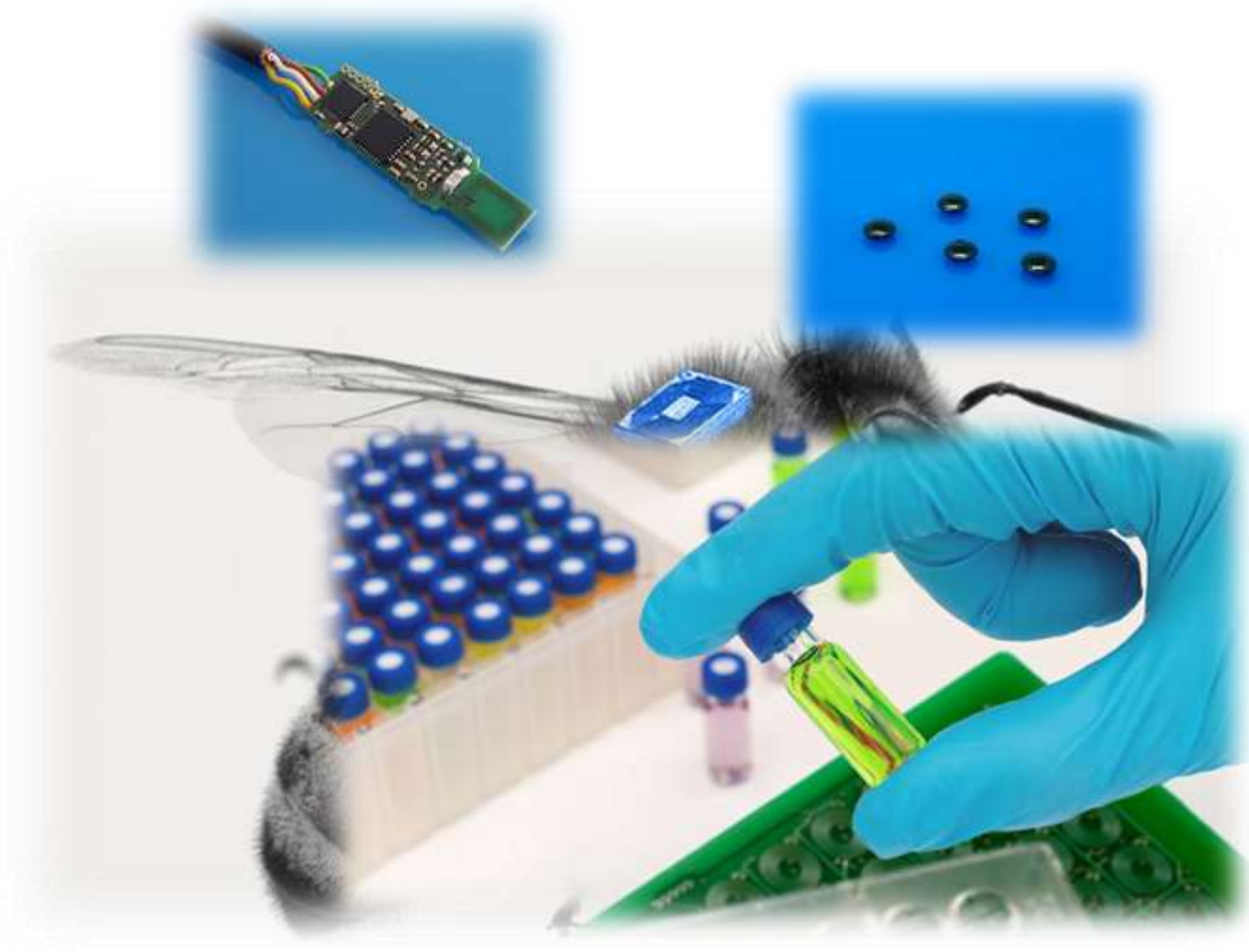
protocol standards:

different ISO standards, EPC ....

special security solutions: Mifare, LEGIC, NFC ...

# Our RFID-Components - Advantages

- Contactless
- Miniaturized
- No Battery
- Long lifecycle
- Functionality in harsh environment
- Sterilizable
- Extra high level of data security
- Easy customization
- Simple integration in a medical device
- Meets international standards



# Identification of Replacement Parts & Disposables

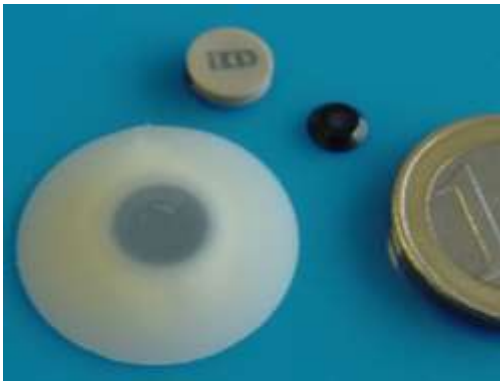
iID-MINI-TAGs and customized reader modules



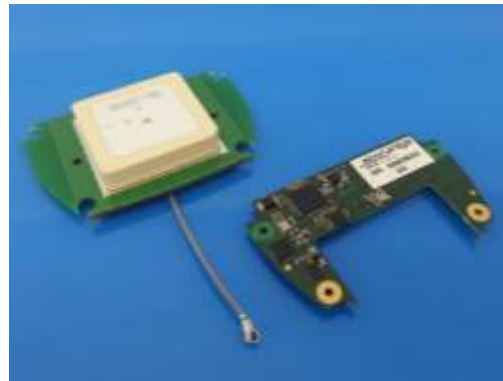
MINI-TAG D7 in HF and UHF



Q10 module HF



Other TAG packagings



Customized module UHF

## Unique Identification and Brand Protection

- Closed coupling system solution
- Communication distance: approx. 1 mm HF  
approx. 2 cm UHF
- Security features available:
  - ▶ *OTP*
  - ▶ *Password*
  - ▶ *Authentication*
  - ▶ *Encryption*
- Customization of reader equipment

## Measurement of Consumption State

- Using of TELID-TAGs (conductivity measurement)
- Storing of using cycles at disposables

# Surgical Instrument Tagging

best with *mic3*<sup>®</sup>TAGs or TAGs on metal and *iID*<sup>®</sup>PEN readers



mic3<sup>®</sup> Chip on



Tagged Instrument

## Medical Instrument Identification

- for identification of instruments and sterilization process control
- life cycle management

## Applications & Features

- ensure a fully documented lifecycle of a single instrument available as data on the object
- sterilization at 136°C possible and 3.2 bar **autoclaving process**
- brand protection



iID<sup>®</sup> PEN readers



MINI-TAGspecial 4.0

## Hedström File with mic3<sup>®</sup> 64RO

- smallest transponder world wide

## MINI-TAGspecial 4.5

- mounting in metal
- worldwide unique identification

# Process monitoring

Best with iID®DESKTOPsmart and TELID®311



Washing mashines in Hostipal

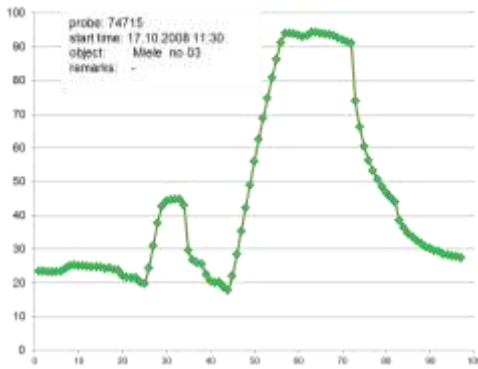


iID®DESKTOPsmart with TELID®311

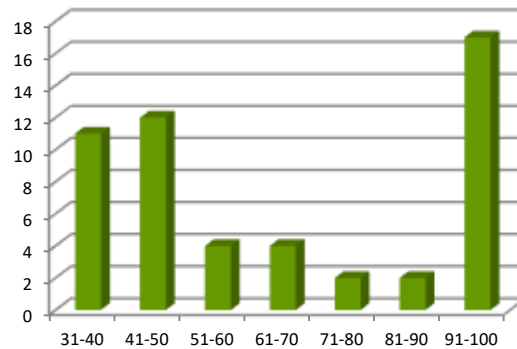
## Supervision of cleaning and disinfection processes

### TELID®311 Temperature Data Logger

- **System:** iID-3000, 13.56 MHz, based on ISO 14443
- **Memory:** 256kbit E<sup>2</sup>PROM, 8,000 samples
- **Dimension:** D27 metal or peek
- **Working Temperature:**
  - ▶ -45°C ... +125°C
  - ▶ -30°C ... +140°C *sterilization proofed*
- **Accuracy:** +/- 0.5°K, calibration available
- **Protection:** IP65
- Mounting on metal possible
- **Operation modes:** Sleep, Stop Full, Roll Over
- Definition of starting time, measuring time intervals, temperature limits in *TELID®soft*



Temperature curve of TELID®311

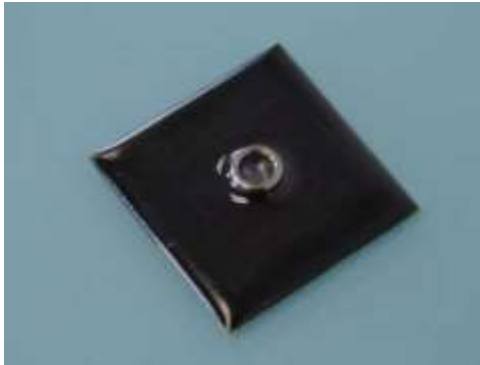


Temp Histogram

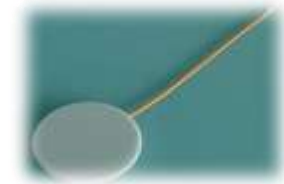


# Intracranial Pressure Measurement

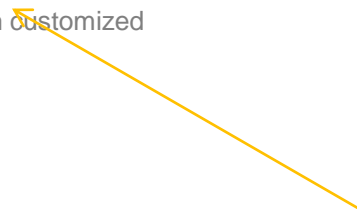
development of customer specified products based on microsensys standard products *TELID®200*



TELID®242 standard basic device



TELID®241.rm customized



## Passive RFID Sensors TELID® 241.rm

Pressure Range	500 ... +1200 mbar, abs.
Resolution	0.1 mbar
Accuracy	+/-0.7 mbar
Temperature	+5 ... +45°C
Resolution	0.1 degree
Size	D 25 mm
Sensor-Needle	D1.5 mm
RFID Front End	ISO14443
ADC	16bit
EEPROM	256bit
	ID-No (OTP) calibration data encryption und checksum
Sample Rate	5 Hz
EEPROM und sensor access with pass word	



iID® POCKETwork



iID® M30 HEAD 232

# Create results in the medical techniek with the products of Micro-Sensys

- Risk minimization for patients and medical staff
- Data Management
- Trademark Protection
- Cost Reduction
- Improvement in the Quality Management

**microsensys GmbH**

In der Hochstedter Ecke 2  
D 99098 Erfurt

TEL +49 361 59874 0

FAX +49 361 59874 17

EMAIL [info@microsensys.de](mailto:info@microsensys.de)

WEB [www.microsensys.de](http://www.microsensys.de)

