



SHORT-RANGE WIRELESS IOT BENEFITS FOR AUTOMOTIVE INDUSTRY

traceability • parts management • WIP • savings



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Confidex is the world's leading manufacturer of high-performing contactless smart tickets, modular industrial-grade beacons, RFID and NFC tags and specialty labels – the key enablers for short-range wireless IoT solutions that make industrial supply chains, transactions, asset tracking and authentication of goods more efficient and secure.

Over a decade in IoT

With strong combination of tag design competence, RF engineering, customization and manufacturing experience, our products and solutions serve demanding operating environments, like automotive industry, logistics and public transport. Since 2005 Confidex has become the trusted partner for system integrators and end users of INDUSTRY 4.0 technologies throughout the world.

IoT Applications and Benefits for Automotive Industry

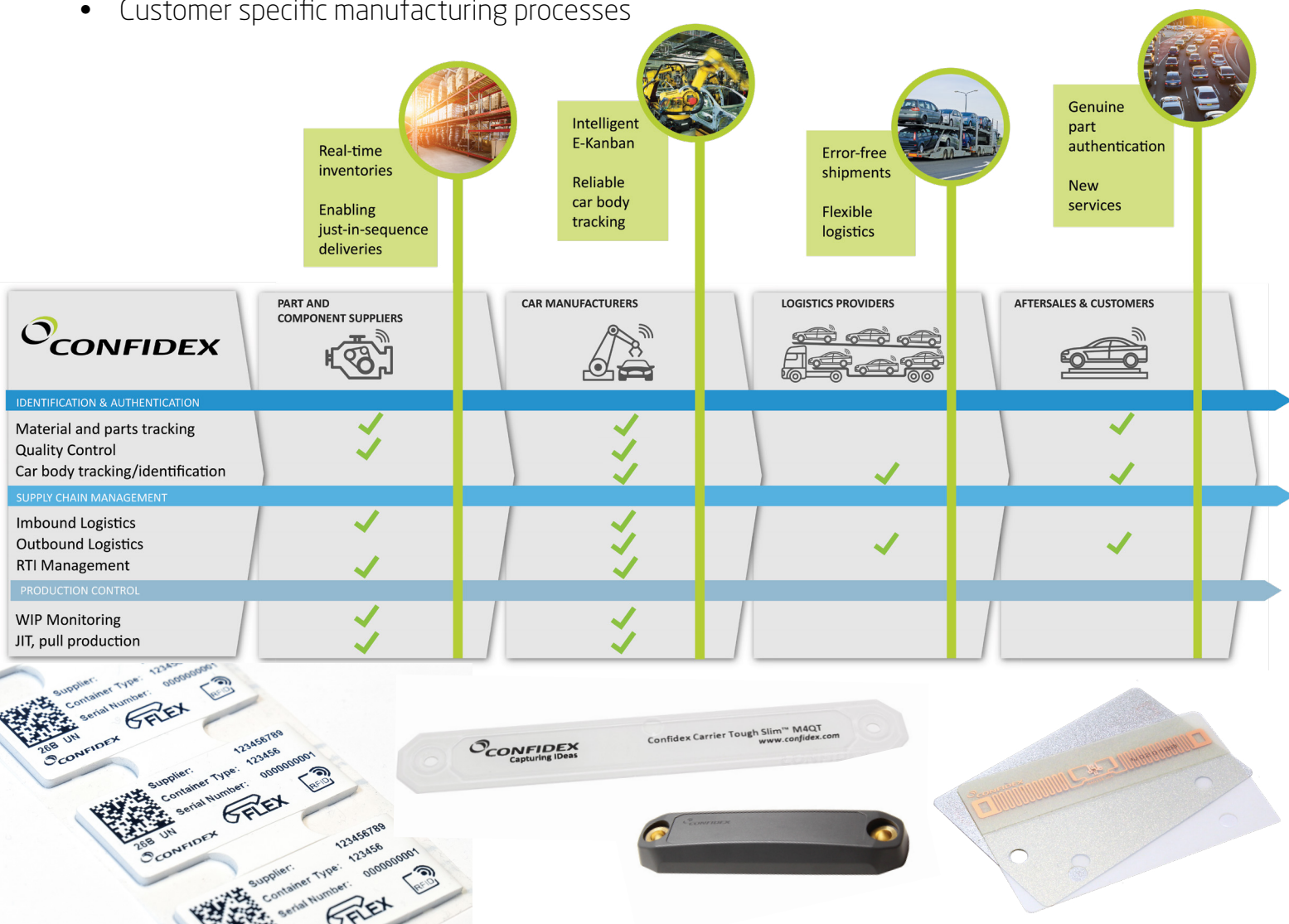
In a car factory, time is money.

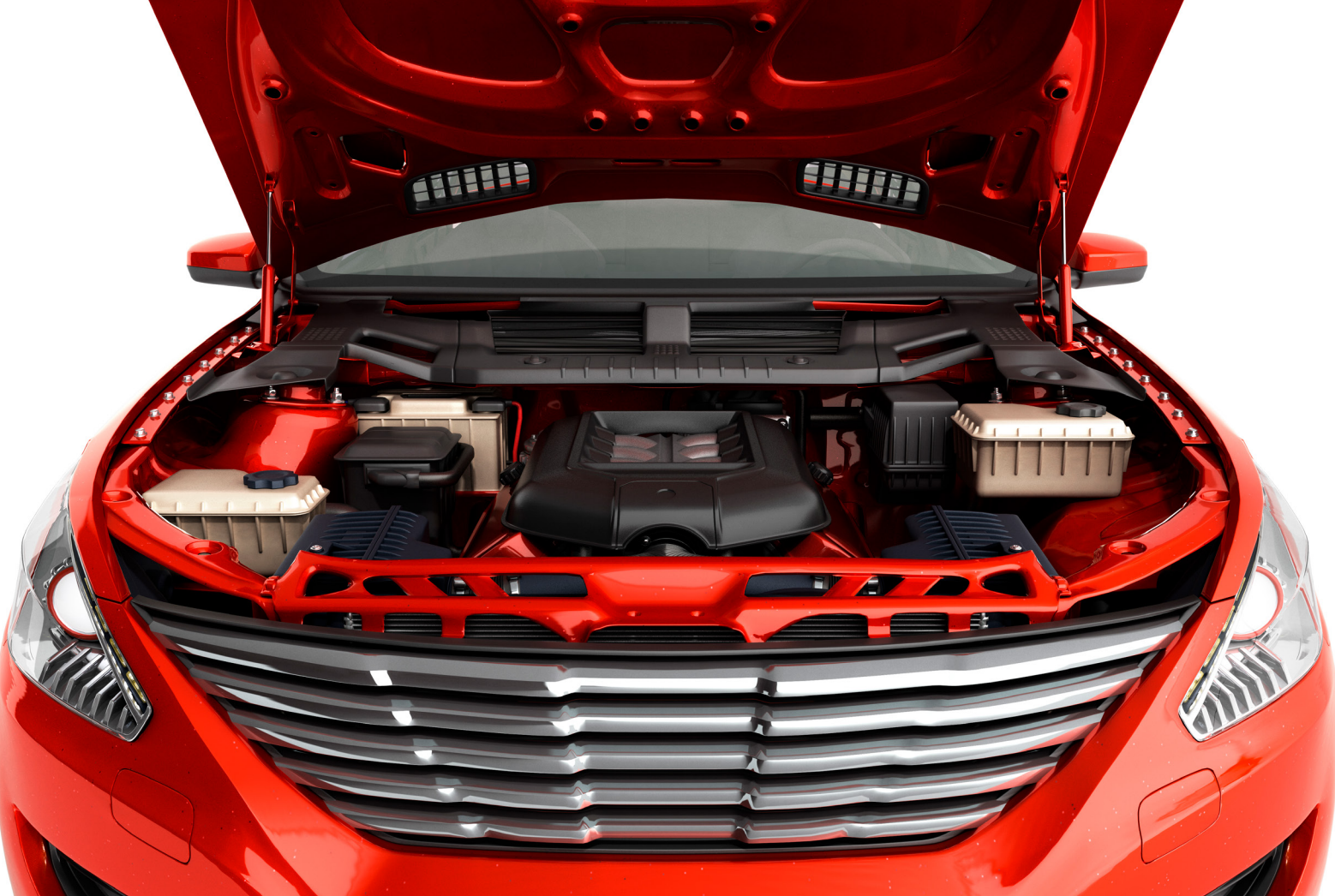
Industrial-grade Confidex short-range wireless IoT is your choice when system reliability is the top priority.

Confidex's product portfolio includes vast offerings of industrial-grade BLE beacons, RAIN RFID and HF/NFC tags and labels, designed in cooperation with many leading car manufacturers.

These can be used for enabling smart manufacturing processes, such as:

- WIP in demanding environments
- Car body manufacturing with high temperature & chemicals
- Parts and components tracking
- Container tracking (plastic and metal)
- Outbound distribution
- Customer specific manufacturing processes





Product authentication to combat counterfeits

How to make sure that your equipment's warranty is in place? How to be sure that the correct part is used for an assembly? What if your subcontractor is using wrong parts or saving money by using a counterfeit sparepart?

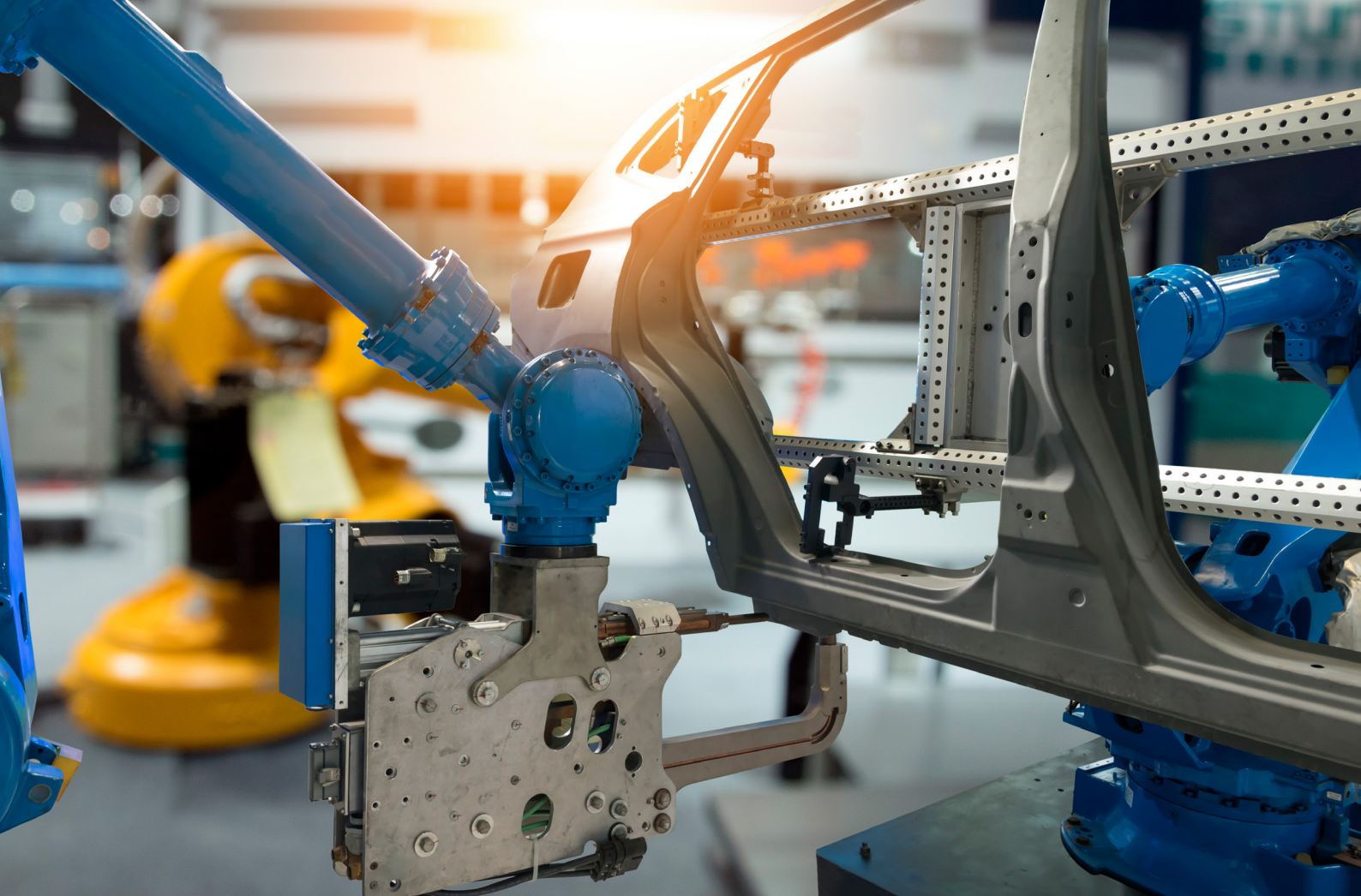
When building a secure structure or entity, you need to be sure that you won't end up being sued for risking the safety of people with unsecure structures.

The risk is huge, but the solution is small and simple. NFC offers a trusted, intuitive way to perform identification and authentication of individual products. NFC tags and labels work through unique electronic identifiers (IC UIDs), to uniquely identify items and help trace them through the supply chain. NFC technology, with built-in security features, allows you to tag all parts and components and have them authenticated - and as every worker is carrying a mobile phone these

days, the access to a reader is not a problem nor an investment. The only thing you need to do is to set the guidelines in place and make sure that your contractors or workers know to check the correct parts.

According to the need, NFC tags come equipped with different IC security features to support different levels of protection, based on a product's values and safety requirements, as well as supply chain vulnerabilities. Higher-security IC's equipped with AES cryptography can support advanced authentication schemes.

Secure NFC technology can also be used to quickly confirm the originality and provenance of important documents, such as product certificates.



Prototype parts management

The prototype vehicle and parts management can be done efficiently with RAIN RFID solution. Automotive manufacturers, like Porsche, utilize a system including tags and readers, which allows the manufacturer to identify and confirm the exact components, which are included in the prototype during its testing period. RAIN RFID enables locating the movements of the prototype, when it's transferred to and from a parking lot. With BLE technology, you can point out the exact real-time location of the vehicle.

The complexity of the testing process of a new car brings challenges to prototype management. The testing takes place at many locations - on and off the large facility, at road and in lab environments. The engine testing is only a part of the car and already a complex assembly of hundreds of components, which are tested in different combinations. As the development of a new car model is a crucial process and quality expectations are high, the

same quality expectation goes for the prototype components tracking & identifying system.

Confidex tags and labels are designed for demanding manufacturing environments, where chemicals, impacts and high temperatures occur. The system is as reliable as its core component, the RAIN RFID tag.

The performance of Confidex RAIN RFID tags or BLE beacons can be designed and optimized for each application. With RFID the basic requirement in prototype component tracking is the writing of long serial numbers and other details relating to the part testing. For this purpose a special IC is needed with large memory capacity. Other important features include the form factor, shape and size, which affects the RFID antenna performance. With Confidex products, you can rest assured that the requirements are easily met.



Intelligent parts replenishment

Automated eKanban processes utilize RAIN RFID solutions, where each eKanban label includes an RFID tag. When a replenishment is needed the information goes in real-time to the system, improving the accuracy and speed in just-in-time parts management. This efficient system makes the eKanban even more cost-efficient, when manual ordering of parts is not needed. With RFID parts replenishment large inventories are also in the history.

Real-time visibility enhances both the internal and external supply chain. Smaller batches can be ordered fluently and the supplier can already label the parts at their end, making the process easy to follow-up by shelving the boxes at the vehicle manufacturers warehouse.

The implementation of RAIN RFID-based eKanban demands tag solutions for different process steps and various load carrier variants. This also includes metal or ESD load carriers that require a dedicated RFID tag design.



Supply chain management & container visibility

Outbound parts logistics and container management receive great added value from RAIN RFID tracking. The RAIN RFID tag or label can be placed directly on the component, on the container - or both. When the parts bypass a reader station the gate automatically identifies each part's identity and serial number.

With Confidex industrial-grade tags and labels the tagging can be done in various processes and weather conditions. The tag features can be optimized to withstand washing, chemicals, impacts, and if needed, the tags and labels can also include human readable visual data.

Usually metal surfaces make challenges for the RFID antenna, but special on-metal labels like Confidex Silverline are reliable and easy to implement: the labels come in reels and are printable. Different form factors and features enable tagging

of various surfaces and materials. The risk of a ripped, unreadable barcode label does not apply to RAIN RFID label, when the IC is secured within the tag's structure. The long lifecycle of an encapsulated RFID hard tag brings great profit to the investment: no more missing valuable metal containers. Disposable RAIN RFID labels on the other hand makes the labeling easy with high volume items such as cardboard boxes.

Supply chain management and container tracking are the most commonly used RAIN RFID applications in process industry, as the business benefits are easy to achieve. No more missing assets or frequent inventories. The RFID tagged part or container is accurately identified when it arrives and leaves the facility or a work station.



Identifying car body through-out WIP

Industrial-grade, robust passive RAIN RFID tags are capable of withstanding the harsh conditions of car manufacturing, from the beginning of the body shop until the end of final assembly. But it is not just the endurance that car manufacturers are after, it's the reliability it can provide: with the Confidex Corona tag the process yield is 99.96%. With a RAIN RFID real-time production monitoring system all car body related data is available continuously, such as body number, color and status.

One of the most demanding phases of car manufacturing is the paint shop, where the car body goes through several chemical and coating showers and baking ovens.

When a RAIN RFID body tag replaces the old solution, typically consisting of several ID technologies, the whole process becomes more lean. With dedicated automotive RAIN RFID suppliers such as Confidex, the car manufacturer can continuously develop and improve the performance of the tag and process yield.

In many cases complex and demanding manufacturing processes need unique tags. Confidex Design Studio services provide custom development of unique short-range wireless technology products. The developing process includes vast material know-how, testing - and often new innovations, which are based on deeply understanding the car manufacturing process and customer's quality expectations.



Component traceability at work stations

What makes RAIN RFID tag special for component tracking is that the tag can be part of the final product: it can be painted over, it can include brand protection data, or it can be used for identifying the component after years of usage when the part needs to be replaced with an original spare part.

With an RFID tag or label the reading orientation at a work station can be 360°. This enables reduced labor costs and efficiency, when operators do not need to pick up a barcode reader during the production process.

RAIN RFID provides 100% traceability through production, including off-site shipping for painting or testing. An industrial-grade RAIN RFID identifier can also be integrated to MES for real-time

updates.

Component's RAIN RFID tracking ensures that outgoing shipments include the correct outbound products. This enables reduced labor costs and error-free shipping of quality products or loading onto the incorrect truck.

The RAIN RFID tag can be attached either to the component itself or e.g. a metal rack holding the components.

With short-range wireless identification technology no more wasted labor is spent annually inspecting pallets or containers, or searching for their location within the factory.



Error free outbound distribution

The RAIN RFID reel format car distribution label is applied automatically to optimize correct distribution from factory. The label installation reduces waiting times and eliminates human error. It's designed to tolerate the weather, and doesn't leave any residuals when removed.

With Confidex RAIN RFID car distribution labels the entire loading process of finalized cars is optimized and accelerated. Final RAIN RFID reading and verification can be done at the entrance of each carry vessel: truck, train and ship.



Locate missing containers or vehicles indoor & outdoor

Confidex industrial wireless identification technology is used every day in demanding industrial applications. One of the key applications relates to locating metal containers or assets, such as vehicles.

Confidex BLE technology provides a long-lasting solution for generating savings. When less personnel is needed in searching for missing assets their work hours can be used for more productive tasks.

The solution is reliable as Confidex BLE beacon's sealed mechanical structure is not compromised at any point during its use. This makes your industrial and outdoor applications work as required: for many years, without extra maintenance costs.

The product user interface was also designed with security, usability and productivity in mind. Confidex beacons are integrated with a secure NFC

interface for configuration. Confidex beacons can be only turned on/off through the NFC interface, which prevents malicious turning off of beacons in public environments. Eddystone-EID™, a highly secure identity, further ensures the security of your solution over the Bluetooth interface.

Thinking about many possible customer applications, Confidex BLE beacons are built on a modular set of features, all packaged into a durable encasing. As our customer, you can select the desired features and sensors to meet your specific use case.

Confidex BLE beacons are truly optimized for your specific application. Whether there's moisture, dust or mechanical impacts present Confidex beacons are designed to last and locate your asset reliably whether inside a factory or outdoors in a parking lot.

CONFIDEX DESIGN STUDIO

Are you looking for a custom solution or something completely new, for high volumes? Let's work together to make it a reality.

Confidex is your partner for demanding industrial-grade IoT product design.

In addition to our LINKS by Confidex™ modular product offering, our services can provide you with uniquely designed short-range wireless technology products for your specific needs. From requirement of an additional attachment method or a data matrix label on top of a tag, all the way to creating a totally new tag, label or beacon design - challenge us and let's find the solution together!

Let's start to co-operate today and solve your business challenges!

CONTACT US

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LINKS BY CONFIDEX™

- INDUSTRIAL-GRADE TAGS AND LABELS

Reliable data built on Reliable LINKS - Confidex enables Industrial Digitalization

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Global presence

With our global network of partners we serve customers representing a broad range of industries in Europe, Americas, Middle-East and Asia Pacific. Among our partners and customers we are known for our passion to excel. Find out more at www.confidex.com



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