

## Battery module production

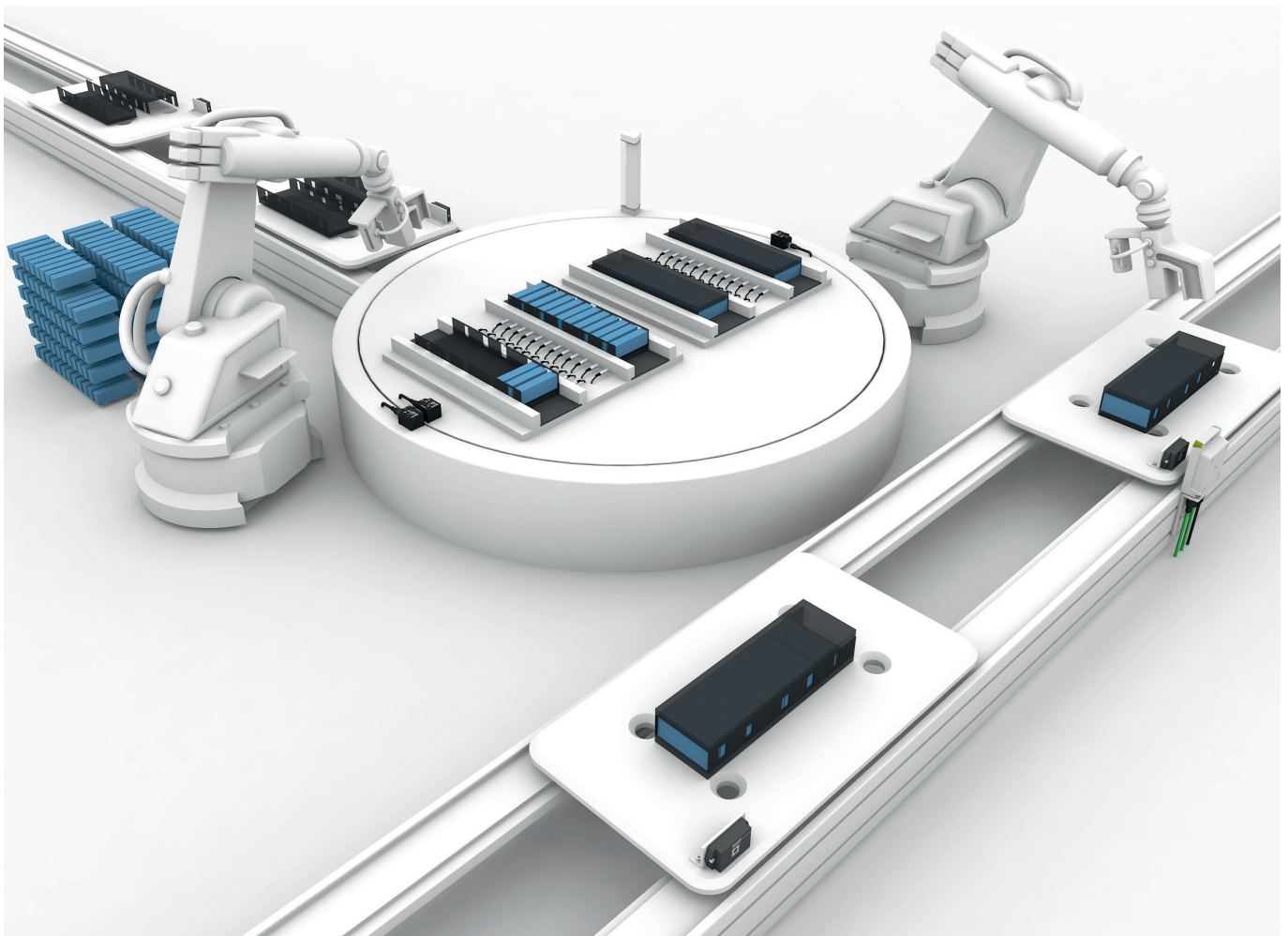
# TRACEABILITY AND FLEXIBILITY IN ALL PRODUCTION STEPS

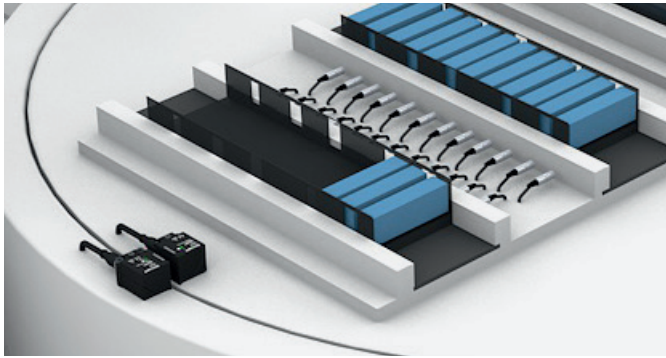
Uninterrupted traceability of all production and origin related data is indispensable in battery module production – only then can the process steps be checked for all components and quality assured. Balluff is at your side for these tasks with a wide range of RFID systems.

Our RFID products ensure that the battery packs built into the electric cars are made up of the correct battery modules. To do this they check each individual cell in the battery modules and each single module of every pack.

Through a broad product range and various combination options of data carriers and read/write heads Balluff ensures a perfect solution according to your production requirements.

Balluff makes changeovers in your production line easy. Our expert support in the automation of your battery manufacturing means you can respond immediately to new developments. This enables you to meet new requirements and processes quickly.

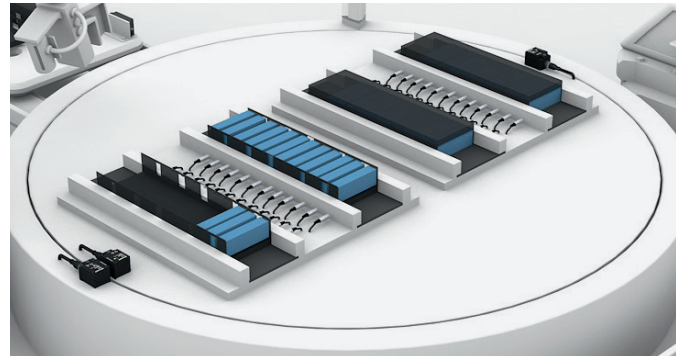




#### USING INDUCTIVE COUPLERS TO FLEXIBLY TRANSMIT DATA AND POWER

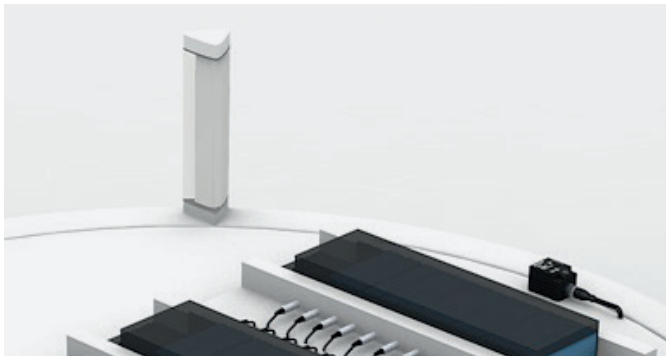
Rotary index tables require that data be transmitted from rotating to fixed machine parts, a problem that is traditionally solved using slip rings. But these are subject to high mechanical forces, so that they wear and end up causing failures and expensive downtime. The remedy is **inductive couplers** from Balluff: They transmit power and signals for sensors and actuators over an air gap of up to 5 mm quickly, reliably and with high performance. Thanks to the convenient M12 connection, your assembly and installation time is short.

And plug-and-play means replacement is simple and fast. Our inductive couplers ensure short cycle times, flexible processes and high equipment availability.



#### RELIABLY CHECKING POSITIONS USING INDUCTIVE FACTOR 1 SENSORS

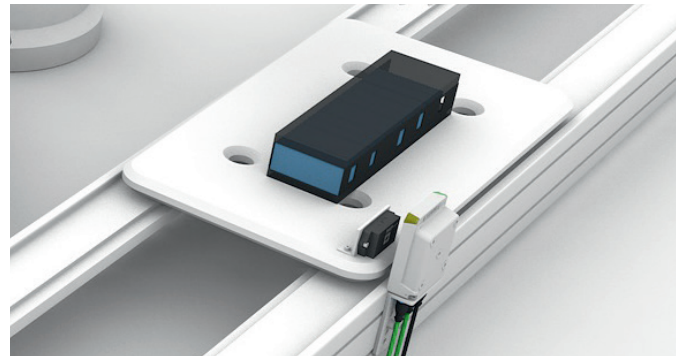
Wherever there is automation, non-contact position detection of metallic objects is needed. Particular value is placed on reliability and freedom from wear. Here our **inductive Factor 1 sensors** are ideal. They provide the same switching distance with any metal – this means no reduction factor. This consistent switching distance means high process quality and vastly increases the flexibility in the design of your systems and in the installation of the sensors themselves.



#### VISUALIZE PROCESS WITH FLEXIBLE SMARTLIGHTS

Our **SmartLight LED stack light** indicates operating states using a flexible, diverse color spectrum. You can individually define all the colors from the controller and have important or critical machine and equipment states displayed. Different colors can be assigned with just a few commands, without having to make mechanical changes to the LED stack lights. IO-Link ensures that installation is quick and easy and changes can be made on-the-fly.

The SmartLight stack light offers four programmable modes of functionality: segment or stack light, level indication, run light, and flexible mode. Additionally, a SmartLight stack light with a buzzer option is available for audible feedback. They also feature an optional integrated sound module for acoustic indicators.



#### AUTOMATICALLY IDENTIFY AND TRACK PARTS WITH RFID

When you need to track parts in automation environments **RFID** from Balluff is the first choice. Its non-contact identification makes every single production step and each material used traceable. All the data is automatically collected and documented in real-time. This full transparency ensures you of high product quality and allows you to respond to changes flexibly and at any time. Another plus: RFID data carriers can be read and programmed as many times as needed without visual contact, even when contamination is present.