# Fully Automatic Component Tracking for Prefabricated Home Production

Convenient Track-and-Trace with RFID Technology

## The Application

Modern prefabricated homes are preproduced according to buyer requirements. To meet the high demand for customized designs and short production times, manufacturers have started working toward extensive process automation that still leaves room for individual variation. Because of this, the ability to automatically track and record components and production steps is becoming more important.

As the required materials, such as wood, are cut to length, trimmed, and milled into shape, they must be recognized and localized. Once these production steps are complete, they must be logged before the components move on to assembly.



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## The Goal

The components must be correctly allocated to customer orders to avoid the high costs associated with production and delivery errors. In addition, bottlenecks must be identified more quickly and the production process must be optimized, leading to a reduction in storage costs.

At each processing station, the right components must be combined and assembled according to the order. To ensure this, it must be possible to precisely locate and identify the components in production. Data must be recorded continuously throughout the entire production process, right up to preparation for dispatch and delivery. Dust, dirt, and radio signals must not interfere with this.

## The Benefits

RFID technology enables reliable and convenient track-and-trace applications. Combining it with additional sensors and intelligent software creates a total solution for recording whole processes. It becomes the core element of automation.

Pepperl+Fuchs is a single-source supplier of these kinds of turnkey solutions for prefabricated houses. Read/write heads, tags, control units, other sensors, and connection technology are tailored to the application using customer-specific software. Integration and employee training are carried out on-site by the experts from Pepperl+Fuchs. The corresponding after-sales service completes the solution and makes Pepperl+Fuchs a reliable partner for prefabricated home production.

## The Solution

RFID technology is ideal for identification and localization tasks in prefabricated home production. Each component is equipped with a tag that can be detected by UHF read/write heads (for example, the F190 and F192) at a distance of up to 6 m, even without direct visual contact.

The IDENTControl control unit processes the data from the read/write head, stores the process step and production time in a database, and initiates the next step based on the continuously updated information. During the entire production process, the database links the component's tag data with the order data.

The complete automation solution also includes the necessary connection technology, the specific software, and the control units that receive the sensor signals and forward them to the control system and/or database. Additional photoelectric or ultrasonic sensors detect when an element is being fed to a workstation. As trigger sensors, they can be used in conjunction with the IDENTControl control unit to connect and disconnect the read/write heads. This helps reduce energy consumption and increase fault safety if no object is at the station.

### At a Glance

- Reliable, fully automatic detection of components

- Process information stored directly on the component and in the database

- Complete recording of all production steps

- One-stop shop for a complete solution, including customer-specific software

- On-site integration, staff training, and after-sales service

For more information, visit
**www.pepperl-fuchs.com/rfid**