SOLUTIONS FOR I 4.0
READY FOR SMART FACTORY?

IPC-HERMES-9852
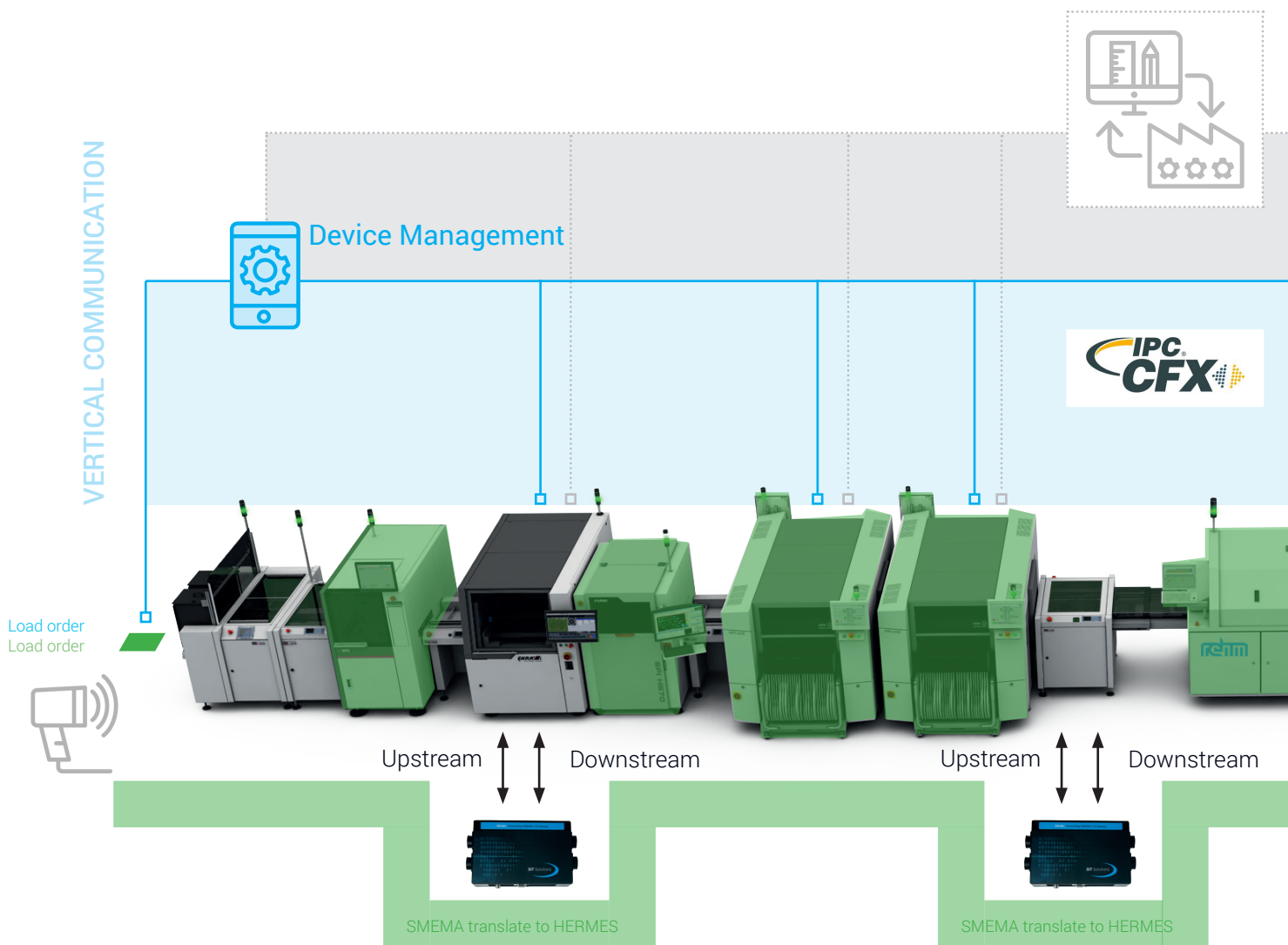
IPC CFX

SIT Solutions

Solutions for Industry 4.0

SMART FACTORY
Automation concepts for Industry 4.0

Smart Factory refers to a production facility in which manufacturing processes are optimized through automated systems and intelligent technologies. The aim is to increase the efficiency, flexibility and quality of production through the use of Industry 4.0 concepts such as Big Data, artificial intelligence and the Internet of Things (IoT). In smart factories, machines and devices are networked to collect and analyze data in real time. With the help of horizontal and vertical communication interfaces such as IPC-Hermes-9852 or e.g. IPC-CFX-2591, production processes can be optimized and bottlenecks can be detected.
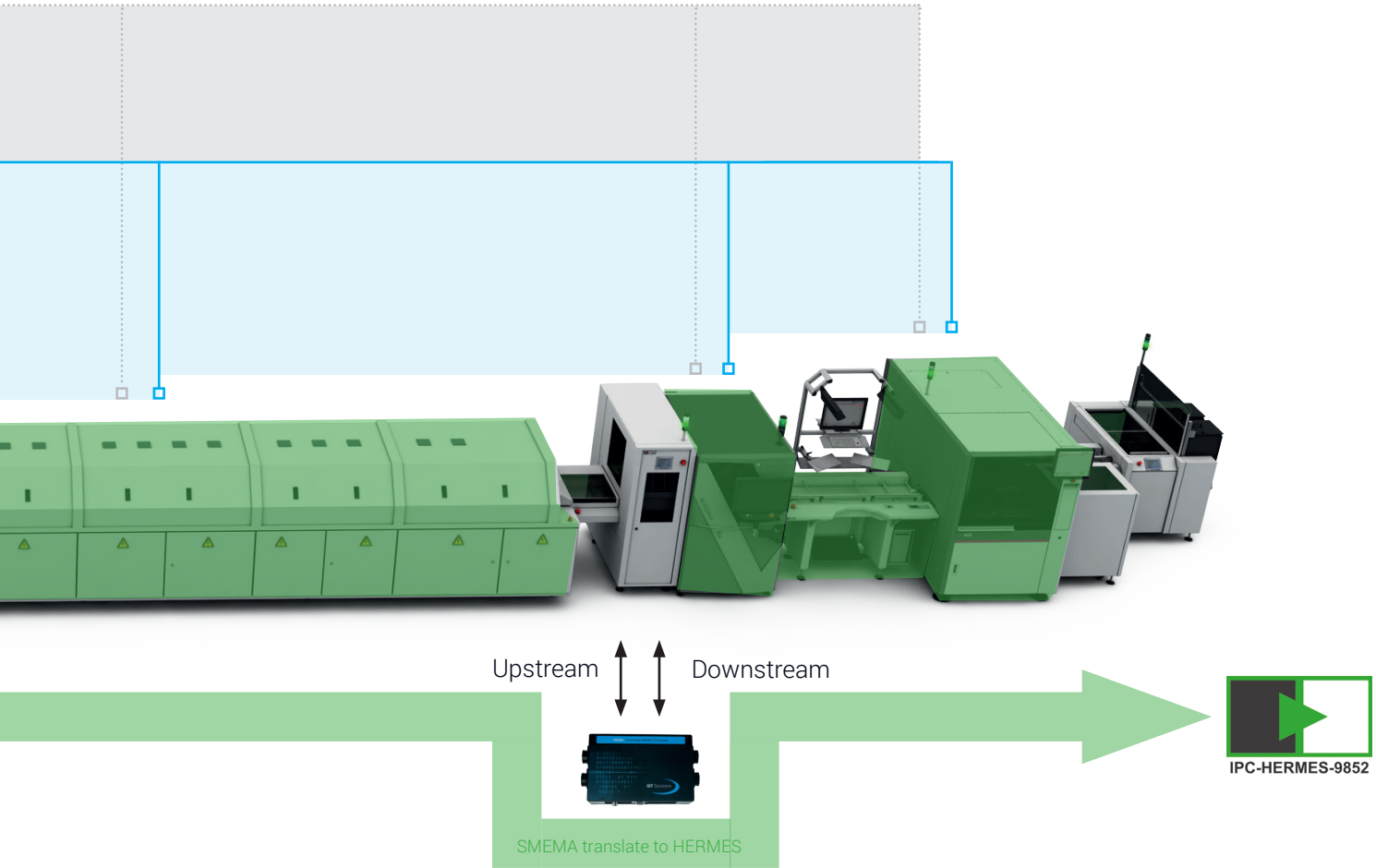
VERTICAL COMMUNICATION

Device Management

IPC CFX

Load order
Load order

Upstream   Downstream   Upstream   Downstream

SMEMA translate to HERMES   SMEMA translate to HERMES

HORIZONTAL COMMUNICATION

M2M
Communication standard
IPC-HERMES-9852

PCB
Data

REINSERT
via Mobile Device

IPC-HERMES-9852

IPC CFX

Manufacturing Execution System

Upstream   Downstream

SMEMA translate to HERMES

IPC-HERMES-9852

- Horizontal communication via Hermes
- Hermes not available
- Vertical communication via Device Management
- Vertical communication via MES

Automation
via use of robots

SMEMA Hermes Bridge

With the introduction of the IPC-HERMES-9852 standard, it is possible to pass on PCB-related data within electronics production from machine to machine via an open protocol based on TCP/IP and XML data. The previously used SMEMA standard will be replaced by Hermes.

Would you like to benefit from the new M2M communication standard IPC-HERMES-9852, but have production equipment that can only communicate via IPC-SMEMA-9851? For machines that are neither update-capable nor too expensive, there is now a solution.

SELMA Connecting SMEMA with IPC Hermes Standard

Selma - can help you close the gap of non-Hermes systems. Selma is designed to communicate with legacy equipment via SMEMA and convert these signals into Hermes telegrams and vice versa. For this, the SMEMA upline and downline cables are connected to the Bridge and the Ethernet port is connected to the Hermes network to interact with the upstream and downstream machines and is based on a Raspberry Pi CM4+ module.

The bridge is a hardware device with upstream and downstream SMEMA ports, an Ethernet port for Hermes connections to convert the SMEMA signals from and to Hermes telegrams.

Hermes Reinsert with Mobile Device

With the introduction of the Hermes standard, it is possible to transfer PCB-related data from machine to machine. But what happens if you want to remove an assembly from the line and insert it again at a certain point? For this purpose, we have developed the Mobile Manager solution with which you can easily restore your PCB data via a mobile device of your choice and an associated app, quickly and conveniently. You can also use this app to display the Hermes data for a barcode or load an order or a product - simply with a few clicks on the mobile device.
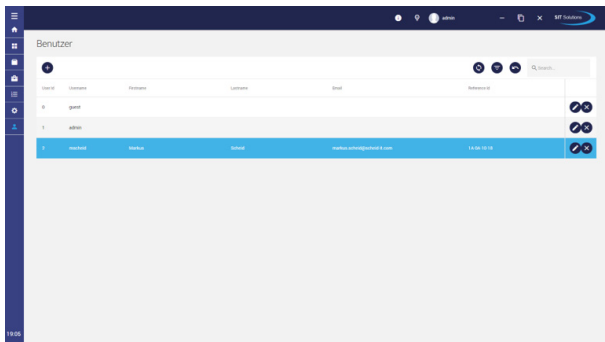

Zebra TC72

Keyence DX-A600GE

Linea Pro IPhone

Device Management

The Device Management software can be installed on a conventional computer or on a server. It allows you to monitor and control a complete line by managing all configured devices. In addition, Device Management has various modules integrated that can support you in your daily work. It takes care of order management, magazine management and product management. In addition, Device Management can be used for line management.

The horizontal communication of the production line is done by the Hermes standard, which is displayed on the Device Manager. A production history is used to log all production steps and their process data. With a mobile device, it is also possible to perform additional tasks based on this data. An OEE dashboard and an AMR manager are optionally available.

User administration

A user administration is used to assign specific user roles and their rights. It allows administrators to create, manage and delete user accounts and to grant access rights to specific functions. It can also be used to restrict access to the system and log user activity.
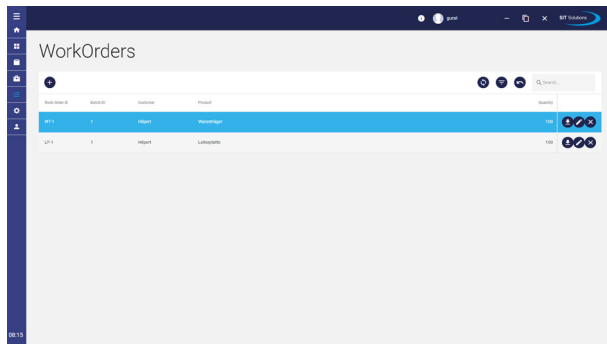
Production History | Traceability

Production history refers to the recording of information about the product and production parameters. Recording production data enables companies to evaluate the productivity and efficiency of their production processes, identify and correct problems and implement improvements. Traceability includes tracking the materials used in production and monitoring the production steps and tests performed during the manufacturing process.

Statistics OEE

OEE stands for Overall Equipment Effectiveness and is a key figure used in production to measure the effectiveness of machines or plants. OEE measures how efficiently a machine operates in terms of its availability, performance and quality. Statistics OEE refers to the analysis of OEE data to identify trends and patterns in the performance of machines or equipment. The analysis of OEE data can help to identify and improve weak points in the production process in order to increase overall equipment effectiveness and thus increase productivity.

Device Management

The Device Manager offers you further possibilities to manage all tasks in SMD electronics production as efficiently and transparently as possible.
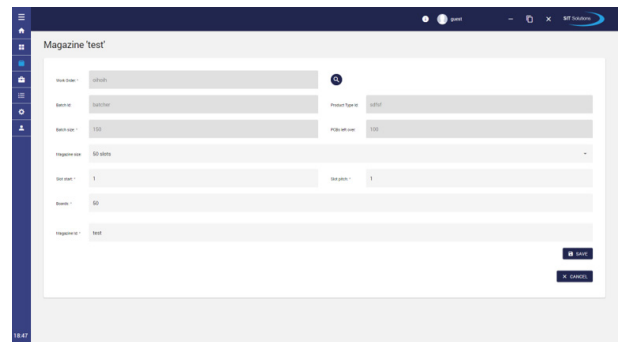

Order management

Management of all orders that were either created manually or synchronised via an MES. Here it is possible to assign further line-specific characteristics to the order. The order can be activated at the beginning of the line or on selectable machines in parallel. Together with the board forecast of the Hermes standard, a line can be changed over proactively without having to run it completely empty.
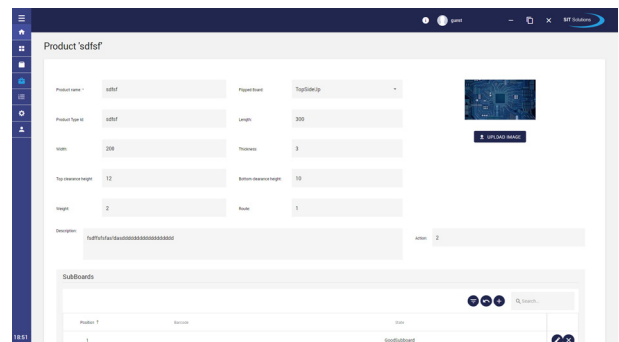
Magazine management

Effective magazine management helps to ensure that production runs smoothly and efficiently. Here, magazines are maintained in the magazine management. At the start of the line, the corresponding magazine can be identified and loaded via a scanner. It is also possible to use magazine data across lines. For this purpose, the data of the filled magazine is transferred back to the magazine management at the end of a line and is thus available for further production steps.
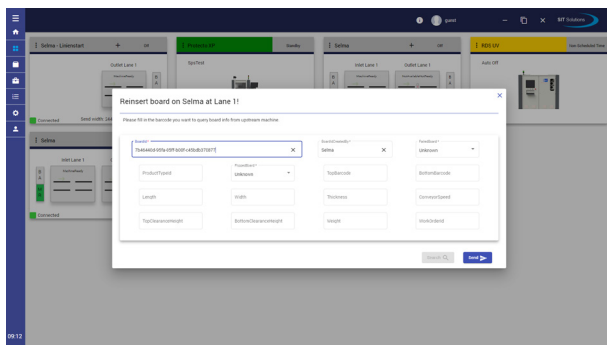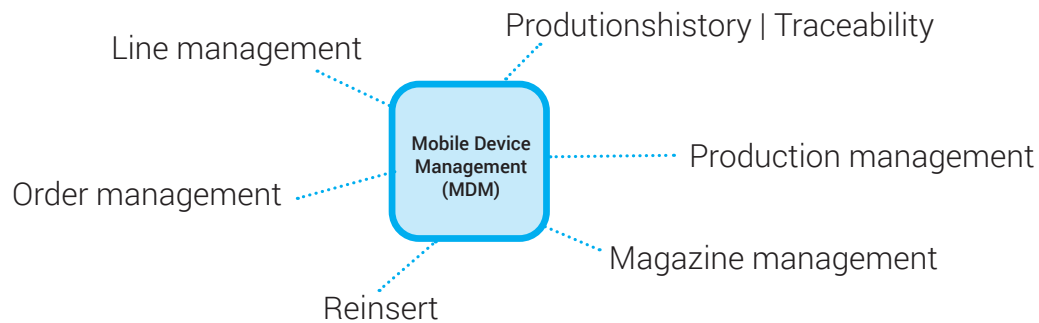

Product management

The product management refers to the products to be manufactured and the associated data to perform the manufacturing via the Hermes standard. Here, the data for the identification of the PCB itself, but also product data such as the product type ID, position, length, width, thickness and the component clearance are maintained. This data is necessary later in the process for smooth production.

Line management

Produtionshistory | Traceability

Mobile Device Management (MDM)

Order management

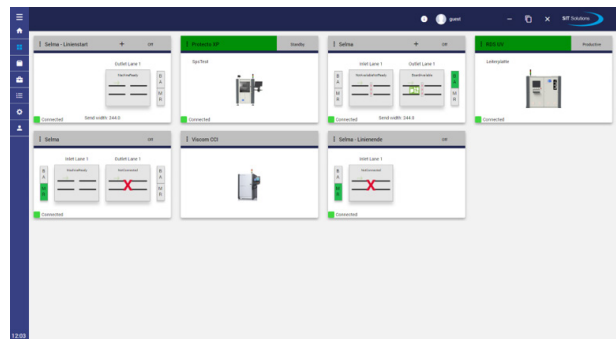Production management

Magazine management

Reinsert

Reinsert

You are certainly used to removing PCBs from the line, as with SMEMA. But if you now want to insert these PCBs back into the line, you have to take into account the restoration of the Hermes data with the Hermes standard. For this, you not only have the option of doing this via a mobile device already presented. They can also do this conveniently via the central Device Manager. All they need for this is the PCB and, if necessary, a hand scanner. The data can also be entered manually if desired. Depending on the setting, the Hermes data is requested from the previous machine, via the Selma Box or via the Device Manager. Almost as easy as with SMEMA, reinserting can be with Hermes. Try it out for yourself!

Line management

In the line management, the corresponding machines of a production line can be displayed and managed. It also provides an excellent overview of the current machine status or the alarm messages of various machines. At a glance, you get an overview of which order and which product is currently being manufactured. The Hermes settings of the respective machines can also be managed centrally here.

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