SIEMENS

Technical article

Appearance counts!

How industrial design simplifies the life of service technicians

Complex technology, time pressure and around the clock operations: Service technicians of industrial plants do not have an easy task. This makes it all the more important for the components used to be as simple as possible to handle and operate. Suppliers who only focus on the technical specifications of the products provide little assistance here. Instead, professional design management is needed to ensure that the maintenance staff can concentrate on their work.

A user-friendly design of devices, such as controllers or network components, requires a cross-functional team with experience in design, usage and production, and calls for a step-by-step development process. At Siemens, a detailed briefing forms the basis: How does the application look like at the customer? What are the main features of the new device? From this, the design team develops the initial design proposals, which can be assessed by means of digital models or with 3D-printed prototypes – also with customers and users whose feedback is particularly important.

Special design for special requirements

An example of an especially service-friendly device is the SCALANCE XP200 switch family. Industrial-grade and IP65 protection-rated, these switches are also intended for installation outside of a control cabinet, e.g., at conveyor lines. Since space is precious here and the switch must not protrude too far into the area, an enclosure concept only a few centimeters deep was devised. For the cabling to also be as flat as possible, angled connectors are utilized. The hookups were arranged in two rows that are offset to facilitate the fitting of the cables. Another aid for a quick diagnosis is the offset control panel: As a result, the LED indicators can be easily read even with full “cabling”.

Thanks to the hierarchical structure of the operating elements, the individual function groups are clearly delineated and prioritized.

The layout in three visual sections in turn helps to quickly assign information and brings visual clarity – making the mounting and operation easy to learn.

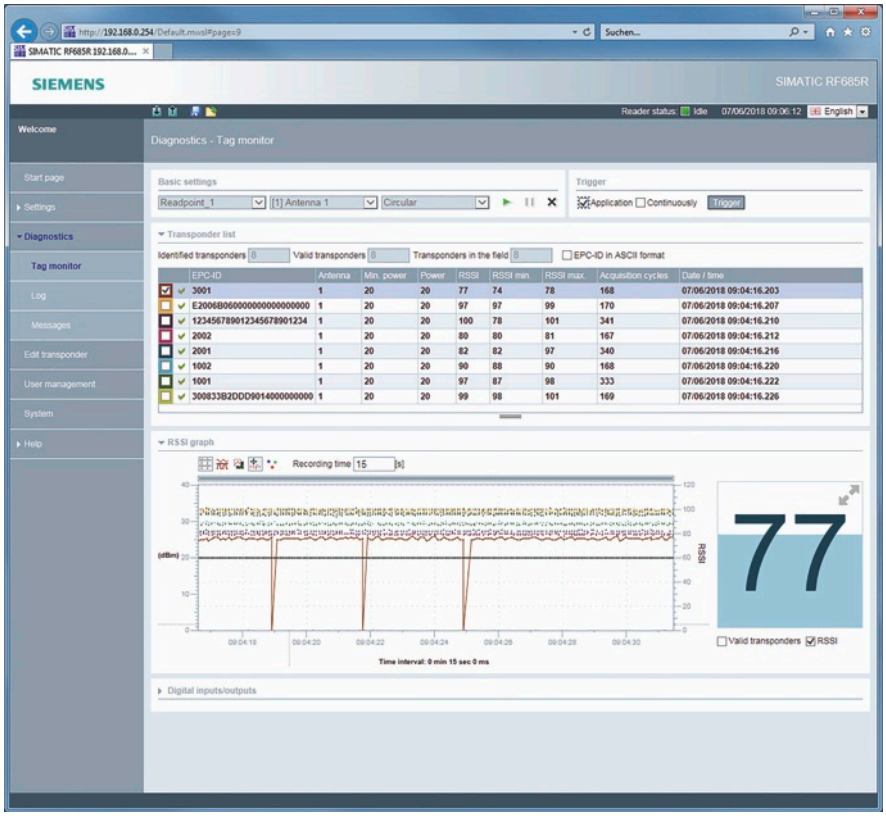
Family counts!

Service specialists must be able to handle a variety of devices. For Siemens, the consistency of the design is thus of great importance – without ignoring specific requirements. As similar as possible, as different as necessary is the motto. For the implementation, so-called "stage sets" are created at the beginning of the development, which show the new product in the environment of tried and tested components. The SCALANCE XM400 switches are closely based on the design of the SIMATIC S7-1500 controller family – from the labeling of the operating elements to the configuration of top-hat DIN rail mounting; after all, the same tools are to be used. A major difference, though, is the layout of the Ethernet jacks. While they elegantly hide under the display on the S7-1500 CPU, they were executed without a cover on the SCALANCE XM400. The reason: While the communication plug on the CPU is usually only pulled when a device is replaced, maintenance technicians often have to hook up new devices to the switch or connect their laptop for diagnostic purposes – a cover would be very annoying here, even if it would make the design more uniform and the control cabinet tidier. But practicality comes first!

Focusing on software

Today, the operation of devices has heavily shifted towards software, with which almost all functions are accessible. As a result, the device design must also take this user interface into account to make the operation easy to learn and yet productive. Visual structuring, simplification and omission of decorative elements, orientation on specific work processes, and consistency are important guiding principles when it comes to the design. For example, attention is paid to a consistent labeling and arrangement of the menu items. A successful example is the SIMATIC RF600 RFID reader, where a team of experts from design, marketing, technical customer support and development analyzed in

To ensure the consistency of the products, Siemens early on develops a "stage set", which shows how the components visually interact.



Since the user experience is strongly shaped by the software, this user interface is created by means of a detailed development process. The example shows the diagnostic view of the SIMATIC RF600 RFID reader.

detail the individual operating steps involved in setting up an RFID reading point, and developed an innovative user interface from that. The result: With the SIMATIC RF600, users can now put a reading point into operation in just a few minutes.

Design ensures better products

The examples demonstrate how a modern product design of industrial components not only leads to an attractive design, but also brings tangible benefits to users. Prerequisite is that the design process is meshed early on with the product management, the development and the construction – as is the case at Siemens. The success of this close collaboration is evidenced by satisfied customers and annual awards ceremonies of the Industrie Forum Design (iF) or the Red Dot Award: For many years running, Siemens has regularly been on the winners' podium with its industrial products.

Security information

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions only form one element of such a concept. For more information about industrial security, please visit **http://www.siemens.com/industrialsecurity**

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