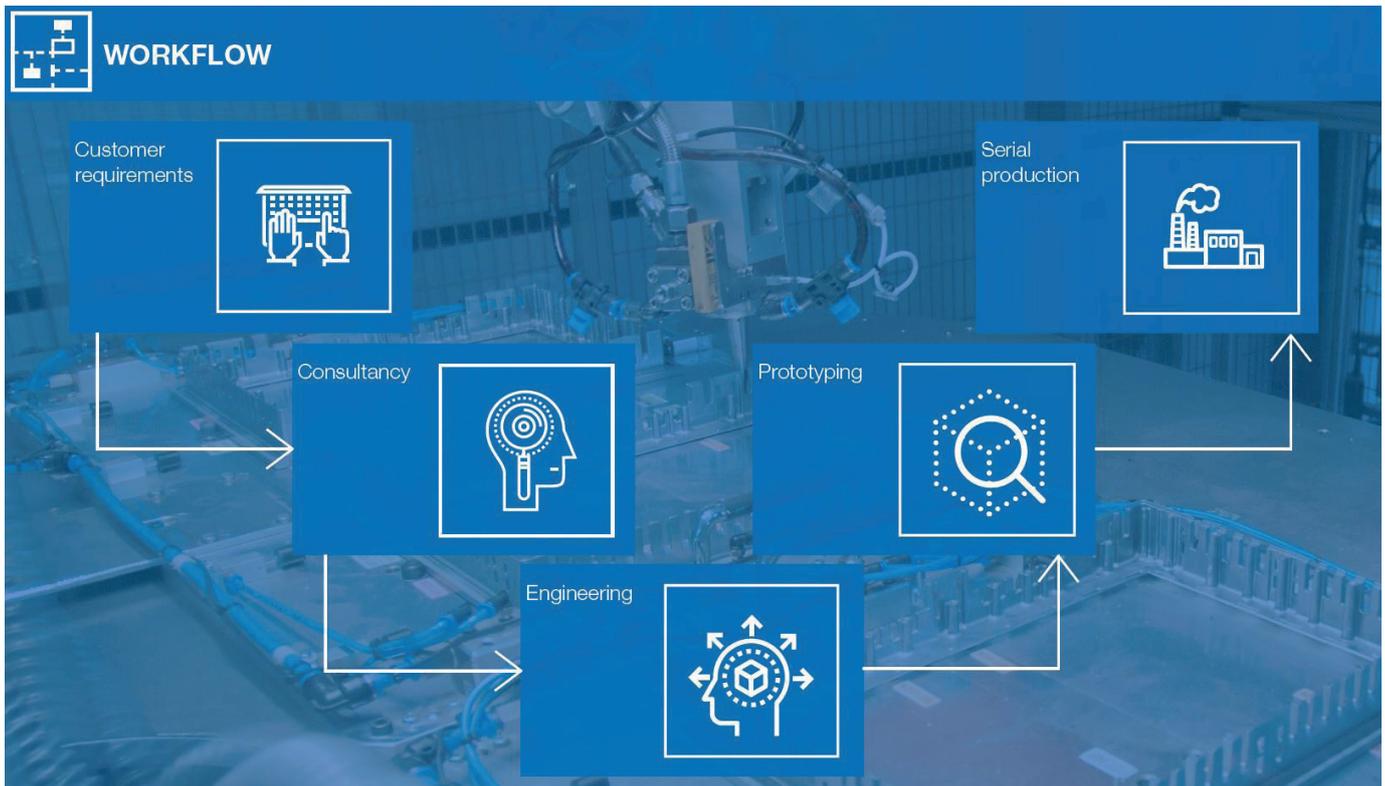


# SCHURTER - your system supplier

How do you save costs with a customer-specific solution, rather than using available standard components? Benefit from a perfect PLC management.



HMI products for industrial and medical devices are often subject to an extended life cycle expectation. The life cycle of these products is quite often 10-15 years. Within this period there is a risk that individual components will no longer be available due to product discontinuation. Alternatives must then be qualified as a replacement in order to ensure the availability of your application.

As a machine manufacturer you have many possibilities to build up your equipment. Some manufactures design and manufacture themselves the complete machine including the control unit. On the other side you have companies that fully outsource the complete production and assembly. As one would understand the responsibilities are shifting along this spectrum. In this document we will focus on the machine control unit, also called HMI unit.

By using "available standard products", you are responsible for the long-term

availability of the components used in your application. But if you choose a customer-specific solution from SCHURTER, you outsource complete responsibility for product availability throughout the entire life cycle.

### Customer requirements

Each application and market has its own unique set of characteristics and requirements. The number of specified requirements and its demand for these specifications are varying along the different applications and markets e.g. medical equipment has a long list of specified items and these are all well described including norms. In other less complex environments you will see only a basic list requirements.

It is important to take the time together with your client to complete the list of specifications and requirements. The requirement sheet of the specific application is the basis of the new product development and will depend on many

decisions further on the road map.

Quite often, the product life cycle of a product is not discussed with the client. For the client the product life cycle is daily practise and not seen as an import item to discuss. On the other side the manufacturer or supplier is mostly interested in the technical performance of the product and the supply of it. At this stage a critical phase could be put aside with possibly serious consequences in the near future.

In reality the product life cycles do vary in a very wide range. Consumer goods are sometimes having product life cycles of only 1-2 years. In the professional market we see much longer product life cycles. For industrial equipment 10 years quote is often the standard. Even more extreme is the medical market, life cycles of 10-15 years are quite normal.

To explain this critical phase we need to look at the components used in the

HMI unit. The HMI unit consists of some basic components like touchscreen sensor, displays, controllers and embedded electronics. The majority of these components change rapidly in technology. For example, displays change every 2-3 years. But also the touchscreen sensor technology, especially PCAP, and their related controllers change very often because of further technology developments.

Not discussing the product life cycle in the customer requirements stage could have a big impact on the right choices of the product design later on in the product development.

**Consultancy**

Based on your requirements, SCHURTER advises you regarding the best direction for the design of your new HMI unit. At the consultancy stage we incorporate all input gathered in the specifications listing. At this stage the product life cycle plays already an important role. When the product is

used with a relatively short product life time i.e. vending machines, components availability is less important than a long product life time. SCHURTER will focus with the client on cost effectiveness and low investments at the same time. The components selected and advised will be well available during the product life time and if possible of the shelf. This way the customer requirements of quick development time and cost effective production costs will be achieved. In these applications we do not focus too much on exchanging the used components.

On the other hand, if we do discuss a project with a long product life cycle, the component availability will become more important. At this stage SCHURTER will again discuss with the client the most cost effective solution for his application. This can result in solutions where we select special, "industrialized" components with known long-time availability. Although these components are, at first, more expensive than the short-life time

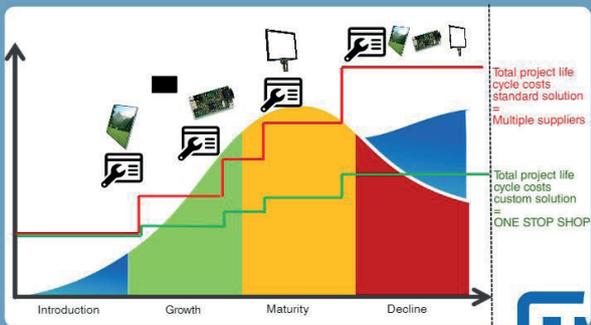
consumer components, the cost in time (so called "total cost") will still be lower than having a design change or custom made component.

In extreme long product life cycles, we can easily be confronted with multiple component changes. As you can imagine, each component change will involve energy, time and cost. Avoiding these changes will assist the production continuation as well as the total project cost. Discussing the product life cycle and the critical procedures for a product change is essential. Some component changes can be easily managed whilst others could have a high impact on the equipment itself or the qualification process. In these circumstances the decision to start developing a custom component could pay off on the long run. The engineering cost at the start of the project will show return on investment in time with a more stable supply and the reduction of product changes.

## Product Life Cycle Management

SCHURTER's fit, form and function for a long product life time





**SCHURTER's fit, form and function to guarantee a long product life time:**

1. Project-specific touchscreens for long-term availability
2. Applying the optimum controller for your application
3. Optimized tuning of the software to meet the requirements of your application
4. Expected component changes are taken into account during development phase

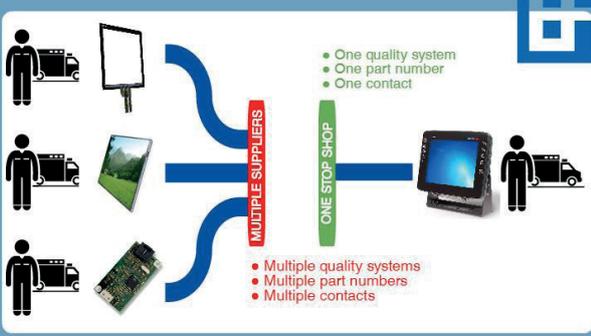
With SCHURTER as a partner for your system solution, you reduce costs and time over the entire product life time.

**Standard or custom solution?**

Standard components
← product scope →
Customized solution



Customer
← maintenance responsibility →
SCHURTER



SCHURTER Input Systems 2017

leading in touch solutions

**Engineering**

During the engineering phase a dedicated assigned engineer will design your specific product. The engineer will start working on

the actual product design in a dedicated 3D software program. At this stage the specifications are known as well as the product life time requirements. Based on

these conditions the engineer can start with the conceptual product design. Quite often the engineers work very close together with the client's engineer.

Nowadays information can be easily transferred over the internet. With the use of 3D models, a view can be created to see if all components fit in and do not conflict with each other.

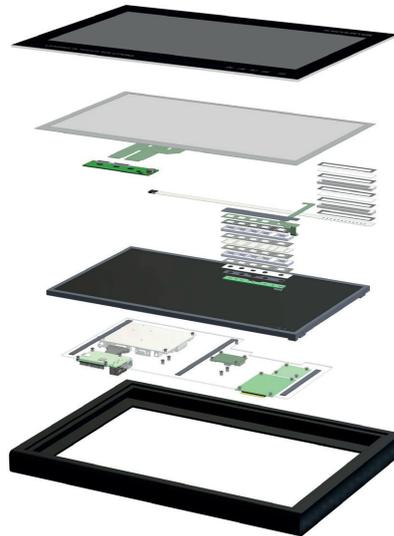
The engineer is also responsible for the life time aspects of the product. This means that he needs to examine the exchangeability of components in time. Mechanical space needs to be reserved or mechanical fixtures need to be flexible designed in. To explain in more detail, an engineer could make flexible fixing brackets for the display. A change of display will only require a modification of the brackets.

Where short life time is expected or engineering and production cost are critical, the engineer will review the standard available PCAP sensors to fit in the product design. Also a more cost effective display can be chosen when long availability does not play a major role. Your product is again modular built but with a different view!

The longer the product life time expectancy, the more important is the availability of the individual components. Depending on the requirements, certain components are completely custom made. SCHURTER has the full design and manufacturing capabilities of making PCAP touchscreen sensors. Owning the design rights gives a great advantage of producing the sensor in house and/or at multiple outsource partners. These design rights give the customer much more comfort and long life time availability. Similar decisions are made on the electronics level. A touchscreen controller is only available for 5 to maximum 7 years. Mechanical dimensions and communication protocols could change over new revisions. By designing a dedicated controller much more control is kept over the mechanical dimensions and connector positions. If a new microcontroller becomes available, SCHURTER can design the latest technology and at the same time respect the original mechanical dimensions and communication protocol. Again a great advantage to guarantee to supply a fit, form and function over the life time span of the product.

With SCHURTER's knowledge of designing a long life time product, you can see the logic to hand-over the complete HMI unit design to SCHURTER. In the optimum solution, SCHURTER will take the design and also manufacturing

responsibility of a complete Plug&play unit. The complete responsibility for exchanging components and compatibility is in this case handed over to SCHURTER.



### Prototyping

SCHURTER's high-end equipment and in-house touchscreen sensor production ensure rapid prototyping that significantly reduce the time-to-market of your product. To further reduce the development time, SCHURTER can perform various in-house qualification tests like EMC testing, climate evaluations and glass strength tests.

At the start of your new product you will be confronted with many new issues and qualifications. It is likely that multiple iterations are required to complete a qualified product prototype. If you were to see a potential problem, you would naturally need to react quickly in order not to lose valuable project time. For these circumstances you would need a reliable supplier that can respond quickly. Where other companies moved towards full outsourcing of their production and sometimes even engineering, SCHURTER decided to react in the opposite way. SCHURTER intensively invested in their production facilities to maintain the knowledge and production capabilities of manufacturing touchscreens. With this vision we are today able to serve customers quickly with custom made designs. As the knowledge is at the producer, we are also able to advise and provide you with the best product for your application based on our in-house knowledge.

Our production facilities are all cleanroom based providing the highest optical quality required for optical products. Integration and sealing touchscreens is our core business. The SCHURTER competences provide you with a unique service to build your required product in the shortest possible development time. This will save you significant development time in case multiple product prototypes are required.

As an additional service, the SCHURTER group has a large variety of different test equipment available. Climate chambers, EMC test equipment as well mechanical testers are available within the group. These services are quite often not available at the client and need to be planned and sourced elsewhere (test houses). By utilizing these services at SCHURTER in the development phase of your project, you can reduce even more time and cost.

### Serial production

SCHURTER is a global company with their main focus in Europe. Design and production facilities are available close to your factory. Each facility has its own set of unique competences. Depending on the required design and production quantities a production facility is selected that fits this requirement.

Our factories are equipped with the latest available technology. SCHURTER invests yearly to keep our facilities up-to-date for the market requirements. Automatization does play a more and more important role in our factories. It allows faster but at the same time more accurate working.

If your product grows faster than expected, we can easily upscale within the SCHURTER group. At first we can select a more suitable production location within Europe. If you require extremely high volumes or presence in Asia, SCHURTER has an assembly facility in China which specialises in high volume support. With our unique competence centres and multiple production facilities, we can produce any required quantity at one of our best suited factories.

### Advantages

In this white-paper we have explained to you the complexity of a product design and the parameters involved. As you now understand there is much more to be considered than just "the product". Aspects like component availability, exchangeability and qualification do also play an important role in the product design. These aspects are quite often

forgotten or pushed aside by driving a project on just component costs. At SCHURTER we have built a wealth of experience in the industry. We have been present in the market for more than 70 years and are aware of the most recent requirements and developments. Our experience can help you manage your project and move it forward faster.

The longer the life cycle of the product, the more important it is to have an experienced system supplier who best advises you in the selection of the individual components. A system supplier with competences and manufacturing facilities will also significantly reduce your product development time.

With SCHURTER as the chosen partner for your system solution, you can reduce both costs and time involved over the entire product life cycle.

#### About SCHURTER

SCHURTER Electronic Components is a leading innovator and producer of electronic components. As a Swiss technology company SCHURTER is operating successfully worldwide. In a dynamic market the SCHURTER Group is showing sustainable growth due to the specialized competence, innovative capacity, proximity to customers and financial independence.

The SCHURTER Group is divided into two divisions.

The Component Division encompasses the equipment protection, equipment connections, switches and EMC products business units including the measurement service as well as the Solutions unit. Solutions offers business partners a total solution package to fulfill the most demanding customer wishes in their entirety through the coordination and networking of all SCHURTER core competences.

The Input Systems Division develops and produces customized solutions - Integrated solutions, Touchscreen solutions, Capacitive switch solutions, Membrane switches, Housing systems and Industrial Graphics.

To provide you with the best switching solution we have a wide range of technologies in house. These technologies are state of the art solutions used in modern designs and equipment. All technologies are developed and optimized in our own production facilities. For every technology we have own competence centres for the best design and prototyping. We have both factories optimized in small volume production and others in high volume production. For an effective total cost solution we also have access to high volume production partners in Asia.

We have a long term relationship with our Asian partners and have developed the technologies together to the highest European standards. For every switching need you will find the right technology in our portfolio.



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