

HIGHLIGHT OF THIS ISSUE:

# PROTEC

The new square enclosure series  
with highest ease of use





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# DEAR READER

In the current issue of our customer magazine INSIDE we deal with i.a. the topic "Design".

Product design is the design and creation of products that are manufactured in series. It is important that the designers also respond to the function of the final product. Because it is customers who benefit from an optimal haptic, but also modern optical design.

Our product portfolio has recently been expanded to include the new PROTEC enclosure range. The square enclosure is designed for maximum ease of use and optimal ergonomic inclination of 20°. The enclosure is available in different variants and can be combined with a wall bracket, making it suitable for many applications. It offers plenty of space for installations and impresses with quality, functionality and design. On the following pages you are welcome to see for yourself.

We hope you enjoy reading our magazine



Dipl.-Ing.  
Christoph Schneider



Dipl.-Betriebswirtin (BA)  
Yvonne Ellwanger



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## Main focus: DESIGN

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Even today, many OKW enclosure series are used for the most varied applications in the smart factory. Subsequent use in day-to-day work is highly varied, and the requirements to be met by the enclosures may therefore vary considerably.



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# PROTEC

The PROTEC has a square basic shape with plenty of space for fixtures and fittings. Because of this, the new enclosure range is ideal for wall-mounted applications or as a modern desktop device. The ergonomically favourable inclination of 20° allows optimum operation of the terminal units and makes it very easy to read the data, even at different distances and angles.

Author: Oliver Herrlich, Development/Construction at OKW Gehäusesysteme



Electronic components require a protective cover, i.e. an enclosure all around. However, it not only keeps away harmful external influences! If the enclosure is properly selected and configured, the end product is not only ergonomic and functional to handle, but its appearance is also aesthetically pleasing and of high quality.

## Ergonomic and aesthetic

OKW Gehäusesysteme has been developing standard enclosures made of plastic and aluminium in cooperation with the experienced industrial designer team polyform from Munich since the 1980s. These enclosures significantly support the concept of high-

quality devices. The new PROTEC series of enclosures fits seamlessly into the development concept of the manufacturer. Viewed from above, the PROTEC features a square shape with rounded contours. This makes the enclosures series appear very aesthetic and modern, but leaves the user enough scope to realise "his product". The options offered by OKW range from mechanical processing (e.g. for interfaces, displays, threaded holes, engraving), painting, printing, assembly work and membrane keyboards/ decor foils, to coating the inside of the enclosure with aluminium. This EMC service is used to protect the electronics from interference from outside and to reduce increased internal emission noise. (\*Note: EMC and plastic enclosures – page 12-13)





Thanks to its two-part construction, the PROTEC allows a wide range of installation and assembly options. A wall suspension element completes

### Optional IP65 protection class

the system. The fields of application are wide, also on account of the high protection class, e.g. for the Smart Factory, IIoT devices, as central control

units, surveillance systems and access control systems in outdoor areas. As high-quality wall-mounted and desktop enclosures, the series can also be used in many other industries: for data acquisition systems, computer peripherals, measuring and control technology, medical technology and health care. ➤





The enclosure range has an inclination of 20°. This is generally regarded as ergonomically ideal for easy operation of the terminal devices and for reading the data – even at different distances and angles from the device.

### Variant diversity

PROTEC can be ordered from stock in three different sizes with 140 x 140 x 76 mm, 180 x 180 x 92 mm, 220 x 220 x 108 mm (W x D x H). The series is also available in three different versions:

- **Version I** features a recessed area at the rear for the installation and protection of interfaces or supply lines. The appearance also plays an important role here, because the plug-in connections are not visible at first glance.
- **Version II** includes not only the top and bottom parts, but also an additional cover for the flush covering of the interface area. As a final touch, the cover snaps firmly into the existing guides.

- **In Version III**, a deep cover provides additional volume for built-in components/functions, e.g. for a terminal box, the integration of controllers/tuning-knobs, on-off switches/buttons, a finger print scanner, a gooseneck microphone and much more. To complete assembly, the high cover is firmly screwed to the bottom part of the enclosure with two Torx screws.

A recessed operating area for integrating and protecting membrane keyboards, operating elements and touch systems has been provided on the square cover surface. The sizes of the touch displays of the PROTEC 140 are 5.7"/14.5 cm, PROTEC 180 – 7"/17.8 cm and the 220 version allows the installation of screen diagonals of up to 21.3 cm / 8.4".





The top part is screwed to the bottom part at the back with four stainless steel Torx screws, and the entire screwed connection is thus outside the field of vision, creating a homogeneous appearance. The range of accessories for the enclosure series includes suitable brackets made of sheet aluminium for each version. These allow the concealed and flush mounting of the device on the wall, with removal prevention function at the same time.

## Individual finishing

The PROTEC series is made of high-quality V0 material in the colour grey white (RAL 9002).

The electronics compartment can be sealed with an optional sealing kit (in the range of accessories) up to the high protection class of IP65. The bottom part features two different board levels; also (or additionally) the upper part offers the option of mounting a PCB on the integrated screw pillars.

### Product advantages in brief:

- three sizes 140/180/220, each in the versions:
  - With recessed area for installation and protection of interfaces or leads.
  - Included in delivery with the upper and lower part an additional cover for the interface area.
  - Enables by its high lid additional volume for installations.
- ergonomically inclined operating surface by 20 °
- recessed control panel for installation and protection of the membrane keypad, controls and touch systems
- high-quality V0 material in grey-white (RAL 9002)
- dense electronics room with 3 board levels; a lot of space for built-in parts
- concealed, flush wall mounting with removal prevention feature (accessory wall suspension element)



Version I



Version II



Version III



Wall suspension element (accessory)

# EMC PROTECTION

When it is a question of EMC and the protection of your electronics from external interference as well as increased internal emission noise, OKW Gehäusesysteme is your competent partner.

## EMC Aluminium coating:

Thanks to the investment in our own vapour-plating facility, we can offer you "Everything from one supplier". To shield plastic parts, which offer no natural protection against electromagnetic radiation, we coat the inside of the enclosure with aluminium. Our extensive in-house facility guarantees short production and delivery times.

The aluminium coating is applied in a high vacuum. The 99.99 % pure aluminium is vaporised within a short period of time and is deposited on the plastic surface. The thickness of the coating is approx. 2.5 µm. The aluminium coating is also characterised by good adhesion. To achieve an even better shielding effect, other coating thicknesses are available on request.

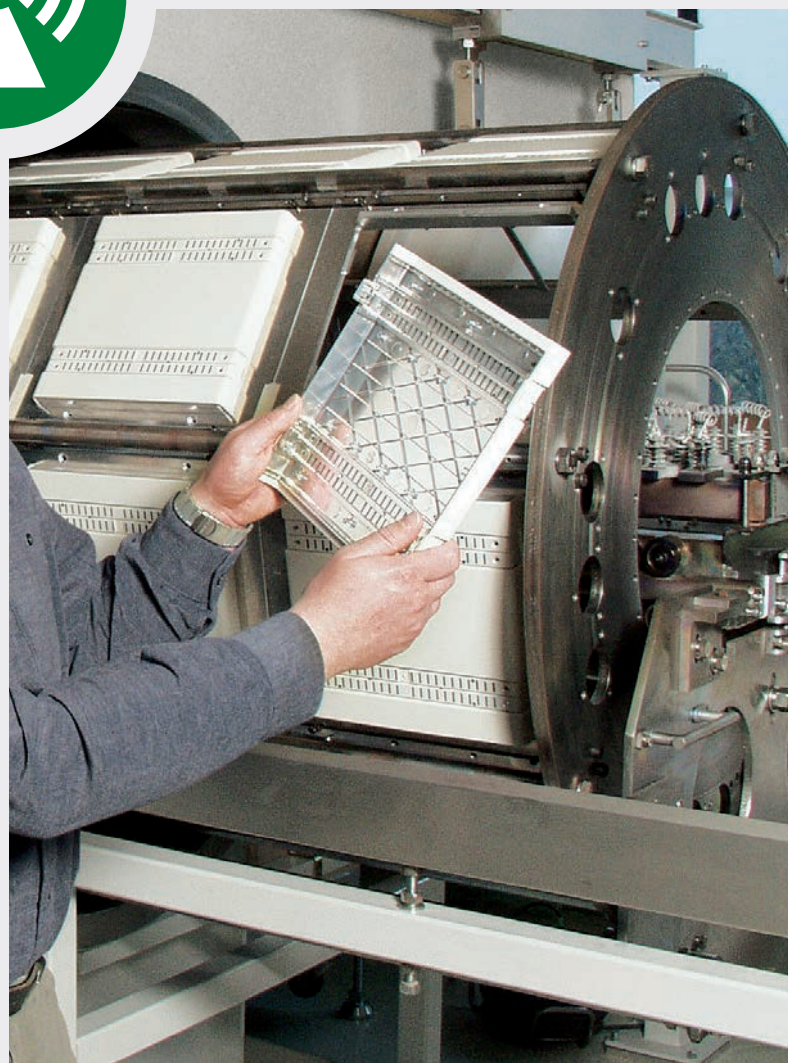
## Our recommendation:

To meet current EC directives and standards, a variety of measures is required. For reasons of cost-effectiveness we recommend the following procedure:

- The complete electric/electronic equipment, including board layout, should be designed in such a way that EMC requirements are met. This also includes a reduction in conducted interference and the elimination of cable interference radiation..
- Partial screening of the sensitive components or interference radiators.
- Reduction of interfering radiation entering through openings.
- Increase in the screening effect of the case.









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ans  
okatron  
1979-2019



OKW GLOBAL

# FRENCH SUBSIDIARY OKATRON CELEBRATES 40TH ANNIVERSARY

In 1979 the Schneider family started the **okatron S.A.** project together with three French partners: after the existing Paris-based distributor filed for insolvency and his employees were threatened with dismissal, OKW solved the problem by founding its own sales company on 8 April 1979. In the middle of turbulent Paris in the Rue Jean Jaures – with the participation of former employees of this partner.

Among them was Claude Steinmuller, who was initially hired as an expert for sales in the French market and who gradually took over the sole management of the company and successfully built up a sales network with offices in Lyon and Toulouse. In addition, he continuously expanded the product range, the sales brands and the workforce. The company headquarters were relocated to Villepinte on the outskirts of Paris.





okatron

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▲ **CHRISTELLE GOIX**  
Managing director  
okatron sas



▲ **EXHIBITION**  
Salon-du-Componic  
1993, Paris

In 2007, Claude Steinmuller cleared the way for the next generation: **Christelle Goix**, who had been close to the company for many years as an IT specialist and consultant, and who switched completely to **okatron sales** in 2006, took over the management. She refocused the company, its employees, infrastructure and processes on sales work on the market and on the projects of over 5.700 customers in France.

**okatron sas is the competent partner in France for high quality enclosures and their individualization**

In this way, **okatron sas** consistently increased the sales of OKW and its other brands to a level of just under 2.2 million euro today. A separate modern building in Bussy Saint Georges was acquired using

the company's own funds, and was occupied in 2012. The technical consulting service for customers in their enclosure projects from the product range and in individualisation is today the core competence of **okatron** on the market, and also represents the benchmark in the international comparison of the sales companies of the group. For our customers in France, the name **okatron sas** has been a synonym for enclosure solutions for 40 years.

**Congratulations to our team in Bussy and thanks to all the loyal companions and partners of our okatron!**

# BODY-CASE



Would you like to simultaneously charge several BODY-CASE enclosures wirelessly on a table stand? No problem! Stations are now available as accessories for individual series mounting and configuration.

The stations offer sufficient space for additional electronics, e.g. an inductive charging option. Integrated guides allow the BODY-CASE enclosure to be easily located into position. If necessary, a seal (accessory) for protection class IP 54 can be fitted.

# STYLE-CASE L

Everyone knows the problem: the mobile device is no longer in use and there is no place to put it down safely so that it can be reliably charged and picked up again quickly in case of need. This is where the new holder comes in.

While the device is gripped securely in the holder, the display and operating panel remain easily visible and the interfaces are freely accessible.

The holder can be screwed to the wall, and for surfaces that cannot be drilled (furniture, glass panes etc.) it can be secured using adhesive foil.







## PRODUCT SUPPLEMENTS

# EVOTEC

The EVOTEC enclosure sizes 100 and 150 can be combined with a DIN rail fastening element, which is available as an accessory. You can thus plug your devices from the front onto DIN rails complying with DIN EN 60715 TH35 and G32, and operate them in control cabinets, distribution and connection boxes etc.

## PRODUCT SUPPLEMENTS

# IN-BOX

Now the enclosure size 302 x 232 x 110 mm is also available as a complete enclosure in PC with a top part in light grey.

The IN-BOX enclosures are now proving successful in practice, particularly as terminal and installation enclosures. With protection classes IP66/IP67 and the high impact strength class IK08, the polycarbonate enclosures reliably protect your sensitive components from environmental influences, e.g. dust, moisture, mechanical influences, etc. The complete enclosures, made of PC, also comply with the UL 94 5V fire safety standard (better than V-0).



### NEW CONFIRMATION FOR ENVIRONMENTAL GUIDELINES

On 15 January 2019, new banned substances were added to the Echa list (<https://echa.europa.eu/web/guest/candidate-list-table>).

According to an assessment by an external service provider, almost all of the materials affected are PVC materials. These materials are not used in our standard products. We have updated our confirmation of compliance, which you can download here: [www.okw.com](http://www.okw.com) (Information, Technical Information).



# DONATE TO THE ODENWALD HOSPICE

**"It's not about giving life more days, but more life for the day."**

Cicely Saunders (English doctor, founder of the modern hospice movement).

This is the motto of the Odenwald Hospice in Walldürn, Germany. At the heart of the institution is man, to enable him at the end of his life a peaceful dying in dignity. The company OKW Gehäusesysteme GmbH from Buchen has been aiming to promote regional aid projects for several years and is donating € 2.500 to the Odenwald Hospice. During a visit, the OKW management board around Dipl.-Ing. Christoph Schneider (Managing Director) and Dipl.-Btw. (BA) Yvonne Ellwanger (authorized signatory) presented the device in detail. "The hospice must cover at least 5% of the annual operating costs itself. It is a matter of the heart to support the admirable efforts of the Odenwald Hospice with a donation," explained Yvonne Ellwanger.

Ms. Christa Weiß, sole shareholder of the facility: "We give people essential support to make the final hard way - even for the relatives." The house offers space for ten guests in a warm and personal atmosphere. The dedicated team of the Odenwald Hospice takes care of the "guests" around the clock, because according to their own statements, there are no patients here, but guests. "All individual wishes are met," says managing director Christine Lehner. And added: "We are very grateful for every donation, as well as for this from OKW. We want to realize a variety of projects in the near future, such as a play area for children of relatives and much more. For this, as in the case of operating costs, we are always dependent on donations and support. "

You can help too! For detailed information, see: [www.odenwald-hospiz.de](http://www.odenwald-hospiz.de)





# OKW DONATES TO AN EDUCATIONAL PROJECT

The Joachim & Susanne Schulz Foundation has set itself the goal of sustainably improving the promotion of children and adolescents in the fields of mathematics, computer science, natural sciences and technology (MINT for short).

The "expirius" project, started in 2014, is limited to rural areas of the northern Odenwald (63916 Amorbach / 69427 Mudau, Germany), which means that the program is extremely diverse and can be tailored to the needs and age groups of children / adolescents or local educational institutions.

A solid basic knowledge of the aforementioned STEM topics is an important part of our cultural heritage and our general education. In addition to language, sport and music, it should be incorporated into education to counteract the progressive scientific and technical tiredness of young people. At the same time, "expirius" ensures the long-term promotion of young talents in order to counteract the skills shortage in the rural region.

This is an absolute prerequisite for securing the future of all locally based companies. For this reason, OKW Gehäusesysteme gladly supports this social project with a financial donation.

For detailed information, see [www.js-schulz-stiftung.de](http://www.js-schulz-stiftung.de)







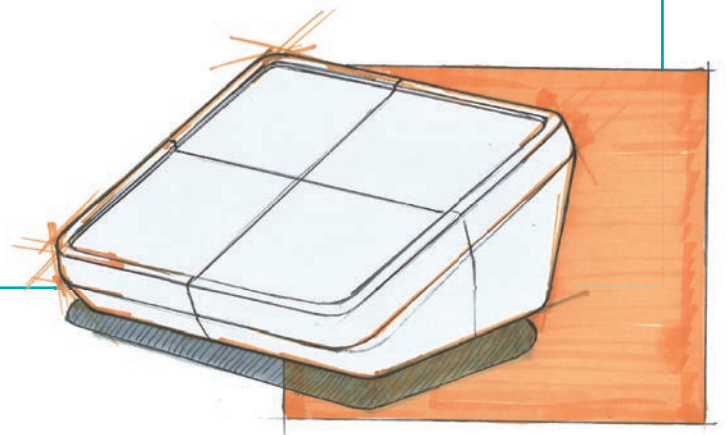


# MAIN FOCUS DESIGN

OKW products convince through quality, functionality and design. But what is actually behind the word "design"? Why is it so important? Everyone knows the term, but everyone will describe it differently.

We encounter it everywhere in everyday life – from objects such as cars or furniture, to clothing and interior design. But what makes a good design, what are the specifications and how do you combine customer requirements with the requirements of the end user?

Generally speaking, design means giving something a plan, appearance or shape. In terms of product design, however, much more is behind it. It's all about the right balance between functionality and aesthetics, ergonomics, security, usability and knowing the target group.



# GOING TO THE LIMIT IN REDUCTION: THAT'S WHAT GOOD DESIGN IS ALL ABOUT



Industrial designer  
Martin Nußberger on  
multifunctional enclosures,  
the message of optimally  
designed products and  
possible visions for the future.

Mr. Nußberger, you are the owner of polyform, an independent design office based in Munich that deals with individual product solutions. As an industrial designer, you have been working for Odenwalder KunststoffWerke for more than 20 years. In which product areas is OKW successful?

The main emphasis is on medical technology, measuring and control technology, mechanical engineering and communication technology. Plastic enclosures can be easily penetrated by vibrations, everything that has to do with Bluetooth or WLAN nowadays: plastic enclosures have a clear advantage here.

The materials used are therefore determined by future applications?

Yes, of course, but it must be said first that OKW comes from the plastics application sector, i.e. it works traditionally with this material. Ninety per cent of the enclosures manufactured there are made of plastic. In addition, there is a market segment for metal enclosures, folded, welded or cast – or made from aluminium profiles. The topic aluminium is strong at the moment, also because profile technology has the advantage that you can cut profiles of different lengths, that is, you can produce enclosures that vary in length. In addition





to the standardised sizes, it is thus also possible to meet one-off customer requirements and wishes in other dimensions. This is not possible with plastic. In plastics production, new sizes require new tools to produce the mould, and only then can the new size be produced.

#### Are there any other requirements that you as a designer have to meet?

At OKW, design development is always governed by the major issue of sustainability, because the product life cycle of these products is simply so incredibly long. In this context, a period of 25 years is really nothing. This is the big difference between these products and those that are developed directly for the end user. Here, the life cycle is – rightly –

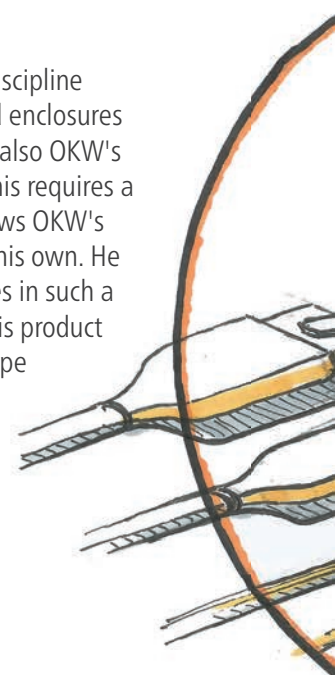
assessed quite differently. In this standard enclosure sector, however, you develop a product that has to achieve a certain degree of recognition so that, in turn, other companies can turn it into a product for their end customer. And the decision to buy an enclosure is not made at the moment it is launched on the market, but is possibly offset by several years. Even then, this product has to be as appealing as on the day of the first draft, and its design must be in line with the zeitgeist. ➤



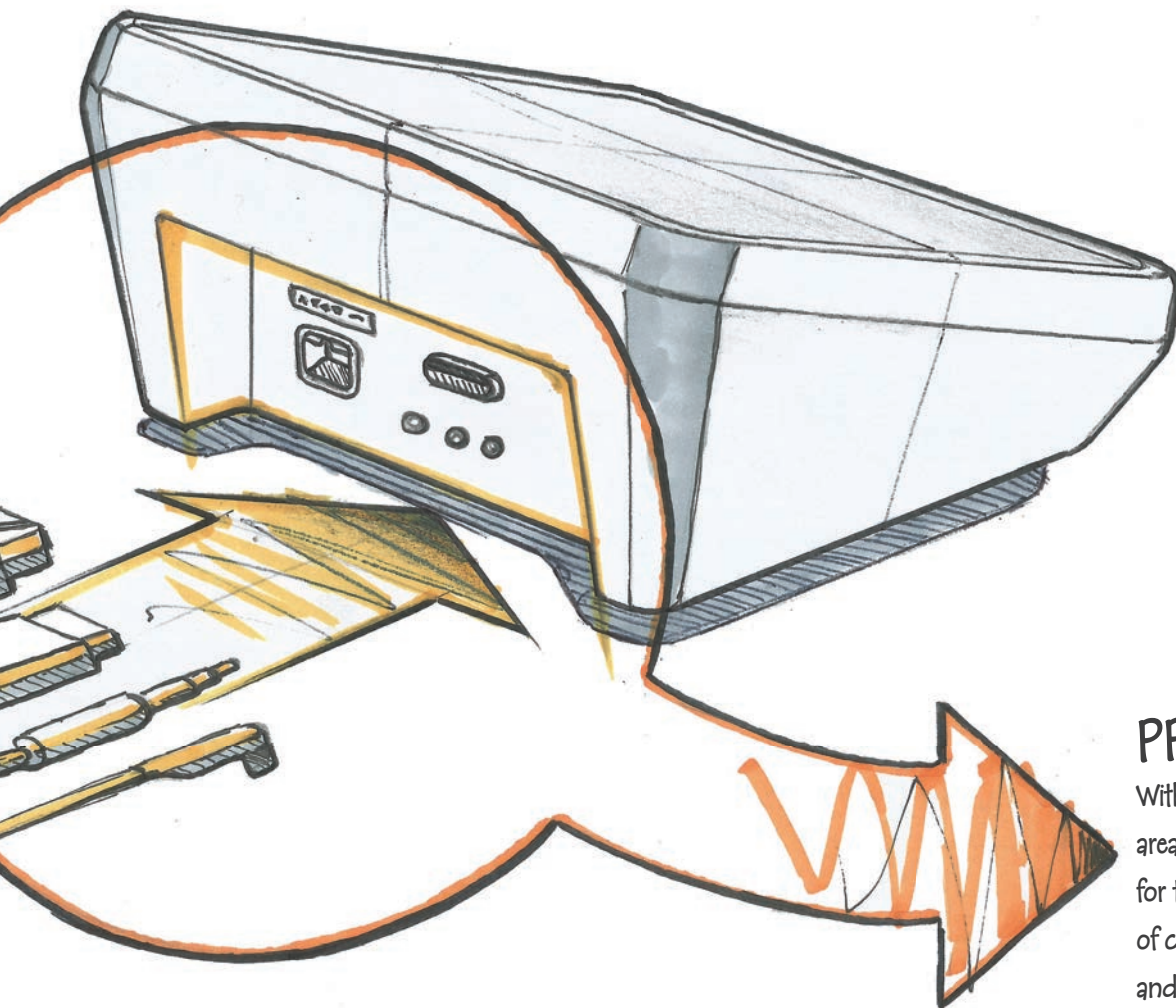
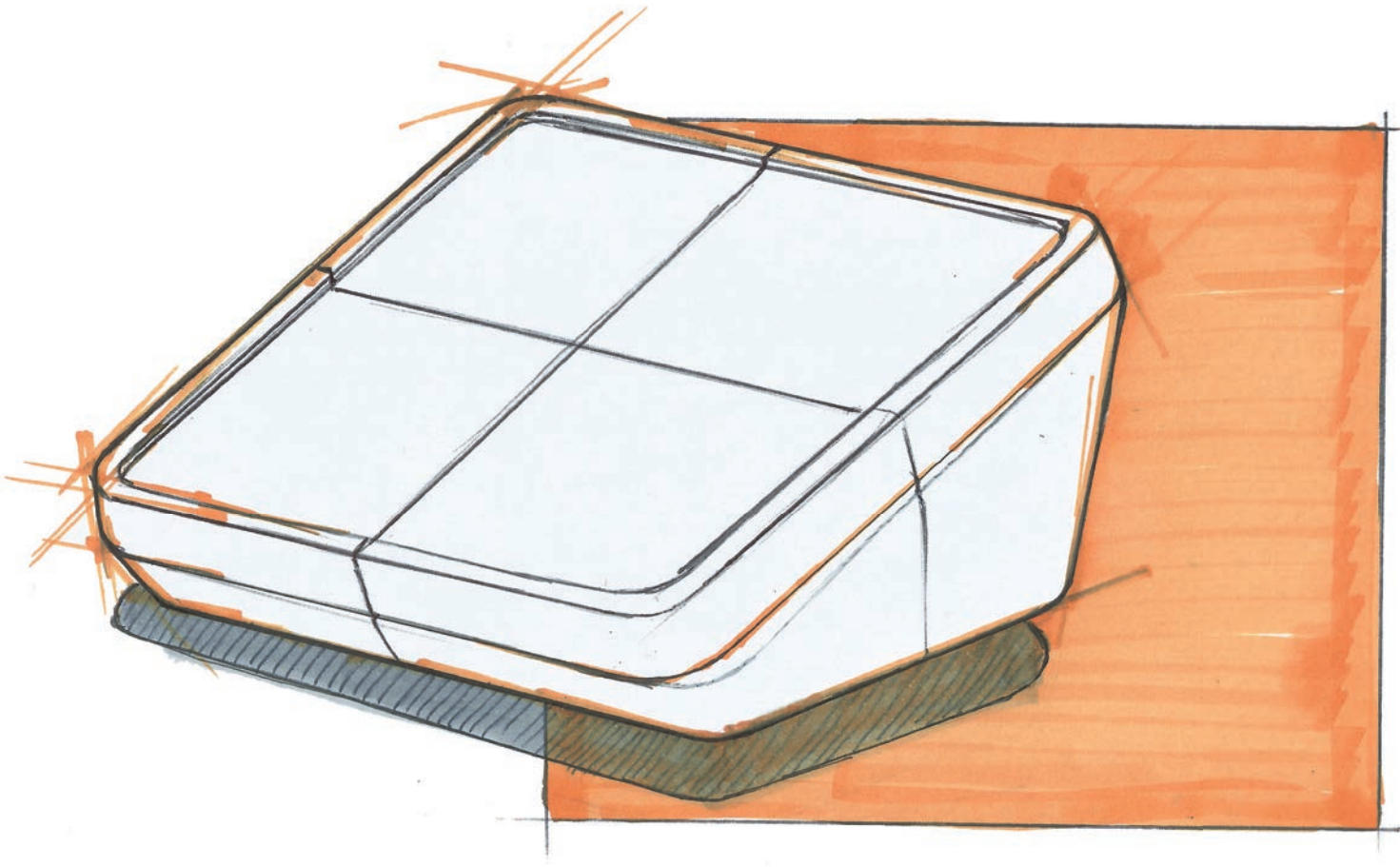
On the one hand you are tied by the materials and the production range, on the other hand you actually work in a large vacuum, because you don't really know anything about the end product that the customer is going to use.

The variability of the end use is my daily fascination - and my daily task, for at OKW we don't know beforehand what the customer wants to do with the one or the other enclosure. Among the variety of existing enclosures, he can choose what meets his requirements and what pleases him. However, there is also the opposite effect: a customer likes a certain enclosure so much that he is prepared to adapt his own ideas to what he has found, because at that moment he says: That's it!

In fact, designing OKW products is a discipline for masters, because I design standard enclosures that have to satisfy not only OKW, but also OKW's customers and their end customers. This requires a certain amount of restraint, which allows OKW's customer to make the design he likes his own. He must be able to diversify the enclosures in such a way that the end customer realises: this product comes from the company XYZ. The scope for design by the customer must be taken into account in order to be truly successful, because the competitor of the OKW customer might use the same enclosure. ➤

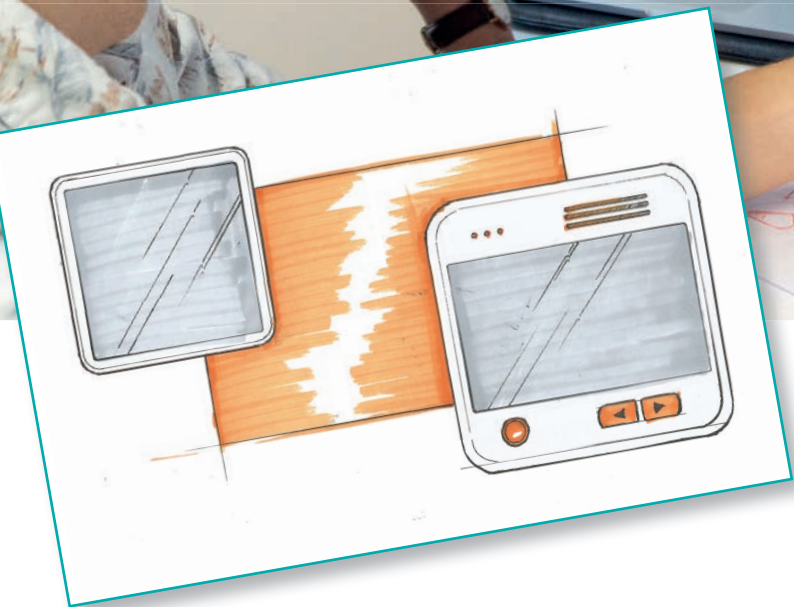






## PROTEC

With a deep recessed interface area at the rear of the enclosure for the installation and protection of connectors, interfaces, switches and cables.



**How do you ultimately reconcile the technical requirements, the specified material, the requirements for a required certification, and all the above factors, with the beauty of the form, with what appeals?**

The challenge is to reconcile a wide variety of factors. In a new development process, each of my customers, and their potential customers as well, benefit from the wealth of experience which I have gathered from various customers. I would even go further: in product development, all experience plays a part, technical experience but also the experience which one has gained throughout one's life.

The aesthetics of the product are and remain my goal. The designed products should be beautiful and attractive and arouse desire – an emotional component that resonates despite all technical requirements. For me, however, the attraction of the entire process lies each time in balancing the various requirements which the products have to meet.

**This means that the design cocktail is mixed a new each time and matched to the product?**

Yes, although OKW does this very well, because the wealth of experience is simply enormous: when you see enclosures by OKW, you know where they come from. Not a general store, but a consistent quality standard, materials and design that are recognised as high quality.



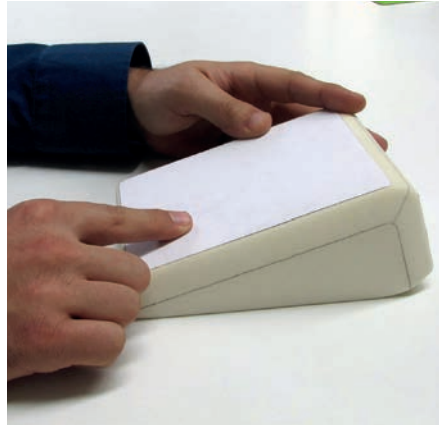


The sophisticated design language of your product, which must remain variable and specifiable, is also the messenger for the idea behind the product.

Yes, we always assume that a product should be seen to be useful. A coffee machine is a coffee machine and not an iron. So if I make an enclosure that ideally is to be used on the wall, then that is what it should look like. You should be able to see what its function is, and trust it to perform this function: the message should be, "That's a good enclosure on the wall." If I'm looking for a case that I can wear on my body, I have to see at first glance that it won't hinder me, that it will not hurt anyone; the comfort has to be visible. A handheld enclosure must have a certain charisma – even before you have taken it into your hand! – "I'm sure that feels good." It's like the hand-charmer, which we all only touch because we want to touch it – the ideal type for a handheld enclosure!

Now we have reached the next level, namely the end consumer, who you also have to think for!

Of course: in a development process, the industrial designer is definitely the advocate of the end user. Let's go back to the handheld enclosure – the handheld enclosure refers only to the end user. Ultimately, every OKW customer benefits from the fact that we can supply him with an enclosure which tells his customers: "This product works!" It attracts the end customer's attention and at the same time promises durability, functionality and ergonomics. You also purchase this promise when you buy an enclosure from OKW. ➤



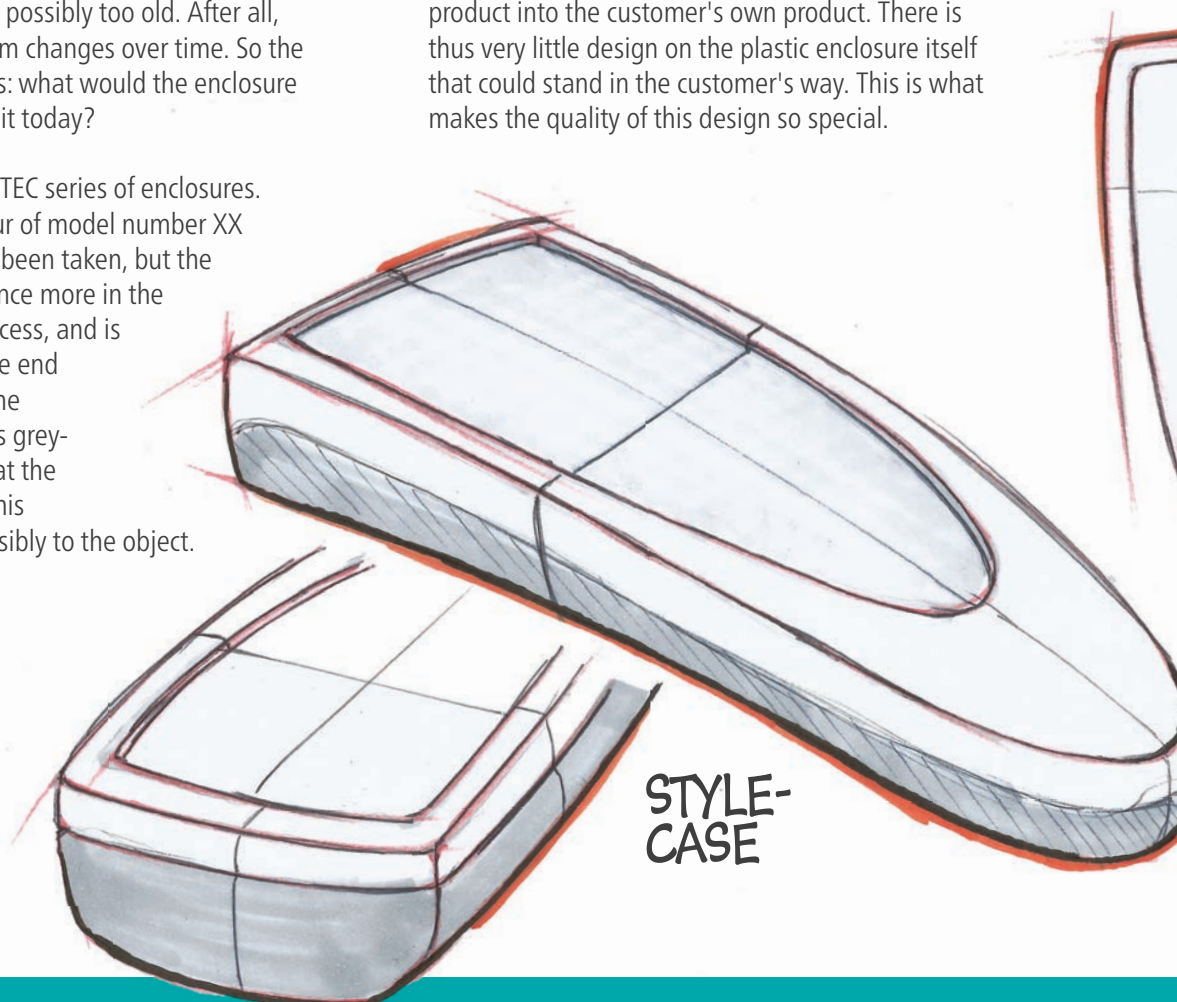
You have brought with you your latest designs for OKW, the redesign of a series of enclosures that you already designed in 1992 and which you have just reworked. You were asked to give the series a new face – why?

DATEC-TERMINAL, the predecessor, the only standard enclosure with an inclined operating panel, has been around for over 20 years now. So far nobody has copied this, not even our competitors, it is a pure OKW domain and very successful. Nevertheless, I was asked to design something new in this very area, because the form language of the predecessor is possibly too old. After all, our perception of form changes over time. So the specific question was: what would the enclosure look like if we made it today?

The result is the PROTEC series of enclosures. The decision in favour of model number XX (the illustration) has been taken, but the shape was revised once more in the decision-making process, and is not rectangular in the end product but square. The standard enclosure is grey-white, neutral, so that the customer can apply his design clearly and visibly to the object.

Apart from the fact that you can, of course, incorporate into the new version all the experience that OKW has gained with the tried and tested enclosure, the current design trends flow into the new design, and the experience values also include the – past and potentially future – customer requirements.

Yes, and above all the experience we had in purely technical terms with the predecessor. In fact, it is particularly important with this design that we should show very few enclosures from the front, so that a large customisable user interface can quickly turn the product into the customer's own product. There is thus very little design on the plastic enclosure itself that could stand in the customer's way. This is what makes the quality of this design so special.







The inclination was taken from the previous model, there was no reason to remove it from the form language of the product. What is actually new is that we decided to develop it in a square form. This in turn has to do with customer requirements. With the old enclosures, we had small display surfaces in the head area of the operating area. Today, user interfaces are often designed with generous dimensions and preferably with landscape orientation rather than in portrait format. With an enclosure that hangs on the wall in portrait format, I would then have a lot of remaining space in the rectangular shape with a landscape-format operating panel below the screen.

In future, however, everything will take place in a more compact environment than before. Electronics are getting smaller and smaller, visualisation requirements are increasing, and complexity is extremely high. For this reason, finished components are used for visualisation, and this must be taken into account at the planning stage. Now we could make a landscape-format enclosure, and this would best meet the requirements of a modern display.

However, we know that standard enclosures are used when the standard elements or display sizes that already exist can be combined with other functional elements. A few buttons, a rotary knob, a laser, a loudspeaker, some other function is usually added. With the square footprint, the installation of a rectangular display leaves a residual area – not too large – which can be used for additional functions.

The customer's main focus is thus on tomorrow. And with the new version, the product remains unique, aesthetically up to date, not only now, but also in the future.

**Mr. Nussberger, thank you very much for this exciting and informative interview!**

**polyform**

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POINT OF VIEW

# ENCLOSURES FOR SMART SENSOR APPLICATIONS

The fourth industrial revolution, or "Industry 4.0" for short, has already begun, even if many people are not really aware of this. On the one hand, this is due to the fact that most people have already heard of it, but many are struggling with the definition and its real impact on day-to-day working life. In addition, the topical subjects of IoT (Internet of Things) and IIoT (Industrial Internet of Things) are mentioned in the same breath as Industry 4.0. This makes things a little more complex.

Author: Kay Hirmer, Head of Marketing at OKW Gehäusesysteme





## IOT IN THE HOUSEHOLD

Digitisation and networking can best be used and understood in your own private environment: with your smartphone, which has meanwhile become "man's best friend", you can today control a wide variety of things, no matter where you are. Individual devices such as the smart watch are linked up with other "smart things" and the data is stored in a centralized secure "cloud". All of this is intended to make our everyday life easier for us. In my opinion much of this is absolutely sensible, such as wearable emergency call systems/transmitters in hospitals or social areas. Or also personal tracking systems in occupations with an increased safety risk.

An interesting example is the "Capturs" by the French manufacturer of the same name ([www.capturs.com](http://www.capturs.com)). At first glance this GPS tracking system may seem to cater for the fun factor, but a closer look reveals much more: the wearable device makes it possible for friends, family and fans to keep track of routes and thus

to be involved live when persons are pursuing their sports activities, regardless of the terminal unit in question. You can export/save the data (route, distance, elevation, duration) and even publish them in social networks. But now the special feature: in the event of crashes or accidents, departure from the predefined route, longer stay at a given location and when the battery is weak, it



automatically sends an email or a text message to certain persons. This makes it possible to call for help quickly in case of emergency. The

Capturs was installed

in the OKW MINITEC series of enclosures and can be used for all outdoor activities: hiking, skiing, climbing, paragliding etc.

Other OKW series of enclosures that can be used for wearables are the BODY-CASE and the ERGO-CASE. ➤



#### GENERAL OPERATION:

- The physical world is connected to the digital world through the collection of reliable sensor data, correct evaluation or real-time analysis.
- The collection of data through countless different sensors is highly diverse.
- The best-known sensors are temperature, humidity and presence sensors. Energy, vibration, pressure and status sensors are used especially in machines.
- To transfer the data, wireless networks such as GSM, LTE, BLE, WLAN, WiFi or the particularly power-saving LoRa standard are required.
- Wireless and battery-free applications according to the EnOcean principle are also interesting for a limited range.
- So-called APIs such as SPI, I2C, LAN, USB are necessary in the enclosures/devices.
- These data can also be paired with weather data from the Internet; the data can be stored in suitable cloud solutions.

## INDUSTRY 4.0 AND IIOT

Let us come back now to the actual topic of "Industry 4.0" and IIoT "Industrial Internet of Things". There is a significant difference between the two concepts – in short, Industry 4.0 is a high-tech strategy for promoting the digitisation of industrial production; IIoT is the concrete use of smart technologies in the manufacturing industry. Many companies are currently discussing the question of how to make internal processes transparent and how to optimise them across different levels/organisations. In IIoT, it is also basically a question of making things smarter by making them communicate with each other. The focus here is on sensors which are embedded in the devices and which constantly gather and centrally deliver data concerning machinery and special application scenarios or data about the user and the entire value-added chain. The main objectives are always the same: providing better quality, optimising processes and streamlining operations, optimising the use of resources, completing orders faster and delivering them faster to the customers. In addition,

an important objective is to significantly shorten the market introduction cycle for new products in order to gain a competitive advantage.

## ENCLOSURES AND IIOT

Even today, many OKW enclosures series are used for the most varied applications in the smart factory. Subsequent use in day-to-day work is highly varied, and the requirements to be met by the enclosures may therefore vary considerably:

- Mobile enclosures for the integration of temperature, humidity or presence sensors – ergonomic design for fatigue-free working.
- Installed permanently on the wall as gateways – simple, concealed wall mounting, possibly with security functions.
- In machines/systems with integrated vibration/pressure and status sensors.





- In miniature form for wearable applications – on the arm, wrist, around the neck or in the shirt/ trouser pocket.
- Larger sizes in a robust design – if more space is required for installing components/displays.
- Use of high-quality materials for the manufacture of the standard enclosures.
- High IP classes for the protection of the built-in electronic components and sensors..
- Options for modifying the standard products according to individual customer wishes and requirements.

We have now drawn up a list of all enclosures that are suitable for the use of smart sensors under a separate heading. Now you can find a suitable sensor enclosure even more quickly under: [www.okw.com](http://www.okw.com) (Selection PRODUCTS, IIOT/SENSOR ENCLOSURES)

To ensure that the standard enclosures also meet individual customer requirements in terms of company colour, visual adaptation to the usage environment, company logo, the electronic components and cables etc., we offer a wide range of services: painting, printing, EMC aluminium vapour plating as protection from stray radiation, cutouts/openings, for example for USB/SPI/I2C/LAN connectors or control buttons. In industrial enclosures with high IP classes, the use of special pressure compensation elements is a big advantage. A partial vacuum may be created inside sealed enclosures if there is a change of temperature. Moisture and dirt particles may be sucked in, damaging the sensitive electronics. These OKW pressure compensation elements can counteract this, since they allow an especially high air flow. At the same time the innovative design provides reliable protection against dirt and, if required, is absolutely waterproof up to a pressure of 6 bar.

