

### ART-TERMINAL

Sophisticated aluminium profile enclosures for central control units





### IMPRINT

#### Magazine

INSIDE – the Customer Magazine of Odenwälder Kunststoffwerke Gehäusesysteme GmbH

### Publisher

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### Print

Laub GmbH & Co. KG, D-74834 Elztal-Dallau

### Graphics & photos

Odenwälder Kunststoffwerke Gehäusesysteme GmbH, Fotostudio Respondek, D-74722 Buchen, fotolia

### Issue

01/2018 (June2018)

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## DEAR READER

In today's edition of the INSIDE customer magazine we deal with the topic of "high quality, modern aluminium enclosures".

The OKW aluminium enclosure programme protects your electronics reliably. The enclosures offer an optimum combination of function and design. They score points with exceptional stability and heat dissipation, as well as a high-quality appearance thanks to a matt anodised finish in conjunction with attractive plastic parts. The enclosures are used in network technology, communications, building services systems, medical field and laboratory technology, in healthcare, in plant and machine construction, and much more.

In this context we would like to introduce you to our new SMART-TERMI-NAL aluminium profile enclosure. Visually appealing, with plenty of space for large-volume installations, a variety of technical advantages, individual aluminium profile lengths on request and creative design options make the SMART-TERMINAL the last word in excellence for tough industrial display enclosures. Allow us to convince you on the following pages.

We hope you enjoy reading our magazine

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Dipl.-Vw. Martin Knörzer Managing Director



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## Plastic and aluminium combined

OKW aluminium profile enclosures are particularly used as high-quality enclosure solutions for demanding applications.



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- Smart TAG
- Mobile diagnostic device for CAN and CAN FD buses
- Robust UHF reader
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# **SMART-TERMINAL**

Aluminium profile enclosures are used in many different industries. Through their enclosure design they have numerous positive characteristics, such as durability, enormous stability, good heat dissipation and electrical conductivity. With the new SMART-TERMINAL, OKW Gehäusesysteme offers an elegant, flexible and robust aluminium profile enclosure in its standard product programme. A uniform profile cross-section with variable length design as well as matching accessories allow a flexible variety of applications as a table-top, desk-top or wall-mounted enclosure.

Author: Josef Both, Research/Development at OKW Gehäusesysteme



The SMART-TERMINAL range of enclosures has a robust enclosure body made of anodised, polished aluminium. The enclosures consist of a C-shaped base profile, a bottom profile as well as end caps.

### Robustness and elegance

The material selected for the basic body of the SMART-TERMINAL makes it particularly scratch

and impact-resistant. It also offers optimum heat dissipation. The top part includes a recessed area to protect membrane keypads/decor foils and flat lateral interface surfaces. There is sufficient space here for operating elements, switches or displays. In order to close the enclosure from below, the flat bottom profile is fixed using 6 stainless steel Torx screws. Protection from splashing and dust has also been provided. The assembly kit contains not only the screws but also a round-cord seal as well as sealing rings. On the open profile sides, the SMART-TERMINALs are closed with covers made of high-quality UV-resistant ASA+PC-FR material in the colour lava. This design provides particularly good accessibility during installation and assembly work. For the covers there are separate designer seals made of TPV material in the colours volcano or green (RAL 6016). Interfaces such as plugs and connections are also possible through the plastic parts. These have a recessed interface level and also conceal the connections. Alternatively, mechanical processing of the aluminium body is possible, as it offers enough room, for example, for cable bushings or for USB connectors and SD cards.



The complete enclosures are available with profiles in the dimensions of  $170 \times 50$  mm (width x height) and in the profile lengths of 160 mm, 200 mm and 240 mm. With the covers, the length of each

### Ideal for display/touch solutions

version increases by 42 mm. The sizes were designed for standard display and touch solutions from 4.3" up to a maximum of 8". The

200 mm SMART-TERMINAL, for example, is ideal for a 7" touch solution, as there is a border here of approx. 15 mm around the recess for gluing. The inside of the enclosure has several mounting options on 2 assembly levels. The displays and PCBs can thus be optionally mounted face up or face down. In addition, the bottom part has two grooves for attaching accessories.

Optional accessories are ideal for rounding off the range of enclosures. For example, optimum operation is guaranteed by an enclosure canting kit in landscape format. Thanks to the 12° inclination, data can easily be processed and analysed. The kit contains two plastic brackets and is simply pushed into the existing groove in the bottom profile and automatically fixed in place by the side covers. The black non-slip enclosure feet included with the enclosure canting kit ensure safe use as a desk-top version.



However, a solution for wall mounting is also guaranteed. Often, for example, equipment is installed directly on machines or in entrance areas. In this case, the enclosure can simply be installed

### A wide variety of possible applications

in landscape format with the optional wall suspension element, which includes a wall bracket as well as a tongue and anti-slip

pads. As with the enclosure canting kit, no further machining is required here. The wall suspension element is simply screwed to the wall or to the flat front surface of the machine. Anti-slip pads are then glued on to prevent the enclosure from being pushed to the side. The SMART-TERMINAL is hung onto the wall suspension element, the tongue on the lower rear side of the enclosure is hooked into the centre and secured by a screw. The housing is now correctly fixed in place and hangs flat against the wall or the front of the machine.

As alternatives to the covers made of plastic, aluminium panels are available to close the sides of the enclosures. The panel is mounted on the body of the enclosure using 4 screws. In this version with end plates , the three profile lengths are each 4 mm longer (42 mm with plastic end covers). With a set of square-head nuts, which is also available, PCB and mounting plates can be attached to the bottom profile with M3 screws. The square-head nuts can be positioned anywhere within the T-grooves provided. The existing range of accessories makes the SMART-TERMINAL into a versatile table-top, desk-top or wall-mounted enclosure. In order to allow the SMART-TERMINAL to meet customer-specific requirements, there are different processing and finishing technologies to choose from. Since we have our own Service Center, the enclosures can be modified to your liking. The options include, among other things, mechanical

### Individual finishing

machining for interfaces, individual lettering and printing, or the manufacture and installation of digital printing foils. If you wish an

individual design, the designer seals and covers can, on request, be produced in a different colour. Customer-specific profile lengths are also possible.

This robust enclosure design with its elegant appearance is suitable for many different applications, particularly in rougher conditions. Thanks to the optional accessories like the enclosure canting kit, data can be entered and read off easily and comfortably. With the wall suspension element, the SMART-TERMINALs can be attached to the wall, to equipment or to machines as permanently installed control units. A mobile variant in landscape or portrait format is also conceivable. Further fields of application include, among other things, security and building services systems, measuring and control engineering, agricultural vehicle technology, construction machines, environmental technology, medical and laboratory technology, embedded systems.







### Product advantages in brief:

- 3 basic enclosures in the profile lengths 160, 200 and 240 mm (overall enclosure length with end covers + 42 mm), width 170 mm, height 50 mm.
- Covers in lava (similar to anthracite) moulded in high-quality ASA+PC-FR plastic.
- Designer seals made of TPV material in volcano or green.
- Recessed area in top for the installation/protection of displays, membrane keypads, operating elements.
- Optional accessories: wall suspension element, case canting kit, set of square-head nuts for PCB mounting.
- Individual profile lengths to customer specification.



## THE ADVANTAGE OF PROFILE ENCLOSURES: THE LENGTHS ARE VARIABLE



All extruded aluminium enclosures offer a high degree of stability and good heat dissipation, as well as a high-quality appearance thanks to a matt anodised finish in conjunction with attractive end element plastic parts plastic end panels.

Even the standard versions of our enclosures will convince you through their compatibility. Depending on the enclosure type, this includes mounting options for displays, printed circuit boards and components, recessed surfaces for protecting membrane keyboards and labels as well as recessed areas for the installation of interfaces etc. A wide range of accessories offers you the opportunity to equip the aluminium enclosure with additional functions.

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## PLASTIC AND ALUMINIUM COMBINED

The SYNERGY aluminium profile enclosure combines the advantages of aluminium and plastic in one single enclosure concept. The elegant enclosure range, which has already received a design award, provides a modern design thanks to the 4 basic geometric shapes - square, rectangle, circle and oval.

Author: Lisa Binninger, Marketing at OKW Gehäusesysteme



SYNERGY – SQUARE & EDGE

The SYNERGY offers plenty of space to accommodate interfaces, has no slanted shapes and is very easy to assemble thanks to the 3-part enclosure design. The enclosure has a top part and a bottom part including a battery compartment lid. The plastic parts are made of flame-resistant ASA-PC-FR material (UL 94 V-0) in black (RAL 9005). The top part has a recessed area which is ideal for protecting decor foils

### Elegant and sturdy at the same time

or membrane keypads. There is also sufficient space for a display. The battery compartment lid on the bottom part is fastened

with only one screw. The opening is practical for the use of a battery compartment or for access to the interior, e.g. for a memory card or batteries that are mounted directly on the board. The silver anodised

SYNERGY - ROUND & OVAL

aluminium body is blasted with glass beads and offers exceptional stability, as well as a high-quality appearance. The individual components are assembled using 4 connectors and stainless steel Torx screws.

Thanks to the different basic geometric shapes, the SYNERGY can be optimally integrated into any environment. You can choose between a square, a rectangle, a circle or an oval. Thanks to the combination of three sizes for each basic shape, each with three heights, a total of 36 enclosures is available, with plenty of space for the electronics and operating elements.

The consistent expansion of the enclosure family means that the devices can be integrated perfectly

Into the desired area, and allows a wide range of possible combinations. The SYNERGY SQUARE and ROUND have the smallest dimensions with a length by width of 100 x 100 mm and Ø 100 mm, the largest end dimensions are 140 x 140 mm and Ø 140 rnm. The larger enclosures, the SYNERGY OVAL and EDGE, start at 160 x 160 mm and end at 200 x 200 mm. The enclosure has been primarily designed as a table top enclosure. However, wall mounting has still been taken care of: a wall suspension element, available as an accessory, allows the enclosure to be mounted with only one screw.

SYNERGY enclosures can be modified to meet customer-specific requirements. Since we have our own service center, various processing and finishing

## Individual finishing

techniques are available. The enclosures can be processed as required through the mechanical processing of interfaces, surface finishing by means

of printing or painting, EMC aluminium coating to combat interference from inside as well as outside, the installation of membrane keyboards/decor foils or also installation and assembly. It is also possible to have the aluminium profiles produced in special lengths. On request, customer-specific glass plate brackets are available for all versions of the SYNERGY series. The new brackets consist of an aluminium ring and an adhesive surface on which a suitable glass plate is mounted. It is possible to bond a foil onto the rear side of the glass plate, or it can be printed directly; a touchscreen would also be possible.

### Product advantages in brief:

- A modern range of enclosures in 4 basic geometrical shapes square, rectangular, circular and oval.
- 36 enclosure sizes, with plenty of room for the electronics and operating elements.
- Colour combination: Aluminium, anodised in silver / plastic parts black.
- Plenty of space for interfaces, no inclined surfaces, easy assembly.
- Recessed surface in the top part for decor foils or membrane keyboards.
- Extender (for increasing the height of the domes) and wall suspension element as accessories.









# APPLICATIONS

Our range of aluminium enclosures includes table-top enclosures, hand-held enclosures, panel enclosures and wall-mounted enclosures, and is particularly suitable for use in network technology, communication, building services systems, medical field and laboratory technology, healthcare, plant and machine construction, and much more.



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Intelligent home control regulates activities such as the lowering and raising of blinds depending on the position of the sun, heat regulation in the individual rooms, the opening and closing of windows, the closing of doors and much more, manually or automatically.



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# MAIN FOCUS INDUSTRY 4.0



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## INTEGRATING PRODUCTION AND MODERN INFORMATION/ COMMUNICATION TECHNOLOGY

The rapidly increasing digitisation of the economy and society leads to Industry 4.0. People, machines, equipment, logistics and products should be able to communicate and cooperate directly with each other. This is intended to integrate production as well as logistics processes intelligently between companies in the same production process in order to make production even more effective and more flexible.

This creates value-added chains, which also include all phases of the product life cycle of a product - from the idea to development, production, usage and maintenance, right through to recycling. Customer wishes are incorporated, from the product idea up to and including the service.

By networking companies, it is possible to optimise not only one stage in production, but the entire value-added chain. If all information is available in real time, a company can, for example, react at an early stage to the availability of certain raw materials. Production processes are controlled across companies in such a way that they save resources and energy.

All in all, the cost-effectiveness of production can be improved, the competitiveness of industry in Germany strengthened and the flexibility of production increased.

Source: Bundesministerium für Wirtschaft und Energie, www.bmwi.de/Navigation



## WIRELESS NETWORK ACCESS POINT

At field level, the sWave.NET wireless network facilitates variable communication between wireless switching devices and access points, which function in a similar manner to a router. They receive signals from wireless switching devices, bundle them and then transmit them, e.g. by Ethernet or Wi-Fi, to one or several application servers. The access points are installed across the transmission range and communicate with the wireless switchgear.

About 100 radio switches can be managed for each access point. If more radio sensors are needed in the radio range of an sWave.NET access point, further access points can be logged on to the system. If a switching device sends a message, it follows a defined sequence of access points. If transmission to the first access point fails, the second access point is addressed etc. This ensures a very high level of transmission security.

In the choice of enclosure, it was decided to use the SYNERGY EDGE aluminium profile enclosure. Depending on requirements, the enclosures were subsequently processed mechanically (for interfaces) and printed.



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## SMART TAG

The conbee Smart TAG is based on the Bluetooth 4.x specification with a range of up to 150 m. The fully configurable TAG has an authentication function using out-of-band or SecureSimple pairing, is forgery-proof and has a motion sensor that is capable of recognising manipulation attempts. Status data are transmitted at dynamically adaptable transmission intervals in advertisement packets that provide information about the object to be tracked. The intelligent TAG cyclically reports its identification number, temperature and movement data as well as battery status and optionally also its position.

The unit can be used across all industries: agricultural and forestry construction, building/industrial automation, facility management,, medical care, logistics and storage, telematics, etc. The TAG is suitable for iBeacon applications, access and presence monitoring, indoor and outdoor localisation, inventories, location-based marketing scenarios and much more. In its MINITEC enclosure by OKW, the conbee Smart TAG can be carried comfortably on a keyring or attached to the object to be tracked. Different colour variants are also available, depending on the application requirements.



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## MOBILE DIAGNOSTIC DEVICE FOR CAN AND CAN FD BUSES

The PCAN-Diag FD is a handheld device for diagnosing communication on a CAN bus. Diagnostic options exist both at protocol level with the evaluation of CAN 2.0 and CAN FD messages as well as on the physical plane with the help of an oscilloscope function and additional measurement functions for voltage and resistance. The oscilloscope function is used for the qualitative assessment of the signal characteristic on the CAN bus. Two independent measurement channels scan the two CAN High and CAN Low lines at up to 100 MHz. On the basis of the signal characteristic, the PCAN-Diag FD decodes CAN frames and shows their component parts as a graphic curve.

At protocol level, the incoming CAN traffic is displayed in list form, optionally in a symbolic form to allow this to be interpreted better. For subsequent analysis, a tracer is included to record the CAN traffic. Outwardly, individual CAN messages or even entire sequences of CAN messages can be sent to the connected CAN bus, for example, to retrieve diagnostic data. Recorded CAN traces can also be reproduced.

Power is supplied by means of internal batteries. The device is charged using a special storage station.



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## ROBUST UHF READER

The RFID reader for the passive ultra high frequency (UHF) range generates an energy field from electromagnetic waves. As soon as a passive UHF transponder enters the energy field, it sends the content of its memory to the relevant RFID reader. Supported operating systems include Windows, Linux and Mac OS. The reader has an integrated, circular antenna structure as well as ultra-bright, freely configurable LEDs. The internal electronics are protected against water jets. Possible applications are the logistics sector, data acquisition at workplaces or for industrial use, access controls etc.

The advantages of a UHF reader are the particularly high range and the ability to read several transponders simultaneously. The UHF evaluation unit controls the data exchange with the RFID antennas and/or the sensor/actuator level, communicates with the higher-level control level and makes it possible to configure the device. The SNAPTEC enclosure used for this purpose is characterised by rational assembly using an innovative snap-in method. The high bottom part provides a maximum surface area for the existing cable gland. Thanks to the integrated seal in top part, the enclosures have the high IP 65 protection class.



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## **MPI ADAPTER**

The MPI adapter is available in different versions, e.g. as a programming adapter for connecting to a PC or laptop, for the implementation of a USB port on the MPI bus or with a protocol function.

The multipoint interface (MPI) is an interface, and the MPI bus is a proprietary interface for Simatic S7 devices by Siemens and is used for connecting PGs (programming devices), OPs (operator panels) and other Simatic S7 devices.

The adapter was realised using the TOPTEC plastic housing. The individual components of the series of enclosures are mounted by means of a snap-in method. The PCBs can be fitted on both sides with interfaces that project beyond the actual width of the enclosure. The previous assembly of the connectors on the case wall and the connection cable for the PCB can now be dispensed with. The TOPTEC was modified for the MPI adapter at the customer's request by means of mechanical processing for the interfaces and printing on the top.



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## INDUSTRIAL ROUTER

The Industrial Router is designed for tracking goods with remote access. For this purpose, the router is stationary placed at key points in the company to read the data from smart tags automatically and sends them to a central user server, e.g. via Bluetooth or LAN/WLAN.

So-called "tag finders" can be customized depending on the customer requirements and alert the head office in case of undesired incidents. Transmitted data, e.g. current position, temperature, humidity etc. The router is designed for indoor and outdoor applications.

The wall-mounted NET-BOX enclosure was used for this application. The flat design of the enclosure gives you plenty of scope for installing electronics, smaller displays and large-volume connectors. The design on the underside is also exciting: the wall mounting is on the right and left, and in between there is a surface for interfaces. When the wiring for the electronics has been completed, the connectors are elegantly covered with a trim – all this without any visible screw connections.



## EVOTEC 100

With the new enclosure size 100, the range of Evotec enclosures by OKW Gehäusesysteme has grown further. The small EVOTEC 100 is ideal for applications that require a reduced installation volume. The enclosures are particularly robust and are suitable for harsh working environments. Examples of possible applications would be measurement and control engineering, control technology, GSM modules, networks, medical and laboratory technology or information technology.

The new EVOTEC 100 enclosures are available with 2 flat top parts that differ only in height. The EVOTEC 150/200 or 250 from the standard range are suitable for even more installation volume, and desktop versions with/without recessed surfaces are available in the sizes 200 and 250. The dimensions of the EVOTEC 100 enclosure (L x W x H) are 100 x 62 x 26/31 mm. The other versions are available with the following dimensions: 150 with 150 x 93 x 35/45 mm, the 200 version with 200 x 124 x 45 mm and the EVOTEC 250 with 250 x 155 x 54 mm. Pleasant contours guarantee an elegant appearance.

All versions are made from high-quality ASA+PC-FR with high UV protection. Thanks to the optional seal, the enclosures achieve protection class IP65. Rubber feet included in the supply ensure reliable desktop positioning. Additional modifications, such as mechanical processing for interfaces, lettering, painting/special colours and printing or EMC coating allow the enclosure to be customised according to the user's individual ideas.







### For EVOTEC sizes 200 and 250

## WALL SUSPENSION ELEMENT EVOTEC

With the new suspension element, suitable for the versions 200/250, the enclosures can now be mounted quickly and easily on the wall. One part of the suspension element is mounted on the rear side of the EVOTEC. Its "counterpart" is screwed to the wall. You can now easily click the enclosure onto the wall element or also remove it again. A screw connection of the two wall suspension components from below provides for more safety and protects the enclosure from unauthorised removal. Applications with the suspension element are conceivable in the field of wearables or also wireless communication.

Image: Second second



### Protected under patent law

## SYNERGY

On 16.01.2018, the German Patent and Trademark Office granted the OKW SYNERGY enclosure series a legally valid patent. The combination of black plastic parts (top/ bottom parts) and an aluminium profile anodised in silver which are bolted to each other by means of innovative connection technology is so far unique on the enclosure market.

In addition, the SYNERGY scores with its purist design in 4 basic geometrical shapes: round, oval, square and rectangular. For these reasons, the protection of intellectual property is very important for this modern wall-mount and table-top enclosure series. OKW Gehäusesysteme proves itself to be particularly innovative with the special design and construction of this group of enclosures. The development focused on the unique combination of contemporary design and functionality.



In 2015 the SYNERGY range of enclosures received an award for its unique design - the prestigious iF product design award.





Construction of a new office building

# Change of scenery for OKW

OKW has begun with the construction of a new office building. A previously unused industrial complex in the immediate vicinity underwent extensive renovation work.

For several years now, OKW has shown steady growth. "We have now reached our limits in terms of space. In order to maintain our high standards and to offer our customers optimum service, this means of course: we need more staff, more floor space for the storage area and for the entire production area," says Managing Director Martin Knörzer.

All OKW departments will find sufficient space in the 3 floors of the new office building, which is expected to be finished in the course of 2019.

Notes on fairs in 2018

## Compamed and electronica

OKW Gehäusesysteme will again take part in the two trade fairs Compamed and electronica.

The Compamed fair is the international trade fair for components, intermediate products and raw materials for medical manufacturing. From 12-15.11.2018 you can visit us in Düsseldorf on our joint stand with Hoffmann+Krippner.

The electronica will take place in Munich from 13-16.11.2018 and is the world's leading trade fair for electronic components, systems and applications.





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