

User report | Best practice



SYS TEC electronic and Ers

SYS TEC electronic location at Heinsdorfergrund in the Vogtland area.

Engineering Flexibility

SYS TEC electronic GmbH from Heinsdorfergrund in Saxony is the system company for holistic development and implementation of hardware and software solutions for embedded systems and distributed automation. The engineering nursery from the Vogtland area can look back on 25 years of experience in development

of microcontroller systems for branches such as transport & rail engineering, automation and industrial communication. After Ers soldering stations and a rework station, SYS TEC electronic has also been staking on Ers in selective soldering for some time – the VERSAFLOW 4/55 top model!



Cycle time reduced by 70% compared with the previous system: VERSAFLOW 4/55 in SYS TEC electronic production.

System companies and the electronics production branch have to assert themselves in an extremely dynamic environment in order to survive in competition. This fact is also known to SYS TEC electronic GmbH, founded in the Vogtland in 1990 as an engineering office for IT projects – now with 90 employees, more than 30 per cent of them development engineers.

In 2016, the team at SYS TEC electronic achieved a double-figured turnover in millions for the first time with about ten million Euros. The first software projects after the company was founded came about shortly after German unification for dentistry and medicine engineering, including coachings. One of the standard products, for which there is still high demand nowadays, is a USB CAN module which can be used universally. Gradually, development projects for electronic design were also requested – each year, the company continuously grew. “Quite clearly, the rail industry causes the pulse of SYS TEC to beat. Our strength is flexibility on a high quality level – we can react very quickly if our customers have new product requirements or request changes. Likewise, we can immediately provide a group of developers for a project”, says

Dominique Bräuer, Technical Head of Production at SYS TEC electronic

. They are also flexible in fitting prototypes – from the development of the design via prototype production through to the series, the company supports its customers and examines a product for manufacturability from the start of development. “We regard this inclusive service as a matter of course – after all, it is worth money in hand for our customers”, adds the 30-year-old, who has been working for SYS TEC electronic for five years. Hardware and software development, procurement, production – everything is at the same location with SYS TEC electronic.

Short distances and fast reaction capacity make the holistic all-rounder attractive for the electronics production market. SYS TEC electronic is not the classical EMS service provider with quantities in the hundreds of thousands range – naturally, the team of developers is also permanently working on increasing the numbers.

At SYS TEC electronic, however, developers’ expertise with a deep-reaching consultancy approach is clearly more in focus. For example, they produce from

Infobox

SYS TEC electronic GmbH

Founded
1990

Turnover 2016
Approx. EURO 10 ill.

Location
Heinsdorfergrund in the Vogtland area

Sales Office
Peking (China)

Employees
90, about 30% of them development engineers

Branches
Transport and railway industry, automation, medical engineering, safety developments, communication

a quantity of 1 in the prototype phase, also complete series via the zero series up to several thousand items after SYS TEC electronic has developed the design. The objective is always also getting the series with the development – as it is clear how process and production will run after defining the parameters. Unlike development, in which anything can happen from beginning to end every day.

FROM CONSULTANCY TO SERIES

The SYS TEC electronic expertise relates to the development and production of customer-specific devices and standard components for embedded systems, making use of CAN, CANopen and Ethernet POWERLINK. Depending on the customer's requirements, SYS TEC electronic can join in at any phase of the project – be it in project consultancy, development or series production. For more than ten years, SYS TEC electronic has also had its own electronics production. As a result of previous projects and smaller series, the team at SYS TEC electronic already has a total of about 20 years of experience in electronics production.

In 2013, a second production hall and the development building were added. Basically, these premises had been designed such that it would be sufficient for the forthcoming capacities for some time – but SYS TEC electronic is already reaching the limits again. If things go on like this, we will definitely have to expand here at

the Heinsdorfergrund location in the future”, says Dominique Bräuer. As regards transport, they are well integrated here in the Vogtland, die A72 motorway is just around the corner.

A considerable part of the SYS TEC electronic projects is thanks to the railway industry. In particular, an existing customer is expanding on the worldwide market with a new series of devices produced in large figures – a distinctly larger volume in the tens of thousands range. A challenge which SYS TEC electronic enjoys taking on – measures have already been taken in order to fulfil these challenges with continued high quality standards.

DESIGNED FOR LONG-TERM STABILITY

Organisationally, SYS TEC electronic has pulled out some stops, for example expansion of the machine fleet, use of faster machines and procurement of an MES, with which production planning can be controlled better and, for example, peaks and deadline changes can be compensated better. What is absolutely necessary for SYS TEC electronic in this context is maintaining their great flexibility – because it is not unusual for the industry to make a redesign for a circuit board spontaneously, which then also has to be done time-critically due to forthcoming certifications. The IPC test class 3 is a standard for SYS TEC electronic, as only first-class products guarantee the necessary long-term stability – the modules have to keep for ten or even 20 years, a device generation for the railway industry has a comparatively long life cycle of more than five years. For this, the modules are painted in the SYS TEC electronic production and each single series device is subjected to a function test in the climate chamber from –40 to +85 °C.



○ SYS TEC electronic product portfolio – 100% developed and manufactured in Germany

NEW POSSIBILITIES THROUGH A PARTNERSHIP WITH ERSA

And because the requirements are continuously rising at SYS TEC electronic, the system house is increasingly falling back on Ersas as system supplier no. 1 in electronics production. In Heinsdorfergrund, they knew the extensive Ersas world with soldering stations, rework stations, inspection and soldering systems. When the soldering irons from a different provider had fulfilled their production limit at SYS TEC electronic after a few years, they decided to change to Ersas and ordered the soldering irons and soldering stations by the dozen – practically the first tender plant in the cooperation of SYS TEC electronic and Ersas.

In 2015, there were bigger things at hand: for a customer, a certain module had to be changed 3,000 times – without a rework station, constant quality was hardly feasible. There was then a market inquiry of semi- and fully automatic rework systems with a subsequent test – in the end, the Ersas HR 600/2 rework station got the award. “We deliberately decided on this fully automatic solution as the semi-automatic solutions did not provide the required results for our specific case – the HR 600/2 does the whole job here with fully automatic measurement and placement”, says Dominique Bräuer.

The decision has already proven its worth over and above this specific project – development is pleased to have recourse to it if individual modules have to be replaced. With the rework system, SYS TEC electronic gained new experience and new possibilities as well – and Ersas left a strong impression in development and production at SYS TEC electronic.

That had consequences on the next highest level for the system: for three years, SYS TEC electronic had

had a selective soldering machine from a smaller manufacturer in operation, with fluxing, heating and soldering taking place in one zone. That was sufficient to start with, but the direction of the quality at SYS TEC has changed in the meantime, and the quantities also grew. And that was the time when SYS TEC electronic machine operator Lutz Markert experienced the VERSAFLOW 3 selective soldering system at a demonstration during an Ersas coaching – and was totally impressed. He passed this on to his colleagues in charge of production and to the management, making reference to a possible increase in quality and time-saving factor. Here too, comparisons with others on the market with sample welding were held. “At the coaching and in the sample soldering on the VERSAFLOW 3/45 in the Ersas demo centre, we saw directly how the company functions –

Machine operator Lutz Markert (ri.) and Head of Production Dominique Bräuer (le.) with Ersas Sales Manager Mark Birl in SYS TEC electronic production in front of the VERSAFLOW 4/55.



Reduces cycle times, increases productivity in SYS TEC electronic production: the Ersas VERSAFLOW 4/55 selective soldering system.

that convinced us, as did the hardware. In addition, we simply know that we get competent support from Ersa straight away if we have questions. In the end, we decided on the VERSAFLOW 4/55, from our point of view currently the best model on the market", says Lutz Markert. SYS TEC electronic is thus staking on a system which has proven its worth for a long time, which is successfully in use all over the world, works just as quickly as it does dependably and provides maximum quality.

Despite the complexity, SYS TEC electronic quickly got used to the operating – equipped with two solder pots, solder level monitoring, automatic soldering tin supply, nozzle activation and upper heating, the standard version of the VERSAFLOW 4/55 has been extended by sensible comfort features. Maximum priority was given to the stable process, which is the basis for soldering board 1 to 1,000 identically. If required, modules can simply be retrofitted at any time. What has also already happened: for even greater quality assurance, an IP camera

has been retrofitted in the meantime, controlling the process security of the solder nozzles from various angles. "The IP camera carries out wave height measurement in the board transfer from solder module to solder module and after that also takes on the changeover control – if programmes with varying nozzle diameters are used, the camera monitors the tool which has been fitted in the machine when the programme boots", explains Ersa Area Sales Manager Mark Birl.

Thanks to concentration on process and machine, the team at SYS TEC electronic with the new VERSAFLOW 4/55 can concentrate more strongly on quality – which can also be communicated excellently towards the customer. SYS TEC electronic wrote in an e-mail to Ersa after the installation: "Delivery, installation and coaching of the VERSAFLOW 4/55 were outstanding and without any complications. The cycle time was reduced by up to 70 per cent in comparison with the previous system and the quality is going even higher!" The partnership between SYS TEC electronic and Ersa, which is still young, is very pleasing for both parties – it is quite possible that the business relationship, which is functioning outstandingly, will be further expanded in the future. In the Vogtland, they know that you can start a constructive dialogue with Ersa about every aspect of soldering! ■

View into the development building of SYS TEC electronic at the Heinsdorfergrund location in the Vogtland area.



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