

User report



Partners in Business: Limtronik and Ersa

Smart Factory, Smart Productivity

Limtronik GmbH started operating in 2010 with 90 employees. Since then, the main focus of the EMS provider from the state of Hesse has been on the manufacturing of electronic components and tailor-made systems for customers. As a former Bosch unit, the company has

been manufacturing electronic components since 1970 – today, as a “Smart Electronic Factory”, Limtronik sets standards among its digital competitors. On board as project partner for the last three years: system supplier and soldering specialist Ersa.

Author
Wolfram Hübsch
Product Manager
Stencil Printer
Ersa GmbH

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 **kurtz ersa**



Highest level of flexibility and the greatest throughput with the smallest possible space requirement – this is what the Ersa VERSAFLOW 3/45 inline Selective Soldering System stands for.

When you enter the Limtronik headquarters in Limburg an der Lahn, you find the late 20th century and digital Industry 4.0 production rubbing shoulders: located directly behind the reception and the visitors' waiting area is a door leading to the company's own museum. Here lie the actual roots of the company, going back to 1970 when Telefonbau and Normalzeit GmbH, in brief TN, began manufacturing products for public switching systems at the Limburg site.

In 1981, Robert Bosch GmbH stepped in as a partner, in 1995 Bosch Telecom GmbH was founded which, in turn, was integrated into the EN ElectronicNetwork Group in 2000. For today's digital natives, some things will appear antiquated – like the telephone box with racks for telephone books at hip level or the field telephone with a crank handle. But even here, there is evidence of the know-how which Limtronik is applying today in the digital age. A change of scene to the neighbouring production facility where manufacturing is carried out digitally to the Industry 4.0 standards.

Managing Director Gerd Ohl, who has been with the company since 1992, out-

lines the developments of recent years: "The growth in the group since 2010 has been very satisfactory; in 2015 it was around 13 %, and over ten percent at the German site – with a total turnover of EUR 35 million. Overall, we are very satisfied with the development in Germany and the USA.

"Since its start-up six years ago, the Limtronik team has grown to 160 staff – including 22 apprentices, with a take-over rate of almost 100 % when they have completed training. Production is carried out on an area of 7,000 m², a further 3,000 m² offer additional space for future assignments and projects. As far back as 2011, Limtronik USA, Inc. was set up in the US state of Colorado, where production is now carried out on an area of 6,000 m².

In the USA too, developments in the US were very positive with the company achieving a growth rate of over 13 % – new business could be reported in the areas smart home, oil and gas, and the solar branch. In 2015, the Limtronik management was restructured with a trio at the helm; a dual leadership team is now in place in sales, ensuring even more market activity.

○
 Ersa Sales Engineer
 Ulrich Dosch (centre)
 with Limtronik Process Engineer
 Andreas Faber (left) and
 Limtronik Process Supervisor
 Yasin Abu-Odeh.



○ INITIAL CONTACT WITH ERSA THROUGH SOLDERING IRONS

In the home market, Germany, the EMS specialist Limtronik caters to such branches as security technology, medical technology and renewable energies. Sooner or later, anyone involved in the electronics manufacturing industry comes across Ersa GmbH, which had electric soldering irons patented in 1921 and today is among the top addresses in the branch.

The initial business contact was through hand soldering irons – further-reaching industrial possibilities offered by system supplier Ersa with its modular high-end soldering systems, only came into focus at a later date. The contact between Limtronik and Ersa intensified as of 2013, when EMS provider Limtronik began focussing on the area of selective soldering – it quickly became apparent that Ersa was among the most relevant suppliers on the market in this respect.

A number of selective soldering systems were already in place in the production facility at Limtronik, but they had begun showing their age. Something had to be done, and Ersa came into play. Not only in theory, but directly in practical testing

under real-life conditions: At the outset, the soldering systems underwent thorough testing with the Limtronik boards in the fully-equipped Ersa Demo Centre in Wertheim am Main. Of course cycle times were also clocked. The selective soldering system, and the support provided by the Ersa team, completely convinced the Limtronik engineers; the contract went to Ersa.

ACTIVE INTERVENTION INTO THE PRINTING PROCESS

Back to Limtronik and the production situation there prior to the arrival of Ersa: work on boards was carried out at a number of hand soldering stations – then came an order for complex boards with enormous volumes. “We couldn’t have trained up the number of qualified staff in that space of time.

So we got our thinking caps on: How can a process be automated? How can we become more efficient, more productive in this regard? Given all the requirements we had to meet, the Ersa VERSAFLOW 3/45 made the running, by a long chalk,” said 52-year-old Gerd Ohl. In terms of both technology and service, all those in the Hessian company feel themselves in very good hands



Off to the machines – Andreas Faber, Process Engineer with Limtronik (front), and Ersa Sales Engineer Ulrich Dosch (right) firming up future requirements in the real production environment.

Ersa. "Within just two months, we had a complete line set up and were able to fulfil an attractive, high-volume order smoothly and on schedule.

For me, this is a shining example of how a project in our branch can be, and indeed must be, implemented," says Limtronik process engineer Andreas Faber. This marked the beginning of a fruitful business relationship. Since then, month for month, thousands of boards are produced on the VERSAFLOW selective soldering system in two-shift or three-shift operation. The Ersa system made it possible to significantly increase productivity – and the staff members who used to work at the hand soldering stations are still employed in the company. But one thing is clear: Once a process is in place, it cannot simply be frozen; optimisation potential always exists.

For this reason, further meetings ensued – in particular regarding a customer having products manufactured at Limtronik on a large scale, a complex matter with a relatively high proportion of "bad boards". "We had to adequately reflect this, in order to minimise the reject rate and extra work, and raise productivity.

Ultimately, it is all about eliminating costs – which is why, in close cooperation with Limtronik's process engineering department, we retro-fitted the Bad Board Module," says Ersa Sales Engineer Ulrich Dosch, who, as a key accounter, was involved in developing the contact to Limburg. He took the Ersa Software Developer Michael Weber along to a site visit in February 2016 – with the aim of clarifying which data was to be passed on through which interface, to ultimately meet the traceability stipulations.

Initially, Industry 4.0 was not really in focus at Limtronik – although all the data on the boards was well known. This more profound context is new and has to be integrated into production in terms of further optimisation – both sides take an open approach to the topic and are working intensively on an ideal solution.

TRIMMED TO FLEXIBLE EFFICIENCY

The charming thing from the perspective of the Limtronik management is that the existing Limtronik infrastructure and the modularly-constructed Ersa system already offer outstanding possibilities for achieving this efficiently and flexi-

bly. Here too, the aim is: even greater flexibility, increased productivity and the generation of additional benefits. "We regard being one step ahead as a truly central task for a service provider – and I am very pleased that Ersä is treading this path with us," affirms Managing Director Gerd Ohl.

For all intents and purposes, Limtronik has been involved with smart electronics manufacturing since as far back as the 1990s. It began with Computer Integrated Manufacturing (CIM); the electronics manufacturing was probably more advanced here than in some other branches. Since 2014, Limtronik has been looking more closely at the Industry 4.0 topic, considering the current position and the ultimate destination.

In cooperation with the software supplier iTAC from Montabaur, Limtronik recorded the current capabilities of the company – to articulate the impulse behind this project: Let's not wait until some advisory board or other dictates specific standards, let's be proactive and show just what is possible. Let's be an example for other companies; let's examine how other companies are approaching the topic and let's set up a level within the framework of best practice that will advance the SME sector and ensure the continued success of Germany as a business location!

These are the considerations that led to the "Smart Electronic Factory" at the Limburg site – an initiative which has been joined by notable representatives from industry and global players. The aim of all those involved: To show Germany just what the SME sector is capable of, and how far things have already come with Industry 4.0.

"We have not yet reached our destination, I would be more inclined to call it Industry 3.75, but we are well on the way. This is something we can point to with pride and which can serve as orientation for others." And continues with a specific example: "In the area of bad board identification, there was very meaningful dialogue between Ersä and ourselves on how this topic could be tackled in selective soldering.

Once again, it was clearly confirmed that, with Ersä, we have taken the right partner on board." As a next step towards optimised productivity, the connection of the bad board identification to the Limtronik MES is planned and the use of the current detect unit as an AOI unit – here too, the subsequent automatic optic inspection is to become part of an automated process.

In terms of throughput, there is always room for growth, but not all that much any more. Within three years, a stable business relationship has been established between Limtronik and Ersä, one which can be expanded in every direction – whether know-how or "hardware" is needed: The decisions-making process in the Limburg leadership trio will be a short one. And something else it will certainly be: cost conscious!

achieving, independent of the operator, a consistent and repeatable quality of the process. It is the logical and consequent step for our customers towards better process monitoring and safety of their production. ■



Ersä GmbH

Leonhard-Karl-Str. 24
97877 Wertheim
Phone: +49 9342 800-0
info@ersä.de
www.ersä.com

Ersä North America
info-kna@kurtzersä.com

Ersä Shanghai
info-esh@kurtzersä.com

Ersä Asia Pacific
info-esh@kurtzersä.com

Kurtz Ersä Mexico
info-kmx@kurtzersä.com