



Report: EPRO goes FMT

Bridge to modernity

More than 300 IS machines with a futronic-built EPRO control have been performing impeccably for many years in glassworks around the globe. Yet the technology is gradually coming up against its limits: the EPRO's ArcNet communication structure is obsolete and several of its components are no longer manufactured and therefore difficult to get hold of. A comprehensive retrofit is the only way out of this dilemma. A bridging technology developed by futronic for this purpose brings yesterday's control up to date with a slimmed-down version of the FMT24S in return for an altogether manageable investment.



From the outset, futronic has pursued an open source strategy with its machine controls and drives: the systems must be flexibly tailored to machines from different manufacturers as well as to different specifications. The automation specialists have made a name for themselves as an OEM and supplier to plant and equipment manufacturers for the glass industry. Many end users have likewise trusted for years in Tettngang-made technology and insist on it whenever they invest in new equipment. The concept is no less successful whenever it comes to modernising old plant or used machines. futronic's experts can meanwhile draw on several decades of experience with retrofits – in fact, this has become one of the company's core competencies.

Keeping pace with new technologies

Provided the system and its mechanical components are carefully maintained and regularly overhauled, the robust IS machines have a service life of 20 or 25 years. This is not quite so easy as far as the electronics are concerned. "To keep pace with modern manufacturing trends, the systems should be retrofitted with the latest generation of control and drive technology in the course of their lifecycle", explains Wolfgang Lachmann, Managing Director Development & Technology at futronic. "At least the operating software should always be up to date." Not that the technology is liable to give up the ghost at some point – it simply can't stay abreast of the information technology's rapid innovation cycles. Put another way, "There co-



Michael Preuß
Wolfgang Lachmann

Dear readers,

more than 300 IS machines with a futronic-built EPRO control have been performing impeccably for many years in glassworks around the globe. Yet the technology is gradually coming up against its limits: the communication structure is obsolete and several of its components are no longer manufactured and therefore difficult to get hold of. A comprehensive retrofit is the only way out of this dilemma. Our title story illustrates how our technicians have solved this problem.

In this issue we also report on how our liaison with Jetter has been developing within the ten years after take-over. In Addition we present our longterm partner Heye International as well as our new man in Russia. The Journal also includes reports on training activities as well as other events of interest at futronic.

On this note, we wish you plenty of exciting reading with the new Journal.

Sincerely

Michael Preuß
Wolfgang Lachmann

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Figure 1

The long-service central processor rack with the ArcNet module connection on the front-side; all the other connections to the control cabinet are on the right.

mes a time when something or other is hopelessly out of date and spare parts are not available any more", Lachmann continues. A glance back over the company's history illustrates exactly what he means.

From generation to generation

It was in the spring of 1978 that futronic secured its first contract to design a control system for glass machines. After just four months, the company's development engineers were able to unveil the MP-ST. This system marked the entry of computer technology into glass production. Transistor



Figure 2

logic and relays were no longer up to the challenge – the MP-ST was a groundbreaking invention and indeed a paradigm shift. Not quite ten years later, futronic presented its successor: at the time, the CIMOG (Computer Integrated Manufacturing of Glass) was the first control system anywhere in the world to facilitate freely programmable special cycles for the production process – the next generation had arrived. The FMT24S machine control has been on the market since 2004: Lachmann refers to this third generation as "our flagship", not without a certain pride. The FMT (Flexible Modular Timing) is a distributed control system for IS machines with anything up to 24 sections that can be tailored to each customer's individual specification – and it has remained the state of the art to this day.

Lean version for modest needs

The CIMOG, too, was designed to control IS machines with up to 24 sections, making it definitely oversized for the smaller-scale plant and machinery that was particularly popular in the Far East. In the early nineties, therefore, futronic's specialists came up with a lean – and hence low-cost – alternative initially for customers in the Asian market, which is traditionally an important pillar of the company's business, and which soon attracted attention of customers worldwide: the EPRO (Economic Production) manages without the CIMOG's high-end functionality and controls a maximum of 12 sections. Approximately 300 EPRO controlled systems are currently productive worldwide even now and doing a reliable job. The last new system futronic has shipped in 2013. The EPRO is based on what is essentially obsolete, from today's point of view slightly exotic technology. The control and the visualizing components OT und MCT communicate via an ArcNet network. It's a technology that dates back to

The new module comprises the so-called FMT24S machine processor (left) and the bridging EPRO Interface Board (EIB) developed specially for the purpose. The connections for the EPRO valve drivers and the control panel are located on the front plate and all others on the rear. The rack can be tilted forward for installation.

the late seventies, and since the advent of Fast Ethernet in local area networks it has been relegated into virtual insignificance. There's only one big German automation company that has to offer ArcNet architecture components. And it is probably thanks solely to its enormous power in the market that parts can still be purchased for it at all.

A future for well-maintained machines

"We expect to see ArcNet disappearing off the scene altogether very soon. In the foreseeable future, modules like the ArcNet plug-in cards will cease to be available, and the same also goes for spare parts," Lachmann predicts. Several components like hubs, controls or so called phys for ArcNet are already difficult to get hold of today. "We buy all our modules from the last manufacturer; there aren't any second sources around any more", he adds. And the situation as regards the software in OT und MCT is no better. "The control software runs under DOS, but computers that still support such an ancient operating system are gradually dying out. In the meantime, there are hardly any left." Though to bridge the gap futronic's technicians have worked out a solution as a temporary measure: modern, Windows based PCs can now be used in conjunction with the specifically developed ArcWrapper software and a so-called DOSBox. But the supplier already has made clear that it will no longer support the DOS-Box. futronic can continue to manufacture the system's other EPRO modules itself without any problems for a while ahead. Wolfgang Lachmann's conclusion is a double-edged sword: "The ArcNet system and the obsolete software are the bottleneck. Revising them and bringing them into line with the Windows standard would be equivalent to a write-off." On

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the other hand, “many of our EPRO systems have got a good few years to go yet.” And there’s no reason to take a well-maintained system off the production line. After all, customers have made a long-term investment in futronic technology: “We’re not going to leave them standing, even if certain parts or components are no longer made”. So, what to do?

Retrofits are the answer

The answer is surprisingly straightforward. “futronic already has a modern control in its portfolio, namely the FMT24S, the CIMOG’s successor”, Lachmann points out. And if it’s been done with the CIMOG before, why shouldn’t it be possible to do it again? Lachmann outlines the underlying idea: “We discovered that components from the FMT24S system can be adapted at a reasonable cost and used as replacements for the critical EPRO modules”. It’s the customer’s choice: either completely refurbish their existing equipment and invest in a new FMT control. Or opt for a retrofit, in other words the slimmed-down version of the FMT including the EPRO parts that can still be maintained, which means to invest in only one third of the costs. “Whichever option the customer selects, he is bound to profit”, says Lachmann.

Technology right up to date again

The first step in the EPRO retrofit is always to remove the central processor rack (Figure 1) from the control cabinet and replace it with a similar module comprised of the so-called FMT24S machine processor (FMT24S-MPR) and a new board specially developed for this purpose by futronic’s hardware specialists. This EPRO Interface Board (EIB) bridges the gap between the internal control algorithm of the EPRO components and the FMT system – that is to say, the old system and the new one. The new electronics board has connections for the EPRO valve drivers on the front plate as well as the control panel of the glass machine (Figure 2). All other connections for the machine components controlled by the central processor rack, such as the shear or the reject valve, are located on the rear of the module. Finally, the old DOS computer makes way for a standard PC with a current Windows operating system. A special version of the control software with the modern, EPRO-tailored FMT24S user interface is then installed on this PC. All network components and IT hardware, like switches or cable and connection systems, can now also be purchased “off the peg” and the network connection is established via the PC’s own Ethernet port.



The thus retrofitted EPRO now offers some new features that meet the FMT standard, provided that the customer is enhancing his production programmes. Furthermore the customer can easily add some more FMT components for specific functions if required, e.g. an upgrade of the controller for servo proportional valves. And what happens to all the precious data? What about the jobs and their parameters? Lachmann: “We copy the entire data from the old EPRO control and import it into the new system. That’s part of the parcel, of course. Nothing whatsoever is lost.”

The retrofit is designed to bring an EPRO controlled system right up to date again. Lachmann admits, however, that the owner must not forget “that a retrofit is only ever an interim solution in return for a manageable investment. The day inevitably comes when only the big cogs make a difference and there’s no alternative to extensive modernisation.”

Neat and tidy: this (new) control cabinet still houses an original EPRO control (left). Each retrofit should also include new cables, depending on the system’s age and condition. They could become brittle over the years and lead to faults in view of the harsh production conditions prevailing in glassworks.

At futronic responsible for Development & Technology: Managing Director Wolfgang Lachmann.



Customer Profile: Heye International

Partners on equal terms

Heye International is one of the foremost suppliers of services and technologies for the container glass industry worldwide. According to Michael Preuss, Managing Director of futronic, Heye and the Tett nang company have built up a trusting customer-supplier relationship over more than thirty years – as partners on equal terms.

At one time, Heye International was itself a manufacturer of container glass. The original glass factory was founded by a certain Johann Conrad Storm in Obernkirchen, an hour's drive from Hanover, over two hundred years ago in 1799. In 1842, the business was taken over by Caspar Hermann Heye, who enlarged the premises and made Heye products known nationwide. Around 120 years later, a change of direction took place: resourceful minds at Heye Glas have traditionally devoted considerable attention not only to glass as a material but also to the processes and technologies for manufacturing it. The Heye International Engineering Group was established in 1966 with the aim of expanding this know-how and offering it to other glass manufacturers in the future.

Standard supplier for 30 years

Today, Heye International, which became part of the Ardagh Group in 2003, is one of the foremost suppliers of services and technologies for the container glass industry worldwide. The North German engineering firm and futronic are united in a "close, proven, trusting and fruitful partnership on equal terms that goes far deeper than classic customer-supplier relationships", claims Michael Preuss, Managing Director of futronic. It's a relationship that has grown over a period of more than thirty years. "I agree absolutely", declares



Modern glass production: Heye's SpeedLine IS machines promise high productivity and quality in container glass manufacturing – thanks not least to controls made by futronic.

Dirk Pörtner, Manager Director of Heye and since 2008 also CEO. There are naturally occasions when the two companies see things from a slightly different angle, he adds, "but that's always the case in any good partnership". Although Heye builds some of the most advanced IS machines anywhere in the world, the strategy from the outset has been to purchase the controls, for instance, from an external provider. And ever since futronic shipped the first MP-ST machine controls to Obernkirchen three decades ago, the Tett nang specialist has belonged to an illustrious circle of standard equipment suppliers.

Broad portfolio of products and services

More than four hundred IS machines manufactured by Heye, with up to twenty-four sections each, are currently in action in glassworks around the globe. It's a figure that reflects the group's sound experience in project development and machine construction. The portfolio also includes products for gob forming such as servo plungers and dual motor shears as well as various testers. Parallel to this, Heye offers engineering services and optimization of production – the swabbing robot which has been doing duty at Ardagh

in Moerdijk (The Netherlands) since 2015 is just one example – plus of course technical assistance twenty-four hours a day, seven days a week.

Design and development potential

It was with Heye at its side that futronic first ventured across the Atlantic back in the mid-eighties. The entry into the American glass market turned out to be the start of a wonderful win-win sales partnership, from which both companies have continued to profit to this day. Yet at the heart of it all remains the vision of pooling resources to optimise existing glass manufacturing technologies and innovate new ones. The goal: to make glass production more efficient from both an economic and an ecological point of view. The engineers at Heye and futronic invariably work hand in hand when they embark on a mutual project. "I believe there's still plenty of untapped potential in the design and development of machines and indeed of complete production lines", Preuss explains. And Pörtner, too, hopes that his company and futronic "will collaborate on many more joint projects and products in the future".



Dirk Pörtner: CEO of Heye International since 2008.

Mir Stekla – Glasmarkt Russland

Mission Eastern Europe

Sales and after-sales service of futronic's complex automation solutions are taken care of by a worldwide network of agents and partners. Until now, Russia and the CIS countries have been a blank spot on this map. Tigran Dadamyan has just been appointed futronic's new man in Moscow. His job will be to conquer the Eastern European market – a mission that particularly attracted him. The official starting signal for "Mission Eastern Europe" was given at Mir Stekla 2016, Russia's key glass industry event

"We've had customers in Russia and the other CIS countries for many years", says Murat Yolaçan, a sales engineer at futronic. The first EPROs were shipped east by futronic back in the early nineties. Despite this, relationships with customers in the region have so far tended to be merely indirect, with most business conducted through plant and equipment manufacturers. This situation is all set to change in future. "We maintain close links with clients in numerous different markets all over the world through our sales network and agents", Yolaçan adds when prompted to describe the corporate strategy in a few words. "We're now aiming to step

out of the sidelines and intensify our contacts with Russian customers too, in order to improve our service quality". It's actually his strategy. A strategy for Eastern Europe. It's already worked very well in Poland (we reported on it in Issue 2/2011 of the futronic Journal). This time it's Russia's turn.

The right man for Russia

Tigran Dadamyan of the Moscow based SG Service Group is the ideal man for this important mission. Dadamyan approached futronic at Glasstec 2014 to introduce himself and present his testimonials. Although still a young



Modernisation – enormous potential

His duties will include supporting existing customers and supplying them with spare parts; he will also be responsible for winning new clients and managing projects and orders. Yolaçan is convinced that there is enormous market potential waiting to be tapped. "There are an awful lot of glassworks here with old machines that are due to be modernised – in fact, they'll have to be – in the next few years", he explains. "We want to have a share of that cake with our control and drive technology."

Initially, though, Dadamyan will seek to improve our visibility in the Russian container glass industry and generally raise awareness of futronic. Mir Stekla 2016 is a good example: Yolaçan joined Dadamyan in Moscow at the beginning of June specifically to represent futronic at Russia's leading glass industry show – the first time we have had a booth of our own there in eight years. "We conducted many highly promising talks and got off to a very good start", Yolaçan comments. The two of them also have been travelling around the country, stopping off at various glassworks. Yolaçan sums up his experiences as follows: "People in Russia are keen to do business with someone they like, and they want to talk about other things too on a personal level. There are times when you have to listen to your heart more than your head." Yolaçan will no doubt spend many more hours on the road in Russia in Dadamyan's company in the future. He's already doing his best to learn the language.



Get on well together: Tigran Dadamyan (left), futronic's new man in Russia, and Murat Yolaçan, responsible for futronic sales in Eastern Europe.

engineer, he can look back on several years of experience working for diverse European engineering firms and suppliers, mainly in the glass industry. He reckoned that futronic would fit perfectly into his portfolio. "We engaged in a number of interesting conversations and the chemistry was right from the start", Yolaçan recalls. The same goes for the framework conditions: Dadamyan was born in Moscow and obviously speaks fluent Russian as well as excellent English. "If you want to do business with the Russians, you have to overcome the language barriers and the cultural differences", Yolaçan points out. You also need people who are familiar with the country, the market and its structures – people like Dadamyan.

Cooperation with Jetter / SPS preview report

Side by side

For about ten years now, futronic has been a subsidiary of Jetter AG. The takeover in 2006 promised tangible benefits for both companies – and above all for their respective customers. In spite of their different strengths and capabilities, users would particularly profit from the broader product portfolio and the enormous pool of experience – not forgetting the synergies, of course. That was the vision of Martin Jetter, founder and former CEO of the automation specialist of the same name. Yet has the original concept stood the test of time?

“Yes, without a doubt”, says Stephan Pies, aged 33, Sales Manager of futronic’s Industrial Automation division. “Our two companies have forged close ties over the last decade.” The new Board of Management, especially, has been actively driving the cooperation in several different areas. Pies: “Our collaboration today is very intense, not only in sales but also in project management and product development”. The FDU24S, for instance, the futronic drive solution which was launched in the market at the end of 2009, is based on Jetter components. And when it comes to application and software development, each of the two partners has access to the qualified resources of the other. “We can implement projects much faster together than we could on our own”, Pies claims. And the customer reaps the benefits.

futronic always has a seat at the table

Jetter has undergone a transformation in recent years from a manufacturer and seller of components to a provider of end-to-end solutions. The service portfolio covers all project phases of an automated system from the initial concept right through to commissioning. Whenever sales staff from Ludwigsburg pay a visit to a customer, futronic always has a seat at the table, so to speak. “There are many projects where we take care of the entire electrical engineering and control cabinet construction”, Pies explains. The Tettngang firm are often also involved in the hardware planning and software development. At the same time, futronic can present all-inclusive solutions to its customers in the glass industry, or even more so in industrial automation – knowing it can count on Jetter’s support.

Joint stand at SPS

It’s an open secret that what belongs together has been growing together for years now. The two partners have never made any bones about that. So far, they’ve both kept their own, distinct profile and that’s the way it will stay. In the meantime, however, the

alliance between them is far more visible and communicated more clearly. In conversations with customers, in corporate communications, on the new website that is due to go online at the end of the year – and at trade fairs. When Jetter showcases its products and services again at the Nuremberg SPS IPC Drives exhibition in November, futronic will be sharing a joint stand with the parent company for the first time. futronic won’t be using its own branding and all marketing will still be done via Ludwigsburg. But with Stephan Pies and his colleague Hamdi Regaya there will be two experts of futronic at the Jetter booth (Hall 7, Stand 106) this year to answer questions and discuss issues with customers, business associates and other interested visitors.

sps ipc drives

27th International Exhibition
for Electric Automation
Systems and Components
Nuremberg, Germany, 22–24 November 2016

Hall 7
Stand 106



Have operated successfully hand in hand for many years: Lothar Niemann (above), Sales Manager of Jetter’s Handling and Assembling division, and futronic’s Stephan Pies, responsible for industrial automation sales.

„Wissen was geht!“

Opening the gates for young people

Eight young technology enthusiasts aged from 14 to 19 years from different schools in the Lake Constance region were visiting futronic in August to inform themselves about education and career possibilities at futronic. Within the framework of the holiday action „Wissen was geht!“, promoted by the Regional Business Promotion Bodensee (WFB) futronic shows commitment for young people. The company participates at this holiday action for the eighth time.

For many years futronic has trained young people in commercial and technical professions and to assure that young trainees will keep coming to futronic for their apprenticeship, we always take advantage of this action from WFB to give pupils some insights behind the scenes.

„We want to show, who futronic is and what we have to offer and thus give some impulses for their professional career,” says personal manager Cynthia Habetz. So this year again our apprentices took charge of the preparations and the realization of the holiday action again. They presented the company and explained with practical examples what futronic is doing and in which sectors the industrial control systems and drives are in use.

Trainees provide insight

The young people of course also mentioned which tasks in the different apprenticeships are to be mastered at futronic. Sarah Schlegel and Eva-Marie Schwank, both commercial apprentices, talked about their working life in the different departments and the warehouse logistic. Tatjana Teploukhova and Aleksandar Popovic who absolve a training course as electrician for devices and systems gave some insights in the technical tasks.



The company tour got very interesting for the eight boys when listening to the explanations of Tatjana and Aleksandar, and studying the electronic boards, cables, switch cabinets and testing devices, prototypes and development software. Finally they could be active themselves when making a small table fan or LED discostar with screw driver, cable stripper and soldering iron.

Enterprises should provide orientation

„The pupils today have so many possibilities, Cynthia Habetz resumes. „Enterprises like futronic do well to open up for young people and to help them to find out which vocational route they want to take in the future which is also a good way to promote the company as training enterprise and employer.

Handicraft lesson: finally the students could work with screw driver, wire stripper and soldering iron and produce either a small table fan or a LED-Discostar.

Elektronic in praxis: Johannes Dimmler, software developer at futronic, explains what is essential in controlling a glass machine.



Here it goes: Sarah Schlegel reports on her daily professional life in the different commercial departments of the company and the challenges in the warehouse logistic.

»Employees in the Spotlight

Hamdi Regaya

Our new man in Sales

Hamdi Regaya, aged 28, joined our Industrial Automation division at the beginning of the year to support Stephan Pies in Sales. He looks after existing accounts, secures new customers and orders and prepares quotations. Hamdi was born in Tunisia. He emigrated to Germany at the age of nineteen, then studied for a year at language school before taking a degree in Electrical Enginee-



ring and Information Technologies at Karlsruhe Institute of Technology (KIT). After graduating in 2013, he began his professional career at a company in Stuttgart, where he gained his first experience in sales – an area he'd always wanted to work in. He confesses that development and design are not really his scene. He soon decided to move on. He didn't care where at first – he doesn't have a family yet, so he wasn't tied to any particular location. His attention was drawn to futronic by a job advertisement: "It was exactly what I was looking for." And because Human Resources were equally convinced that they made a good match, Hamdi packed his bags without further ado and headed for Lake Constance, where he now lives in Friedrichshafen. He feels very much at home here at futronic, close to the water. He considers he's "arrived" and he likes his colleagues, his customers and the prospects his job offers him. In return, he contributes valuable technical know-how, a talent for selling and linguistic skills: Hamdi is a young engineer who not only speaks excellent German but is also fluent in French and Arabic, not to mention English of course. We'd like to bid Hamdi a warm welcome to the futronic family!

»Activities



On your marks, get set, go!

Sports and fun combined – and with your work colleagues? Why not? Last May, for the first time, futronic entered a team in the Friedrichshafen corporate challenge race. The weather was kind to the competitors, who ran a total of three laps starting at Buchhornplatz near the Zeppelin Museum and continuing along the lakefront before returning via the old town. Admittedly, the

route was not exactly demanding, nor was the three-mile distance really a problem for anyone. Our four boys managed to work up a sweat nevertheless. And the (non-alcoholic) beer at the end certainly tasted good. Hamdi, Stephan, Sebastian and René (from left to right) were all motivated by the fun factor – and they're hoping a few more of their colleagues will join them next year!

»Anniversary

Loyalty begets continuity

Loyal, dedicated staff are the mainstay of any company. Continuity and sustainability can only be achieved if fluctuation is restricted to a minimum. We evidently have several colleagues who are particularly loyal. Bernd Lutter, Marc Meersschaut and Heiko Pfisterer have been with us for ten years now. Heike Geppert has been part of the futronic community for twenty years. And Heinrich Funk, Kirsten Salow and Sylvia Sterk have been on the payroll for a quarter of a century. "On behalf of the management I'd like to say thank-you for your longstanding loyalty and congratulate you on this important anniversary", said Michael Preuss.

»People in the News

Time to say goodbye

Anton Rupp and Josef Kerschgens have stayed faithful to futronic for a very long time. Now the time has finally come for them to take well-earned retirement. Rupp joined the company way back in June 1982, starting off in Electronics Manufacturing and Wiring before switching to Mechanical Components in 1995. Kerschgens, too, can look back on 27 years with



the Tett nang firm, where he was employed as a service engineer in the Testing and Service department. He was particularly popular with customers all over the world when it came to commissioning our controls and drives – or on the rare occasions when something failed to work as it should do. These two staunch warriors were ideal colleagues – dependable, amenable and modest. They always had a good word to say and willingly shared their wealth of experience with the younger generation. Two men who have always belonged here. It's difficult to imagine life without



them, but the day comes for all of us when it's time to say goodbye. We'd like to thank them both sincerely for their many years at futronic and wish them a long and happy retirement.