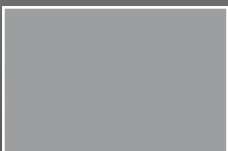


# elrest®

Wir steuern  
Ihren Erfolg

*motion control*



## System Concept

With our over 40 years of experience we provide highly flexible products for the industrial and building automation. For modern, future-oriented applications elrest offers solutions made to measure. Our products work „stand alone“ or in complex networks with each other and form a functional solution for your requirements. Whether as a drive, control, HMI, combined or in the web environment we offer the fitting solution. The planning of the masks and control is carried out via our software package eStudio or alternatively via CODESYS V2 or V3.

For your operating and management philosophy perfectly coordinated and scalable system components are available for you.

<b>visio</b>	visualization via WEB, VNC or Remote technology
<b>visio control</b>	scalable control panels with integrated PLC
<b>combo control</b>	scalable PLC-systems with integrated HMI-function
<b>motion control</b>	axis control with and without integrated PLC
<b>eStudio</b>	comprehensive, integrated projection tool with CoDeSys integrated, for all elrest-products

By using state-of-the-art components, such as processors, FPGA's, displays, etc., cost- and energy-optimized fanless systems for versatile solutions with high performance and excellently equipped graphics are at your disposal. With the  $\mu$ E, Windows CE, Windows XP, or Linux, optimal platforms are available for diverse software applications. The preferred methods of communication are Ethernet, EtherCAT, TCP-Modbus and CAN.

# eStudio

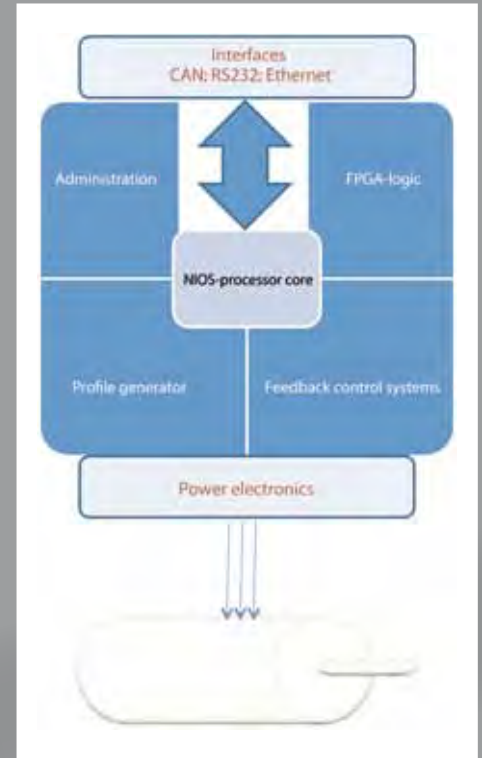


# Improved product quality at highest speed

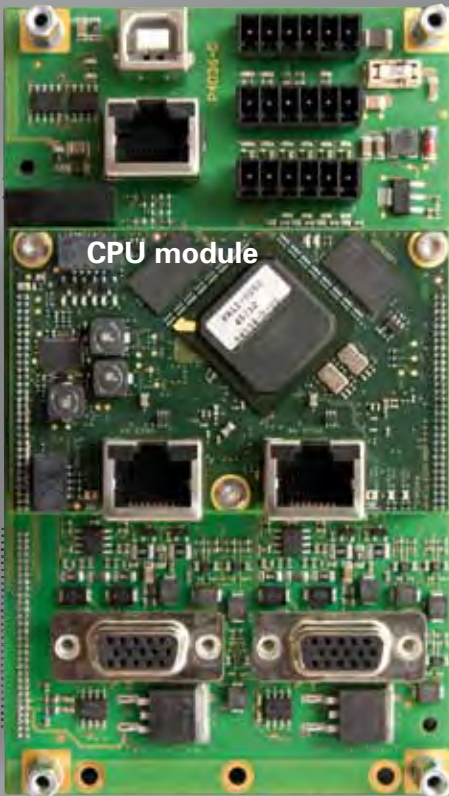
To achieve this of control algorithms we rely on parallel instead of sequential processing. Compared to the common solutions with  $\mu$  processors respectively DSP's, we trust in a multicore solution. It enables the processing of the control algorithms simultaneously. This achieves a computing time of 8  $\mu$ s up to the position control and a PWM frequency of 20 kHz and more. The attainable results considering dynamics and accuracy are only addicted to the regulating mechanics and no longer depend on the terms in the digital controller.

With this drive technology we offer you an implemented dynamic. This means for your system:

- higher operating speed by more solid control engineering
- improved product quality by high control accuracy
- simpler and therefore more favorable mechanics by better control characteristics
- regulated (instead of simply controlled) drives at very high speed by extremely short scanning times.



I/O module



Encoder module

## For each application the appropriate configuration

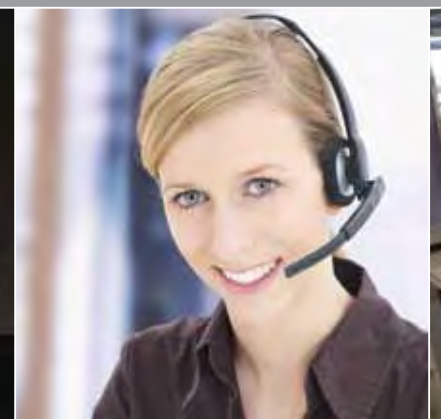
Our modular concept offers a wide variety of applications realized in the field of drive. By a combination of the corresponding modules we are able to realize applications which depend on an excellent control engineering, which on the other hand are very price sensitive.

For example: Pump drive system

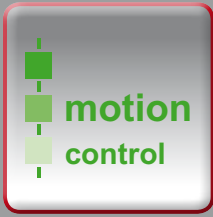
Synchronous motors with non-linear characteristics and also non-linear process are used here.

Our solution:

1. Replacement of the demanding sensor evaluation by an encoderless speed control.
2. Replacement of the EtherCAT-interface by an application usual mod-BUS (RTU) interface.
3. Reduction of the DC-link capacitance due to an advanced dynamic measurement of the DC-link voltage used by the control algorithm.
4. Integration of the system control (IEC 61131-3 CODESYS) into the drive controller.
5. Adaptation of the design and the cooling design to the application-specific requirements.



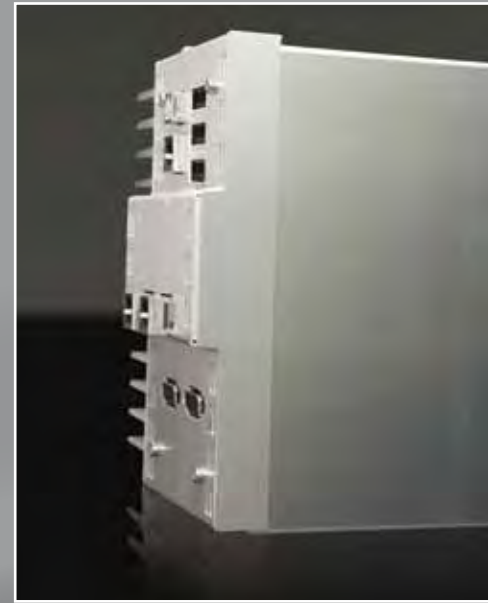
# motion



Our motion concept is characterized by consistent modularity in hard- and software.

So with our approach we cover up the wide scope of application from cost-sensitive V/Hz. applications (e.g.: heat-pumps), motion control and up to servo functions in difficult mechanical boundary conditions.

The control technology is fully implemented in a FPGA. This allows a typical computing time in the current controller of approximately 2.6 microseconds. These extremely short maturities open up new opportunities when it comes to dynamic control technology and highest requirements concerning the accuracy in production machines.



### Environmentally friendly

Latest electronics solutions, offers highest performance with minimum power consumption.



### Easy commissioning

Fast and reliable commissioning by an automatical identification of the relevant engine sizes and the resulting optimal control settings.



### Highest precision

The very short signal delay allows a realization of controllers with a high immunity and a wide dynamic accuracy. This precision will be illustrated in the accuracy of your products.



### Customized optimization

Whether price optimization or speed optimization, we always find the right solution.



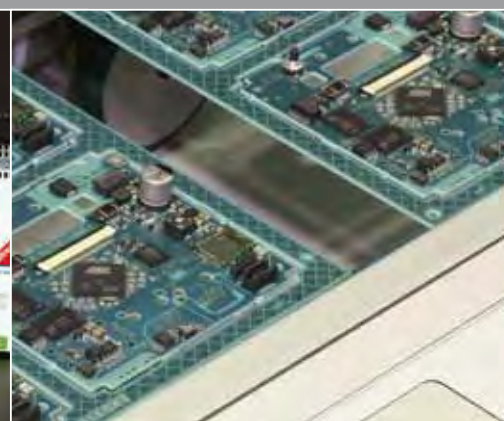
### Performance

To deliver highest speed the complete control system (current controller, governor, position controller) is implemented in a FPGA. Thereby all computing times are reduced to a minimum. This opens up new possibilities for the scheme of mechanically sophisticated systems.



### Sensorless control

The option of sensorless control due to the high precise encoder with a motor model within 10  $\mu$ , you are able to realize rugged solutions by reducing the costs by eliminating the encoder.

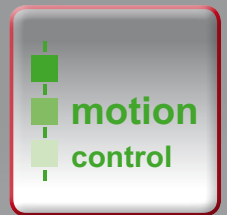




According to our company philosophy, together with you we will develop an optimal solution to your drive modality. It is our goal, to strengthen your unique selling points, by the help of our drive technology, so you can compete on the market.

If it's necessary we integrate e.g. a complete IEC 61131-3 control (CODESYS) into the inverter, without affecting the quality of the control engineering.

Drive technology completes as a further building block the automation system of elrest.



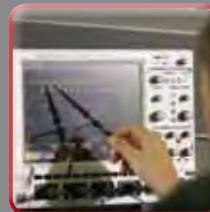
### Visualization

The operator pages can be created optionally via CoDeSys or with our elaDesign. In addition, you can use a browser to have access on the operator pages. With eStudio you can create and manage your projects easily.



### IEC 61131-3 controlling

You can solve smaller control problems with the IEC 61131-3 functionality and integrated I/O's. Thus, you can avoid further costs. The programming will be occurred via CODESYS in structured text (ST), sequential function chart (SFC), continuous function chart (CFC), function block diagram (FBD), ladder diagram (LD) and instruction list (IL).



### Diagnostic

In case the engine acts irregularly, the regulator can set up a record up to 4 internal sizes in the controller cycle. By the end-to-end monitoring in the 2.6  $\mu$ s cycle, all the information will be shown on a surface. Therefore data are found and saved.



### Interfaces

For your application a variety of interfaces are available: CAN, RS232, Modbus-RTU, USB-COM-port, EtherCAT and Ethernet.



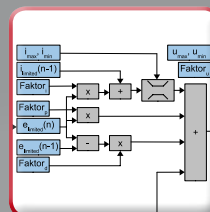
### Cooling concept

Low-maintenance convection cooling, fans and cold-plate are at your disposal. Depending on your installation situation, the corresponding cooling concepts are available to you. New opportunities are available to design your equipment with our variable cooling concept.



### Long-term availability

Industrial components are used for our products. This means a future-proof investment by a long-term for you.



### Configuring instead of programming

We will adapt the control system by changing the configuration. Consequently we can quickly and efficiently respond to new challenges.



## Contact

.. Solutions for tomorrow

Whoever wants to survive as a manufacturer today, you have to produce your products quickly, reliably and cost-optimized with consistent quality. No easy task - unless you have the right partner.

So, if you look for someone who supports you in finding the appropriate automation system and the best solution, you are on the right track with elrest.

We hope that you could get an insight view in our company, our services as well as in our products.

Do you have any questions, wishes or suggestions?  
Just get in touch with us:

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**elrest – we are always there for you!**

You find current information on  
[www.elrest.de](http://www.elrest.de)

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