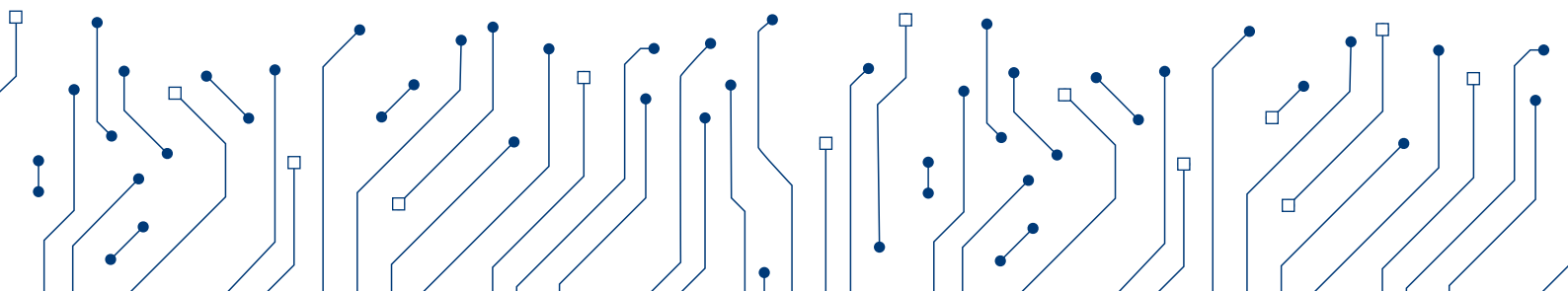




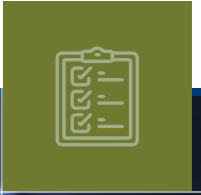
INNOVATIVE AUTOMATION AND DIGITALISATION SOLUTIONS

A competent partner in automation and process control engineering



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INTRODUCTION

Welcome to TIG Automation GmbH, your innovative automation and digitalisation specialist for industrial processes

For more than 57 years, **TIG Automation** has developed innovative solutions for the intelligent control and automation of complex plants and machinery. Our range of services runs from consultation and planning through production and installation to commissioning and servicing

With reliable, high-quality and innovative products, systems and services and the commitment and expertise of our employees, we will ensure the success of your project. Our holistic approach requires targeted technical solutions that entail efficiency not only in construction but also in operation.

Our goal is enthusiastic customers – something we achieve with great success.

Your TIG-Team



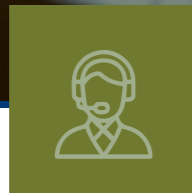
TIG Purita

Pure Water Systems
LM GROUP

TIG PURITA | PURE WATER SYSTEMS

Alongside automation, TIG works in another area of business: TIG Purita, creating individual customer solutions in the preparation of ultra-pure water, deionised water, process and drinking water and waste water.

You can find further information at www.tig-purita.de



CONSULTATION & PLANNING

We offer a solid groundwork of consultation and planning for reliable automation solutions

Our experts will support you in the following areas:

■ CONSULTATION

on the technical implementation of process-related tasks

■ PLANNING

of the energy supply and distribution in your plant, including medium-voltage installations, transformers and power factor compensation

■ SUPPORT

in the selection of the right EI&C technology and delivery of the devices required

■ CONCEPT CREATION

for communications solutions, field bus systems and secure remote maintenance options for your plant

■ DESIGN

of the right operating equipment, from a robust control panel to a computer-supported control system

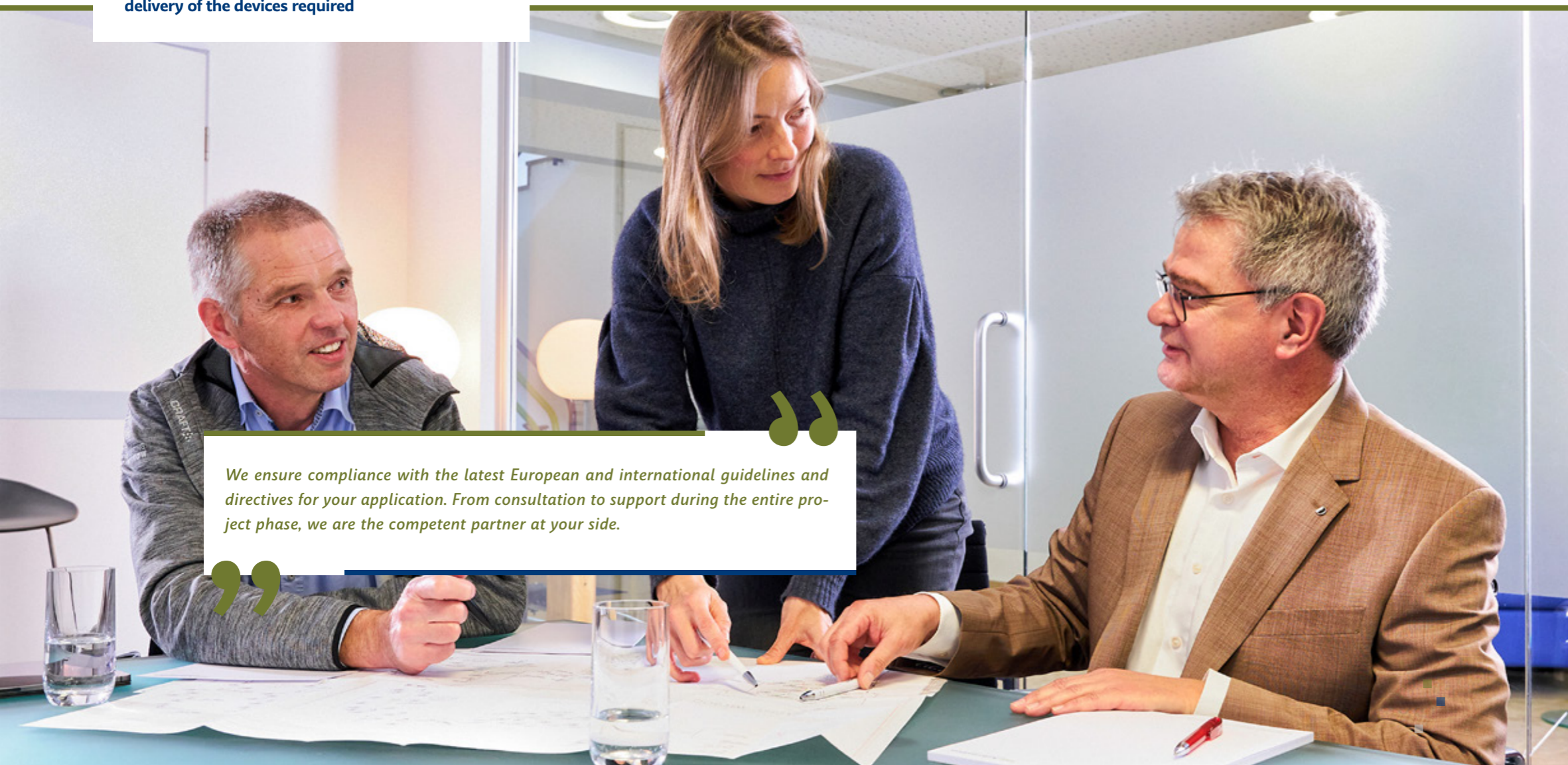
PROJECT MANAGEMENT & COORDINATION

We offer you comprehensive support throughout all phases of your automation project

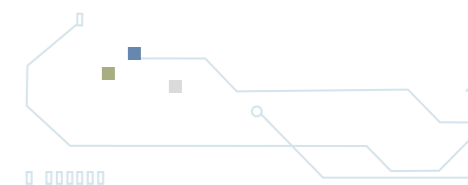
Our project management is at your side during the entire process:

- Planning phase: Implementation of plant specifications in an automation concept with consideration for specific safety requirements and special demands
- Creation of the construction documents - if needed, with direct coordination

- Support in the selection and ordering of components incl. measuring devices and control technology, with consideration for supplier preferences
- Execution of approval processes (FAT) in-house after production of the switchgear
- Planning and organisation, by project management, of production of the switchgear and electrical installation with initial testing as per the valid guidelines (VDE 0113-1, EN 60204-1, DGUV regulation 3)
- Consideration of your detailed specifications with regard to PLC programming and project management for the SCADA system for PC or panel
- Continuous support and coordination of the commissioning and start-up phases
- Provision of all test logs and technical documentation, with organisation of training measures
- Drawing up network calculations and dimensioning switchgear, gables and devices in line with the standards, using planning tools such as Simaris or Ecodial, including proof of selectivity



We ensure compliance with the latest European and international guidelines and directives for your application. From consultation to support during the entire project phase, we are the competent partner at your side.



CONSTRUCTION OF SWITCHGEAR

We will adjust the switchgear to your exact needs

Practically oriented construction in line with standards is the basis for reliable, safely operating switchgear. Thorough planning lets errors be ironed out swiftly and means plants can be easily extended in the future.

In constructing your automation solution, we always keep our eye on your needs:

In our designs, we place great value on conforming to standards, easy maintenance, keeping sufficient space in reserve and comprehensible documentation. Plant labelling will take place in consultation with you.

>> We also offer the planning of tailor-made solutions, for example, for marine applications. Because we produce our switchgear in-house, we can directly ensure compliance with the requirements during implementation.



SWITCHGEAR CONSTRUCTION

From individually adapted control cabinets to mass production

TIG Automation GmbH designs, manufactures and installs a wide range of switchgear for diverse demands and needs. With a capacity of 1,000 units per year, we develop individual control cabinets and electrical enclosures, computer cabinets and junction boxes.

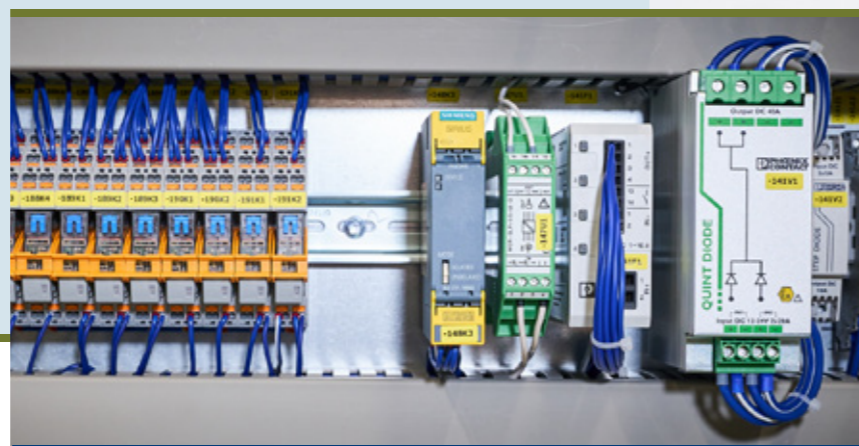
Thanks to our high level of automation in switchgear production, using CNC centres for mechanical processing and a cable manufacturing centre for wiring, we are able to offer you both tailor-made solutions and mass production of high-quality switchgear at attractive prices. Our palette runs from system cabinets for PC and network technology through switchgear and control technology to low-voltage main distribution boards. As needed, we can install these on site.

OUR SWITCHGEAR HAS THE FOLLOWING EXEMPLARY CHARACTERISTICS

- Production to the latest standards by trained personnel
- Safe insulation of live parts going beyond the legal requirements
- Optimised use of space with sufficient kept in reserve
- EMC design to avoid interference and provide screening
- Sufficient cooling, heating or air-conditioning based on thermal calculations
- Clear, weather-resistant labelling
- Variants for difficult environments both indoors and out
- Comprehensive factory testing and documentation with proof of type as per DIN EN 61439

OUR SERVICES INCLUDE

- Consultation on the technical implementation of process-related tasks
- Project planning with CAE Software EPLAN® electric P8
- Thermal assessment of switchgear for efficient cooling, heating and climate-control measures
- Design of switchgear with an eye to material strength, safety class and resistance to short-circuiting
- Experience with diverse company standards and norms
- Plant labelling to DIN EN 61346-2
- Documentation, proof of type and routine testing to DIN EN 61439



PLC PROGRAMMING

TIG Automation is your partner for tailor-made control solutions

The PLC control unit is the core of modern automation solutions, and is thus an essential component of automation technology. In this field, **TIG Automation** has gained extensive experience with the widest range of products and use cases.

For both plant and machine control, we have a team of engineers ready for you, who will also be happy to get to know your existing control systems.

WHAT SETS OUR PROFESSIONAL PLC PROGRAMMING APART

- Careful project management
- Programming based on documented standard building-blocks
- Far-reaching generative methods for efficient, bug-free programming
- Complete interface solutions for various bus systems
- Development of new special building-blocks for the individual requirements of your plant
- Intelligent programming with regard to optimised data evaluation with the lowest possible data volume (storage space)
- Constant further development of our repertoire through BA or MA theses
- Experience in handling special control systems such as redundant solutions, safety-oriented control and burner control units
- Extensive comments in the source code to aid later alterations
- Acquisition of new systems through constant training of our programmers

In the field of control technology and communications, we are a certified solution partner for Siemens products.

Solution Partner

Automation Drives

SIEMENS

TIG Automation GmbH is a certified solution partner with "Specialist" distinction for the SCADA product WinCC by Siemens.

SCADA PROJECT MANAGEMENT

Decades of experience in the development of innovative SCADA solutions

In planning your SCADA project, we will create the control system to use smartphone, tablet or touch panel, as needed. Web solutions and complex PC-based client-server systems are also in our repertoire. We will program your SCADA solution with various systems and seamlessly integrate it into your existing technology. We also offer the setup of modern control rooms for complex plant technology. After installation, we will extensively train your personnel in the use of the new software.



WHAT SETS OUR SCADA SOLUTIONS APART

- Ease of use thanks to clear, standardised interfaces
- Avoidance of malfunctions and rapid detection of bottlenecks thanks to detailed warning and alarm management
- Integrated alarm forwarding by SMS and email
- Flexible remote access options via internet, telephone or GSM
- Intelligent data archiving for the best possible transparency with low data volumes
- Centralised system maintenance with logical client-server architecture
- Redundant design for optimal availability and high plant security
- Virtualisation to minimise hardware costs and increase sustainability
- Web solutions for mobile access to the control interface

We are a certified system integrator for the Wonderware products Intouch and System Platform.

ELECTRICAL INSTALLATION

Installation that upholds the standards

The electronics contained in industrial plants are getting ever more powerful. At the same time, the demands made of electrical assembly and installation are increasing. With our years-long experience in various industrial sectors, **TIG Automation** is a competent partner where EMC compatibility, compliant grounding and equipotential bonding are concerned. Our qualified technicians will work to deadline and carry out the desired tests, with suitable documentation.



ALONGSIDE ELECTRICAL INSTALLATION, TIG AUTOMATION OFFERS THE FOLLOWING SERVICES

- Risk assessments
- Electrical installation for ex-protected zones
- Electrical installation for E30, E60 and E90 circuit integrity
- Cable route planning
- Electrical assembly and installation to British Standard
- Measurement of insulation resistance, protective earth inspection etc.
- Initial inspection, creation of test logs. Installer certification as per § 4 DGUV Regulation 3



COMMISSIONING

Proper commissioning sets up your plant for future success

We offer support during commissioning of switch-gear, control systems and the entire electrical equipment of your plant. We can also offer to incorporate isolated machinery in your overall control system.

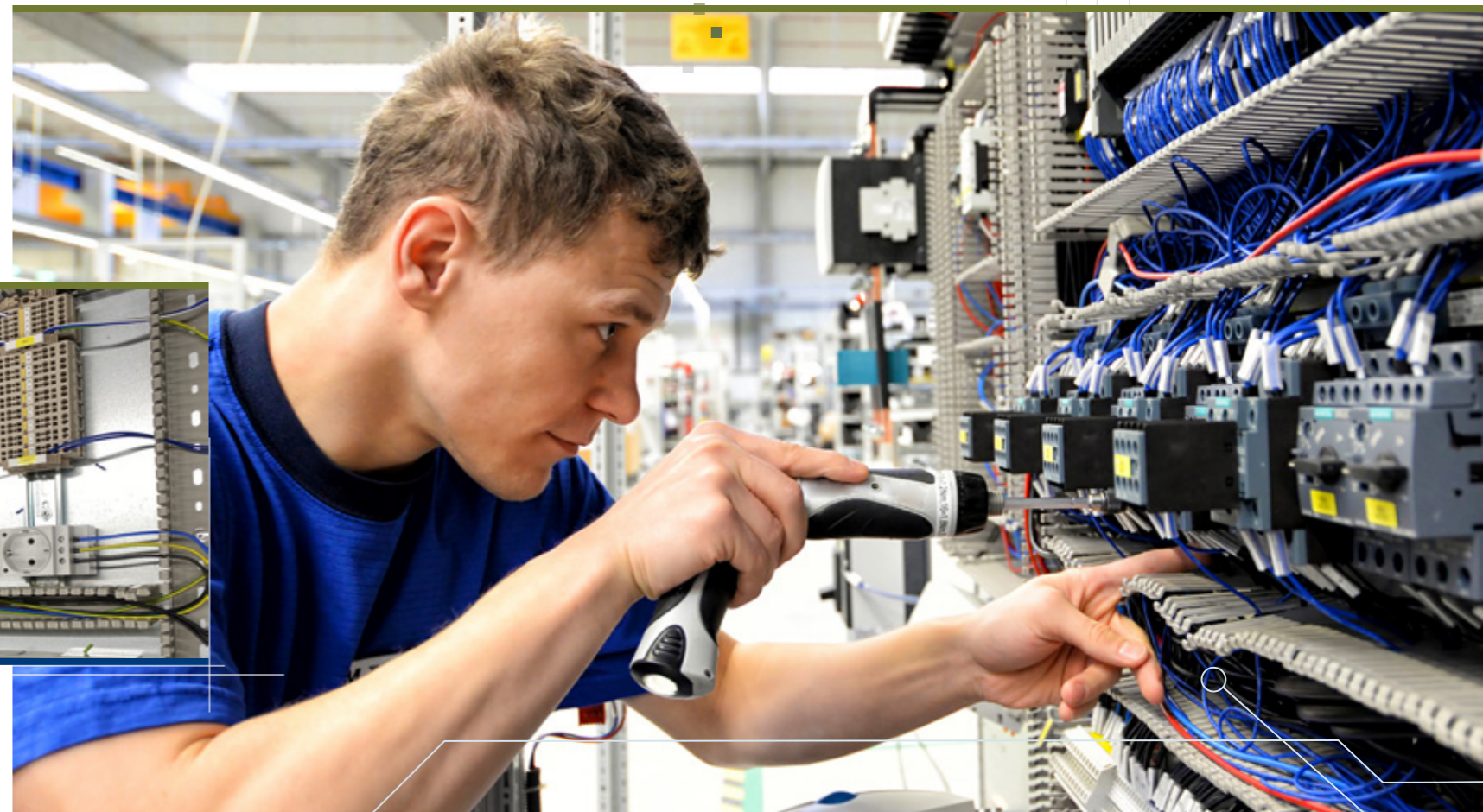
- In this, we react flexibly to your wishes and the necessary technical changes. Our engineers will exchange information with you constantly, ensuring a shared base of knowledge, meaning that continuity is ensured even where personnel need to be exchanged. This lets us react quickly – to get your automated plants up and running to deadline.

After commissioning, TIG engineers will train your personnel in the ongoing operation of the plant.

Commissioning will be carefully documented and the documents will be provided to you in electronic and/or paper format.

WHAT WE OFFER DURING COMMISSIONING

- Planning and calculation
- Support by our engineers for the commissioning process
- Implementation of desired changes
- Adjustment of plant parameters as part of the commissioning process
- Comprehensive standardised documentation of commissioning



DATA GATHERING & REPORTING

Data gathering & reporting

Efficient data gathering and reporting did not suddenly gain importance as part of modern automation solutions with the arrival of Industry 4.0. It is the prerequisite for optimised plant operation and the foundational for improved energy efficiency.

TIG Automation GmbH uses the widest range of software solutions that are established on the market. In addition, we draw up individual solutions for your plant and implement them in a cost-effective way. We also offer opportunities for data recording without a direct PC connection to your plant.

- **Incorporation of diverse SCADA, PLC systems and other data sources**
- **Use of established software such as Microsoft SQL Server or Acron®**
- **Realisation of redundant systems**
- **Time- and event-controlled data recording**
- **Batch-related data recording and evaluation**
- **Data processing and maintenance by TIG Automation GmbH**

In the use of SCADA systems, process control engineering, data recording and reporting, we use the latest PC architectures. Virtualised systems, automated backups and redundant design offer you the highest possible efficiency and protection against malfunctions. The network infrastructure will be chosen and set up to fit the individual requirements of each case. In providing solutions for secure network access, we will of course consider current security topics and work to the state of the art.



DATA PROCESSING & ANALYSIS

Energy efficiency and economy

Data collection and storage are usually a given in most plants. The greater challenge is gleaming the right information from the data that has been gathered. **TIG Automation GmbH** has diverse solutions to offer in this field in particular. Based on the QlikView® analytics platform, we offer you individual solutions to assess availability, energy efficiency, consumption information and much more. For example, we can evaluate your input data to discover savings potentials. And we are able to support you with tailor-made software solutions in this and many other fields.

- **Interfaces to all current database systems**
- **Implementation of customer-specific analytics interfaces and reports**
- **Pre-made evaluation of your input data**
- **Complete solutions for OEE assessment of your plant**
- **Implementing self-optimising processes**



MAINTENANCE OF SWITCHGEAR AND EI&C TECHNOLOGY

Maintenance of switchgear & EI&C technology

Process control engineering, electrical instrumentation and controls are essential parts of industrial plants, which is why their flawless functioning has to be ensured. We will help you to ensure optimum availability in your plants. To this end, we offer tailor-made maintenance services for your process control engineering and EI&C technology. We will help with the functional inspection and maintenance of your switchgear and the electrical instrumentation and controls it uses. We will also take on the necessary conversion measures, if needed, to keep them in compliance with the current requirements. Constant inspection of all safety systems is something we keep a particular eye on.

WE ARE ABLE TO OFFER THE FOLLOWING MAINTENANCE-RELATED SERVICES

- Checks for external damage and leaks
- Checks of the proper design and functioning of the safety measures incorporated in the control cabinet
- Checks of fixed and mobile electrical equipment as per DGUV Regulation 3
- Infra-red thermography
- Checks of the control cabinet ventilation, heating or air-conditioning, as well as fireproof shielding
- Functional testing of the UPS systems
- Testing of emergency stop, safety and protective systems
- Current replacement parts for the switchgear and EI&C technology kept in stock; exchange and repair
- Inspection and calibration of our measurement technology incl. data retention
- Incorporation of new components
- Comprehensive documentation of the maintenance measures



MAINTAINING PC & NETWORK TECHNOLOGY

Maintaining PC & network technology

PC and network technology are sensitive components of your plant. If one such component breaks down, the further functioning of the rest of the plant may be called into question. Particularly against the backdrop of today's safety requirements and increasing networking, this technology is gaining importance. Leave it to us to regularly check the PC technology you use. We will make sure you stay up to date. As desired, we can set up remote access, by which our service technicians can directly engage with the PLC controls and visualisation, diagnosing errors and eliminating faults with no trouble at all.

WE ARE ABLE TO OFFER THE FOLLOWING MAINTENANCE-RELATED SERVICES

- PC virus check and execution of security updates
- Securing and backing up existing software and operating data
- Archiving and data maintenance, logging
- PC system inspection
- Checking network connections with performance test
- Strengthening fibre-optic connections
- Reading out the CPU diagnostics buffer and connected CPUs
- Firmware updates for CPUs and control panels
- Exchanging backup batteries and filter pads
- Checking the memory map and cycle time, compression of memory as necessary or writing to memory card



24/7-ON-CALL SERVICE

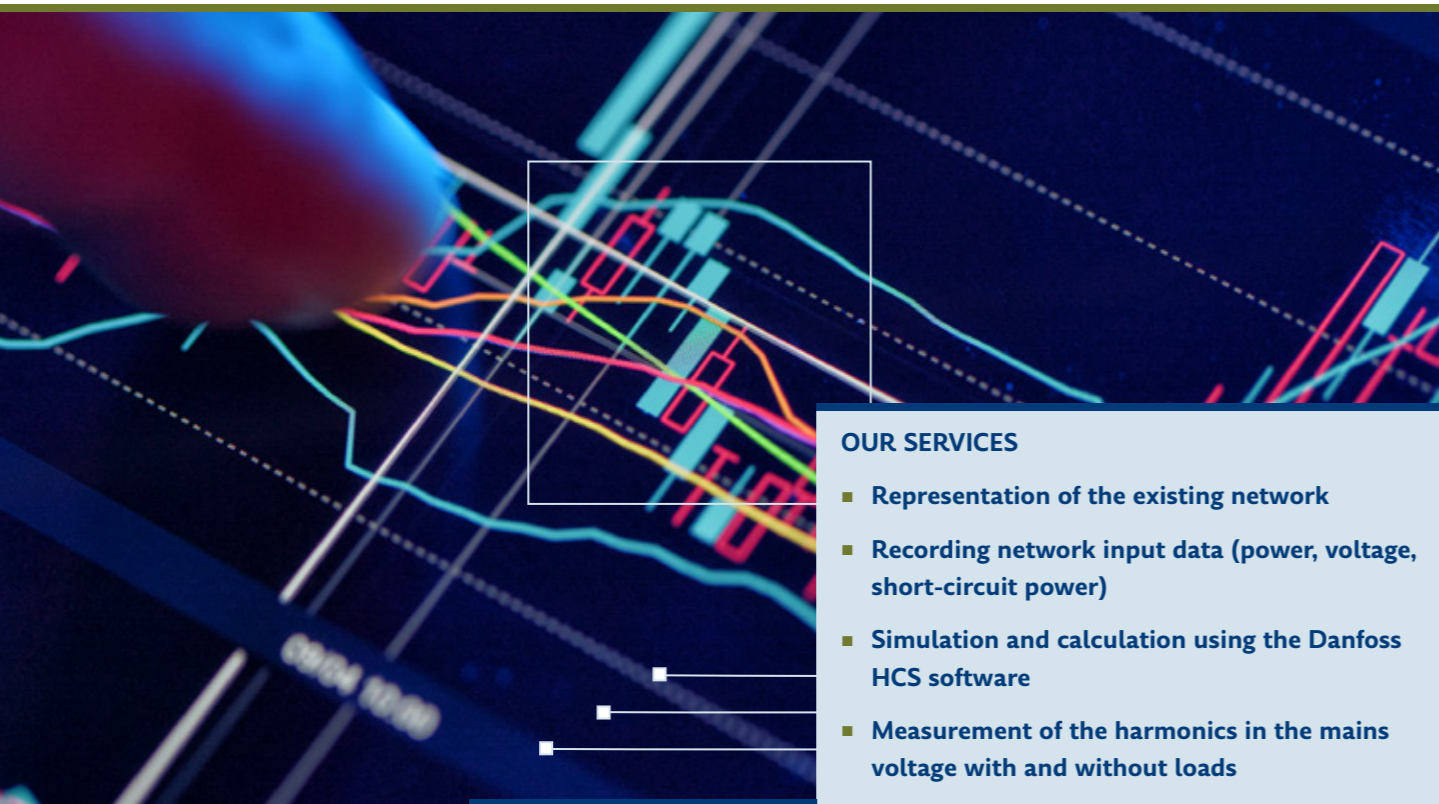
In case of unexpected breakdowns and other malfunctions:

TIG Automation GmbH is available to you round the clock. With our maintenance contracts, you can reach our engineers via a service number at all times. Using remote access and telephone consultation, we can rapidly determine the cause and eliminate the fault or come to you to work out the solution.



NETWORK ANALYSIS

Optimise the quality of your mains supply



OUR SERVICES

- Representation of the existing network
- Recording network input data (power, voltage, short-circuit power)
- Simulation and calculation using the Danfoss HCS software
- Measurement of the harmonics in the mains voltage with and without loads
- Alternative theoretical calculation of system perturbations from the installed devices
- Evaluation and documentation using measurement logs and inspection of the results for compliance with all legal limits and standards
- If necessary, implementation of further measures e.g. installation of filters and throttles for variable-speed drives
- If needed, subsequent measurements with logging

Many modern electrical devices – energy-saving lamps, televisions, computers and variable-frequency drives, for example – place a load on the mains supply in order to fulfil their function. They distort the sinusoidal wave produced by the mains supply and cause so-called “network perturbations”.

If these perturbations arise with greater frequency, the correct functioning of connected devices can be affected – leading, in the worst case scenario, to damage. Often, these effects are only perceived when breakdowns are occurring, and tracing them back to an overloaded supply network is often not easy.

As part of its system partnership with Danfoss, **TIG Automation GmbH** has the experience and the equipment needed to assess the quality of your supply network by means of a so-called “network analysis”. Based on daily or weekly measurements on site, we will draw up a report. Where necessary, we will propose measures.

PLANT ANALYSIS & OPTIMISATION

Increasing efficiency through plant analysis and optimisation

Worthwhile opportunities to increase efficiency go unnoticed in many plants. **TIG Automation** will happily help you discover these and exploit the potential they offer.

Whether you want to record data for an analysis in this regard, use existing data or implement logical plant optimisation measures, **TIG Automation** has the right solutions to hand.

For example, we offer a complete analytics platform that will analyse your energy input data and determine savings potentials. For many applications, we already offer a suitable solution to increase efficiency.

NETWORK INPUT ANALYSIS

An easy way to optimise your plant is to consider your consumption data. **TIG Automation** has developed an analytics platform, which based on data from your energy supplier, rapidly and simply delivers findings that will help increase your energy efficiency.



Here, we can calculate for you in advance how soon such a conversion will pay off:

As a system partner for Danfoss drive technology, we are fully equipped to increase your efficiency through the expert use of variable-speed drives.



DANFOSS DISTRIBUTION

As a system partner to Danfoss GmbH, TIG Automation GmbH is responsible for the distribution of its drive technology in Northern Germany

Because of increasing demand for energy efficiency, variable-speed drives are gaining ever-greater importance. Danfoss has been one of the leading manufacturers of variable-speed drives for decades. By controlling the rpm, these devices unburden motors and save energy, thus increasing a company's productivity.

Intelligent speed control can be applied to nearly every industrial application where power units are driven.



Systempartner

- Are you wondering whether using variable-speed drives could make sense economically in your company?
- Do you want to replace other manufacturers' variable-speed drives with Danfoss products?
- Are you still unsure which Danfoss variable-speed drive suits your application?

Telephone consultation and on-site visits are available at all times.

We will help you with the dimensions and design of your variable-frequency drive and make you a non-binding offer.

When you order, you will be able to benefit from our comprehensive support in procurement, parametrisation, commissioning and continuous optimisation.

WE LOOK FORWARD TO YOUR QUERY.

Your Danfoss system partner distribution team.

You can reach us at 040-790000-436
and at danfoss@tig-automation.de

DANFOSS SERVICING

Servicing for Danfoss drive technology

To facilitate your operation's usage of drive technology from Danfoss, our service team is available to you 7 days a week, 24 hours a day. When needed, they will also come to you. As a licensed system partner to Danfoss for over 25 years now, we can offer you a wide range of services relating to the company's drive technology:

- 24/7 telephone hotline
- 24/7 on-site emergency service
- Device repairs in our workshop or at your premises
- All current replacement parts kept in stock
- Support in commissioning Danfoss variable-frequency drives in all power classes
- Advice on applications with development and preparation of a proposal
- Retrofitting: replacement of old devices from any manufacturer with up-to-date, energy-saving Danfoss variable-frequency drives
- Support for bus communications with Danfoss drives
- Assessment and development of logical measures to reduce EMC problems
- Regular maintenance of your variable-frequency drives
- Inspection, optimisation and archiving of your drive parameters
- Development and preparation of an individual replacement concept to avoid long-term downtime when a device breaks down



DANFOSS TRAINING AT OUR PREMISES

As part of our system partnership with Danfoss, TIG Automation GmbH has become a certified partner for training in Danfoss variable-frequency drive technology. We offer you regular basic training on our premises. If enough participants are involved, we can also offer bespoke training. We are also happy to come to you.

>> You can find more details on our home page:
www.tig-automation.de/danfoss-training

24/7 DANFOSS SERVICE-HOTLINE



TIG|Automation

Industrial Solutions
LM GROUP

WE CREATE THE CONNECTIONS

Innovative solutions for the intelligent control and automation of complex plants and machinery



+1000 PROJECTS
WORLDWIDE



MORE THAN 55
EMPLOYEES



MORE THAN 57
YEARS EXPERIENCE

Process-oriented IT solutions for
diverse sectors

Specialists in the rapid, flexible
and creative implementation of
your automation technology

Tailor-made technical solutions of
impressive efficiency



At TIG Automation we build on a strong foundation of commitment and motivation from our employees, who are our greatest pride.

We work hand in hand to implement your automation visions quickly, flexibly and creatively. Our goal is enthusiastic customers, and we are committed to this - with success.

The same precision and care also characterize our services, which usually lead to long-term partnerships with our customers, partners and suppliers.

Simply get in touch with us. We will be happy to advise you and make you an individual offer.



TIG Automation GmbH
Bötelkamp 38
22529 Hamburg
Germany

Phone: +49 40 790000-0 (Switchboard)
Fax: +49 40 790000-30
E-Mail: info@tig-automation.de

