Company presentation
abacon group – a network of knowledge.
"Coming together is a beginning.
Keeping together is progress.
Working together is success."

Henry Ford
A network of knowledge.

The abacon group networks know-how from the various departments of electric and automation engineering.

We offer you the service portfolio for your process automation from a single source. From project-oriented staff support up to planning and realizing turnkey plants – all our services have one goal: Networking of knowledge for your success.
We attach great importance to the competence of our staff and nearness to our customers. Thanks to the area-wide presence of the abacon group, we can guarantee you optimal customer care at short distances to you.

- abacon GmbH  Eschborn · Frankenthal · Leipzig · Oberhausen, Germany
- abacon abp solution GmbH  Baden-Baden, Germany
- Abacon GmbH  Wettingen, Switzerland
- Ingenieurbüro PalmTec GmbH  Stadtallendorf, Germany
A network of knowledge – competence in Basic Engineering

The *abacon group* is your experienced specialist for all projects in the process control and automation engineering range.

Basic Engineering

We advise and support you comprehensively in all questions about system design.

Tasks of Basic Engineering:
- Automation Systems
- Operation and monitoring concepts
- Function plans
- Instrumentation
- Requirements and target specifications
- Control systems
- Measuring points indexes (consumer lists)
- Migration to latest control systems
- R&I schemes
- Control systems
Preparation of target specifications

The abacon group prepares the target specifications for you as basis for the implementation of the EMSR technology. For this purpose, we acquire and describe the factors for the automation of your plant with regard to all software functions. All tasks such as process illustrations, measuring points, typicals, modules, archiving, logging, etc. will be exactly defined so that misunderstandings will be avoided right from the beginning. Target specifications enhance Software Development efficiency hence saving time and cost.

Project Management and Project Planning

Against the backdrop of our know-how and experience you will attain your project objectives quickly, safely and problem-free. Our comprehensive expert advice and services support you effectively in all subjects around automation, for instance in case of new concept developments for new installations or optimization and adaptation of your processes to new market structures. Our service ranges from planning via project management up to commissioning and equipment maintenance and upkeep over the entire life cycle.

Our longstanding experience in all fields of project management is the basis for the common success in the process. We also offer you all our services for your projects abroad, of course.
A network of knowledge – competence in Detail Engineering & Process Visualization

The *abacon group* implements future-oriented concepts for you using latest engineering tools.

**Detail Engineering**

Detail Engineering means for us that we implement your individual tasks made to measure. Our experienced engineers will assist you in clarifying all technical and plant-specific questions, thereby developing solutions using CAE and CAD tools.

We plan for you:

- Grounding and lightning protection
- Site plans and layout plans
- Cable routing drawings
- Field instrumentation
- Cable lists and terminal connection plans
- Illumination
- Bills of materials
- Medium and low voltage switchgears
- Assembly planning
- PLT loop diagrams (wiring diagrams) and circuit diagrams
- Hook-ups
We work with following CAE/CAD applications:

- Prodok V7
- ELCAD V5 und V7
- AUCOPLAN
- AutoCad Electrical 2008
- AutoCad light 2008
- logiDOC
- EPLAN

Process Visualization

Being plant operator, you of course want to be informed about the condition of your plant at any time and this clearly arranged. You can benefit from our experience also in this case.

Aside from individual creation of Process Visualization and lists, we implement system-neutral faceplates to monitor and trace all system sequences.

Our graphic services:

- Planning of the process screen design (based on the P&I diagrams provided)
- Configuration of the static image portions
- Creation of the dynamic graphics
- Migration of legacy plants (data integration and process screens)
A network of knowledge – competence in Software, Batch- & Functional Security

The *abacon group* develops and implements software applications for your applications.

Software Engineering

Our specialists for Software Development will be at your disposal throughout the entire project. Longstanding experience and competence in the field of automation and process control systems are your guarantees for optimal results. And yet our services exceed project planning and configuration of your hardware. We create programs for your automation and develop solutions for your process control system.

Furthermore, we realize special applications for your Automation Systems which are custom-made for your plant.
Batch Engineering
(Recipe processing)

The abacon group is your competent partner for Batch Engineering. We support and advise you in implementing new applications in recipe processing. In the case of product change or extension of your product portfolio, we also take over revision of your recipes.

Your advantages:
- Installation acc. to ISA SP88, IEC 61512-1, Namur NE33
- Continuous recording and materials tracking
- Constant batch quality/reproducibility
- Fast development of recipes
- Monitoring and control in real-time

Functional Security

We offer you in this field certified specialists who exactly know terms like e.g. IE61508, IE61511, risk analysis, risk matrix and SIL classification.

On the basis of a risk analysis prepared by the operator and the SIL classification resulting from it we support you on projecting and programming the SIL circuits (SIF). Likewise we gladly assist you in preparing test instructions for the recurrent tests.

We implement for you:
- Selection of equipment - depending on the SIL classification
- Hardware-Planning of individual SIL circuits - depending on the predefined SIL classification
- Creation of the user software in the corresponding SIL-certified controls
- Provision of documents which are required for the testing and validation of the SIS (Safety Integrated System)
A network of knowledge – competence in Network Technology

Networks build the central nervous system of modern companies and plants. Failures or troubles can entail serious consequences. The *abacon group* supports you in all issues concerning the network be it questions regarding modernisation, maintenance, planning, hardware acquisition, analyses and optimisation or trainings and supervision.

Planning/Commissioning

We develop your network concepts, which are tailored to your requirements. When planning the individual networks, we take into account the various topologies and techniques such as VLAN (Virtual Local Area Network), Routing, RSTP (Rapid Spanning Tree), WLAN (Wireless Local Area Network), Layer 3 and others. The planning and commissioning of networks range from the successive extension, modernisation up to the complete rewiring.

Hardware

We gladly supply the required hardware for the most diverse applications. The prepared configuration of the hardware and the functional tests guarantee an error-free commissioning.
Network documentation

In case of errors and the trouble shooting a detailed documentation is indispensable. The network documentation in form of graphics and tables is also part of our services as well as the documentation on site.

Network security
The information security is increasingly central for modern networks. We gladly advise regarding questions of physical security, access concepts, data and network security (Firewall, VPN, DMZ etc.) and implement these.

Network measurement

We assist you with technical aids and appliances when handling the network support and the trouble shooting. Measurements on the physical level are realised with the help of professional test tools and comprehensive test equipment:

- FOC Single mode (SM)
- FOC Multi mode (MM)
- Twisted Pair copper (CAT 3, CAT 5/5e, CAT 6)
- Profibus

The most frequent causes of troubles such as installation faults (circuit breaks, short circuits, dead-end feeders etc.) are pointed out. The results of the measurements will be delivered as protocol.

Network analysis

Undesirable data transfer (exceeding broadcast, lateral communication, protocol types etc.) can be demonstrated with specific network scans and the associated analysis.

Network monitoring

The monitoring of all important network parameters is essential for a rapid trouble shooting and a proactive network management. The abacon group implements the abaNSM – Network and System Monitoring in order to guarantee an error-free operation.

Maintenance and Service
We are glad to be of your assistance also after the commissioning for a regular maintenance and as contact person in case of troubles.
A network of knowledge – competence in Fail-safe & Automation Systems

The abacon group offers comprehensive services related to the complete lifecycle for the qualification of its systems and software as well as the validation of its processes. Terms like “AMWHV”, “GAMP 5”, “21 CFR part 11” and “cGMP” are not foreign to us.

GAMP

Through long-standing experience in the regulated environment, we are able of completing the validation performance according to your quality requirements or to support you in the introduction of efficient, inspection-proof validation strategies.

With our qualified employees, we guarantee competent support and completion of your validation tasks like:

- Concept consulting
- Feasibility studies
- Development of validation plans
- User requirement specifications creation (URS)
- Functional specifications creation (FS)
- Creation of software and hardware design (SDS/HDS)
- Risk analyses
Creation of qualification documents as well as the completion of qualification
- Design qualification (DQ)
- Installation qualification (IQ/HAT)
- Operational qualification (OQ/SAT)
- Performance qualification (PQ/SPT)
- Trainings
- Creation of standard operation procedures/guidelines (SOP) for ongoing operation such as e.g.
  - Change control
  - Access control
  - Periodic testing
  - Performance monitoring
  - Business continuity planning
- Inspection preparation for FDA, RP
- Decommissioning/shutdown

**Automation Systems/process control systems**

- **ABB**
  - AC700F, AC800F, AC870P, AC800M, AC450, Operate IT B, Maestro UX, DigiVis, 800xA, certified partner for Freelance 800F, qualified by master certification level, certified partner for System 800xA, qualified by master certification level

- **B+R, Bernecker + Rainer**
  - APROL, System 2005

- **HIMA**
  - HIMA-Systeme, ELOP II, SILworX

- **Rockwell Automation**
  - Logix family, FT Batch, RS View

- **Siemens**
  - S5, S7, PCS7, WinCC, certified Solution Partner Automation

TÜV-Certified acc. to DIN EN ISO 9001:2008
A network of knowledge – competence in Migration Solutions

The **abacon group** offers you individual migration strategies for safe conversion to a new automation system.

**Migration**

Of course we do not confine ourselves to an Automation system from one manufacturer for migration. We migrate a range of Automation Systems of renowned companies such as ABB, Siemens and Bernecker & Rainer.

An essential part, aside from data integration and individual data adaptation to the new system, is reworking the process screens. Our experience in making process screens for the most various Automation Systems helps us when migrating your process control level.

Changes of the names of the measuring points into another name scheme can be considered at the automatic transformation of the process screens.
Our years of experience in handling diverse control systems and our tools specifically developed for this migration guarantee you safe conversion to a new automation system.

In the process, the automatic data adoption from the legacy control system reduces the error rate, minimizing the downtimes of your plant.

Your benefits:
- Cost-efficient conversion while maintaining the field cabling
- Mapping and plant documentation
- Short plant downtime
- Enhancement of productivity and competitiveness

Migration of the software using the example of a Contronic P plant
A network of knowledge – competence in Manufacturing Switching Cabinets & Installation

Projects from a single source – the abacon group is at your disposal in Manufacturing Switching Cabinets and Installation.

Switching Cabinet Manufacture

We plan and manufacture for you according to national and international standards as well as internal directives the following switching cabinets:

- System cabinets for controls of manufacturing automation
- System cabinets for process control systems
- Switching cabinets for remote I/O systems
- Network and server cabinets
- Low-voltage distributions

We supply the planning, manufacturing, installation and commissioning of your switching cabinets from one single source and thus we are able to react flexibly to your requirements. Our switching cabinets receive a CE marking.
Mounting

In order to be able to offer you services around the process automation and manufacturing automation from one single source we are equipped with a mounting team, which is of course conversant with all modern installation and mounting techniques.

Therefore, we can offer you the following mounting services at a very good cost-benefit ratio:

- Cable running and cable route expansion
- Low-voltage cabling
- ICA cabling
- ICA (instrumentation, control and automation) installation, piping
- Network cabling
- FOC cabling
- Profibus cabling
- Installation management and monitoring of mounting
- Loop Check and commissioning

Of course safety at work as well as health and environment protection ranks first.
A network of knowledge – competence in Fieldbus Engineering

The *abacon group* guarantees you maximum safety in the design and structure of a tailored fieldbus network.

**PROFIBUS**

We supply you PROFIBUS systems that feature long-term freedom from troubles according to the latest state of technology. PROFIBUS is a high-performance, open and robust bus system through which the SPC/controllers, PC’s, operating and monitoring equipment, sensors and actuators can communicate.

Suitable solutions for you:
- PROFIBUS DP (Decentral Periphery) – coupling of MCC (Motor Control Center) and remote I/O
- PROFIBUS PA (Process Automation) – extension of DP to gain intrinsic safety
PROFINET

PROFINET is an open and cross-manufacturer industrial Ethernet standard. It meets all requirements on the employment of Ethernet at all levels and applications in automation.

Using our competence in the field-bus area and our accumulated know-how in the field equipment technology, we carry out any configuration in the industrial Ethernet uncomplicated and fast. Employing PROFINET in your system, existing Ethernet structures can be used hence minimizing cost of installation, engineering and commissioning.

Your benefits from PROFINET:

- Horizontal and vertical integration through use of a bus from the field level up to the management level
- Wireless LAN (integration of wireless communication)
- Simple and global diagnostics and maintenance of equipment by utilizing Web services
- Using standardized mechanisms such as network management with Simple Network Management Protocol (SNMP), through which the integration of components into our NetMonitoring product is enabled
- Existing network structure (star, tree, ring structures) simply can be used further on.

Our know-how also encompasses other Ethernet based field buses such as EtherNet/IP and Ethernet Powerlink.
A network of knowledge – competence in FAT & Loop-Check

Owing to a good preparation and extensive tests the abacon group helps you in reducing the commissioning period.

FAT (Factory Acceptance Test)

Prior to delivery, we check your installation for compliance of the functional requirements given in the specifications within the scope of FAT. Using FAT, we demonstrate the functions of your system to you step by step in detail.
After installing and wiring the measuring devices in the plant, the function test is carried out.

Our services:
- Check for proper electric connection of all components
- Setup of Profibus addresses and parameterization of devices
- Check of the system configuration
- Communication check at the Profibus
- Check of all I/O signals

**Loop Check (Function Test)**

After having installed your system at the site, prior to the Loop Check and the commissioning, we carry out a SAT cooperatively with you.

In doing so, it is checked whether the system satisfies the specified requirements, e.g. with regard to issues like restart after voltage breakdown, redundancy, etc. This test is planned in advance and its implementation is documented in detail.

**SAT (Site Acceptance Test)**
A network of knowledge – competence in System Technology

The **abacon group** integrates your requirements on an automation system. We advise you product-independently and prepare system analyses for automation systems.

The **abacon group** unites the knowledge of automation and IT systems and finds the ideal partner for your automation system.

System integration and commissioning

Our system integrators plan, install, administer, configure and maintain the complex automation and IT systems. We provide the corresponding hardware for your requirements and those of the system manufacturers. At the integration test the interaction of the individual components is tested. The integration tests are documented extensively and serve the quality assurance.

Our staff members assist you with the commissioning with all their knowledge and experiences. We support you or run the commissioning independently. With the commissioning successfully completed, we focus the optimal utilisation of your resources and energies.
Virtualization in automation technology

Virtualization characterizes the technology, which enables you to conduct various virtual machines on one physical computer. This technology introduces new ways and possibilities which imply several potentials for savings (costs, space, energy, time, administration). Our well-trained and experienced staff integrates the automation systems in the virtual environment.

Certification

Our system integrators are certified by Microsoft in the applied technology and VMware.

Service and Maintenance

Our support service does not end with the installation of your systems or after successful commissioning of your plant. We accompany you throughout the entire life cycle of your plant with our portfolio sectors Service and Maintenance.

Your advantages of our service portfolio:

- Flexible, plant-/customer-specific packages up to 365 days/24 h
- Service team reachable via a central phone number
- Service team assembled of experienced engineering staff members of all special fields
- On-call service
- On-site support, optional remote support
- Background team of all departments (Network, System, Hardware, Linkings…)
- Central documentation of your calls

Your advantages of our maintenance portfolio:

- Regular control of your systems by experienced staff members
- Increase of plant availability through prevention
- Maintenance = Advising -> indications of optimisations, improvements, updates
- We keep your plant at the latest state of technology
- Data evaluation by specialists of the individual special fields
- Archiving of measured data, e.g. of the network for comparing analyses
A network of knowledge – competence in Process Commissioning

The *abacon group* supports you competently in commissioning of your processes.

Process Commissioning

Process commissioning of the system follows successful project engineering efforts, installation and mounting of your plant. During the process commissioning the plant will be made alive step by step in collaboration with process technicians until the final product is generated with the requested quality and automation depth.

We will of course assist you throughout the entire commissioning period, 24h on site or via on-call service.
The abacon group will certainly remain your contact for modifications, upgrading and for all questions concerning your plant.

Professionally trained operating staff is vital for each successful production. Being a manufacturer-independent service provider, we attach greatest importance to optimal process automation. Hence this is attained only when each individual plant operator has been perfectly trained.

Our services in detail:
- System-based and project-specific training material (circuit documentation, diagrams, charts and tables)
- Local project and practically oriented training on the target system
- Experienced technicians and engineers as instructors
- Individual trainings for the different target groups (plant operators, MSR personnel, in-plant executives)
- Manufacturer-independent trainings (e.g. automation of batch processes)
Ethernet manages the transition from control level to production level and takes on an every stronger position in companies. This uniform communication enables comprehensive network management. Manageable network components and their variety (switch, server, Windows operating systems, intelligent clamps, printers, controllers, processes, etc.) as well as the space needed are increasing. In addition, networks are frequently made more complex by technology like e.g. VLAN, HIPER ring, RSTP and routing.

A network of knowledge – competence in Industrial Solutions

abaNSM – the software application of the abacon group for network management with systematic order. Monitoring, alerting, maintenance/diagnosis, long-term archiving and logging of all important characteristics and events from manageable network components, from controller to switches all the way to system-relevant server or client processes.
abaNSM gives you a product that meets all challenges of Ethernet-based networks like child’s play.

Benefits and goals of abaNSM:
- Securing operational processes
- Detecting crucial performance and system values
- Fast detection of malfunctions
- Proactive management
- Permanent monitoring of all potential weak points in the network
- High availability and fast diagnosis in case of errors
- Reduction of downtime and maintenance costs
- Integrated management
- Configuration, performance and error management

abaNSM has a modular structure and thus enables ideal adjustment of network management to the network to be monitored: regarding number of participants, required functions, different user interfaces, long-term archiving or analysis and maintenance functions.

Your System well in hand. abaNSM links.
The web interface allows the access to currently upcoming alerts, current data, trends, history and reports. The operation is simplified through comfortable quick accesses, a variable window handling as well as ample filter options.

The home page of the web interface, the so-called dashboard facilitates a quick overview over the status of the network. The alarm triangle informs about the upcoming priority of the disturbance (colour of triangle), the number of disturbances and the status of acknowledgement. The user can get via a click to the page of reports, to the relevant trend or e.g. the corresponding equipment documentation.

abaNSM is a server-client solution which enables flexible access to different abaNSM interfaces from various sites. The diverse interfaces differ from each other in coverage and function and it is possible to get informed via e-mail.
Tray

The Tray serves as a simple alerting of troubles in the monitored network. It is located in the Windows-taskbar. By means of defined colour changes (corresponding to priority) a disturbance or resp. a modified plant status is indicated. The user can see and acknowledge the upcoming disturbances at any time via a separate user interface.

Configuration

Tailored interfaces for the configuration of abaNSM are available for the user, whether to enlarge the monitoring by a participant or to configure trends or to edit all descriptions in one go.
A network of knowledge – competence in Industrial Solutions

Everything from one source – experienced professionals. The *abacon group* supplements the functions of your existing process control system/MES (Manufacturing Execution Systems) with its own innovative software products.

**abaWorkflow**

With abaWorkflow, you can plan your automation tasks all the way to the functional specifications easily and effectively:

- Efficient use of existing data from preliminary planning or existing systems
- Integrated tools for effective quantity processing
- Structured management of all MSR-related documents and files like configuration files of field bus devices, operating instructions or Ex-certificates
- „Embedded” assembly information – overview of all devices of the signaling chain
- Production level can be retrieved via processing status at any time
abaConnect

abaConnect is a modular application that can be used, thanks to use of latest technologies, within a wide application field for reporting, parameter management, raw material administration and much more.

Using abaConnect, you have full access to all process information at any time. You can directly read out and write all information from the DCS/controller or the process control system.

abaConnect operates with the SQL server, the employment of which allowing storage of large amounts of data efficiently, permanently and consistently. abaConnect, using ASP.NET (Active Server Pages.NET), is realized as Web application. Here all configurations can be conveniently made via a web surface.
A network of knowledge – competence in Software Development

The **abacon group** is specialised in creating database-related Individual Programming.

**Individual Programming**

We develop custom-designed applications, both hardware-neutral and system-independent. In this case, we include modifications and extensions of existing systems into our planning or develop solutions for the adaptation to existing software, systems or equipment. Interlinkings/OPC solutions.

Many implemented interlinkings to different field levels and operating control systems complete our service portfolio. The OPC enables as the perfectly fitting communication of the future the data exchange between products of various manufacturers.
Ensuring optimal quality assurance and data integrity, we use the following applications for source code and version management:
- Team Foundation Server
- Visual SourceSafe

**Techniques:**
- Silverlight
- Windows Forms
- ASP.Net
- ASP Silverlight

**Programming languages:**
- C#
- C/C++
- Visual Basic 6
- Visual Basic.Net

**Database system:**
- Microsoft SQL-Server

**Development platform:**
- Microsoft Visual Studio

**Operating system platform:**
- Microsoft Windows
  - Client/Server 32/64-Bit

**Application examples:**
- Acquisition of operating data (databases, visualizations, etc.)
- Sending of operating data e.g. through mail
- Serial interfacings
- Interfacing to radio signalling systems
- Wireless interfacings
- Data analysis/evaluation (reports, statistics, spreadsheets etc.)
- Import and export tools
- Rich-Client applications e.g. as electronic shift book
A network of knowledge – competence in Business Solutions

You will simplify the workflows in your company using the operational software solutions of the 

abacon group. Custom-made business modules route your customer data well organized and corporation-wide.

CRM

A GBIS-CRM (Customer Relation Management) serves to acquire information processes, have them clearly structured, arrange them traceably and prepare them. All documents and information processes as well as the entire project correspondence will be integrated. An unbroken and transparent information chain will be built in the process.

The CRM system comprises:
- Address administration
- Administration of contacts
- Administration of activities
- Acquisition administration
- Document management
- Follow-up and appointment management
- Administration of actions, processes and measures
An information system is necessary to successfully execute projects by which immediate and concise access to all project-related data is granted. All information, documents as well as the entire correspondence can be consolidated and evaluated for the individual order and ordering party.

The GBIS-ERP (Enterprise Resource Planning) controls the functional areas as follows:
- Order processing: Quotation, order, bill
- Controlling: Projects, contracted services, material cost, personnel, financial budget, cost budget, personnel, capacities, resources

Das GBIS-DMS (Documentation Management System) is our innovative tool for the administration of documents. A database-related organisation of documents enables wide-ranging search functions and data search.

The DMS comprises:
- Creation of e-mails
- Allocation of incoming e-mails with attachment
- Creation of Word and Excel documents with relation to templates
- Allocation of incoming documents
- Keyword and full-text search

Furthermore, our business modules contain:
- PAIS (PrüfauftragsInformationsSystem):
  Software system to administer and control all commercial business processes in public clearing centres
- PlanVIS (PlanVerwaltungsInformationsSystem):
  Software system to administer and conclude all business processes of the plan
abacon group – a network of knowledge.
For further information on our products and services please visit our website on www.abacon.org.