

# ARGUS Feature Summary

## ARGUS key application fields

- Data acquisition, analysis and documentation
- Plant monitoring and fault signaling systems
- Remote monitoring and remote diagnosis
- Test stand automation and test systems
- Quality control

## ARGUS Highlights

- Easy operation
- Connection of 1 to 4,000 signals
- Measurement and control in real time
- Analysis and documentation while measurement continues
- Integrated alarm and logging system
- Powerful function library
- Open interfaces
- Networking
- Supports almost any database
- Can be extended at any time

## Supported platforms

- MAX6pci and MAX9pci
- MAX5dip and MAX8dip
- CANbox®
- MAX2box and MAX4box
- MODULAR-4®
- Multi-COM
- Multi-LAB®/2
- CAN-Hardware (Vector/Ipetronik)
- M-WiFi (Ipetronik)
- User device (DLL)

## PC interfaces

- Ethernet (e.g. HBM, PLC)
- Serial (e.g. MPI to S7-300 and S7-400)
- OPC, DDE (e.g. ABB)

Distributor

## Signal types

- Analog I/O
- Digital I/O
- Counter/incremental encoder
- Synchronous serial interface (SSI)
- PROFIBUS (master/slave)
- CAN (fast/fault tolerant)
- LIN
- Serial (RS-232/-422/-485)
- Ethernet
- Modem/ISDN

## Measuring with ARGUS

- Acquisition of single values with individual sample rates in the high kHz range
- Online conversion computation with signal output
- Synchronized acquisition with different measuring hardware at different sampling rates
- Multiple independent measurement simultaneously on one PC
- Pre-trigger and post-trigger in response to any events or conditions.
- Event-driven data acquisition
- Measurement data available across the network
- Real-time alarm and logging system

## Displaying signals

- y-t diagram
- x-y diagram
- Oscilloscope
- Table
- FFT
- Classification
- Order analysis
- Bar
- Indicator
- Digital instrument
- Tachometer
- Potentiometer
- Customer-specific objects via ActiveX/OCX

## Analysis functions in ARGUS

- Any number of screen pages, and large numbers of curves in each window
- Copying, deleting and moving curves
- Automatic scaling
- Precise zooming and scrolling, possibly over many measurements
- Determination of curve parameters
- Measuring and computing of any kind of channels
- Selection of data records and time periods with database support
- Time overlaying curves

## Mathematical functions

- Formula interpreter for any calculations using signals and variables
- Calculation of mean, effective value, standard deviation, min/max etc.
- Smoothing
- Signal analysis with FFT
- Filter functions
- Classification
- Order analysis

## Documentation

- Import of measured data
- Import of graphs and images
- Freely scaling of all diagrams, tables and graphs
- Labeling and commenting on the measurements
- Freely configurable layouts with page preview for repeated use
- Transfer to Office applications
- Export into numerous formats

## Software interfaces

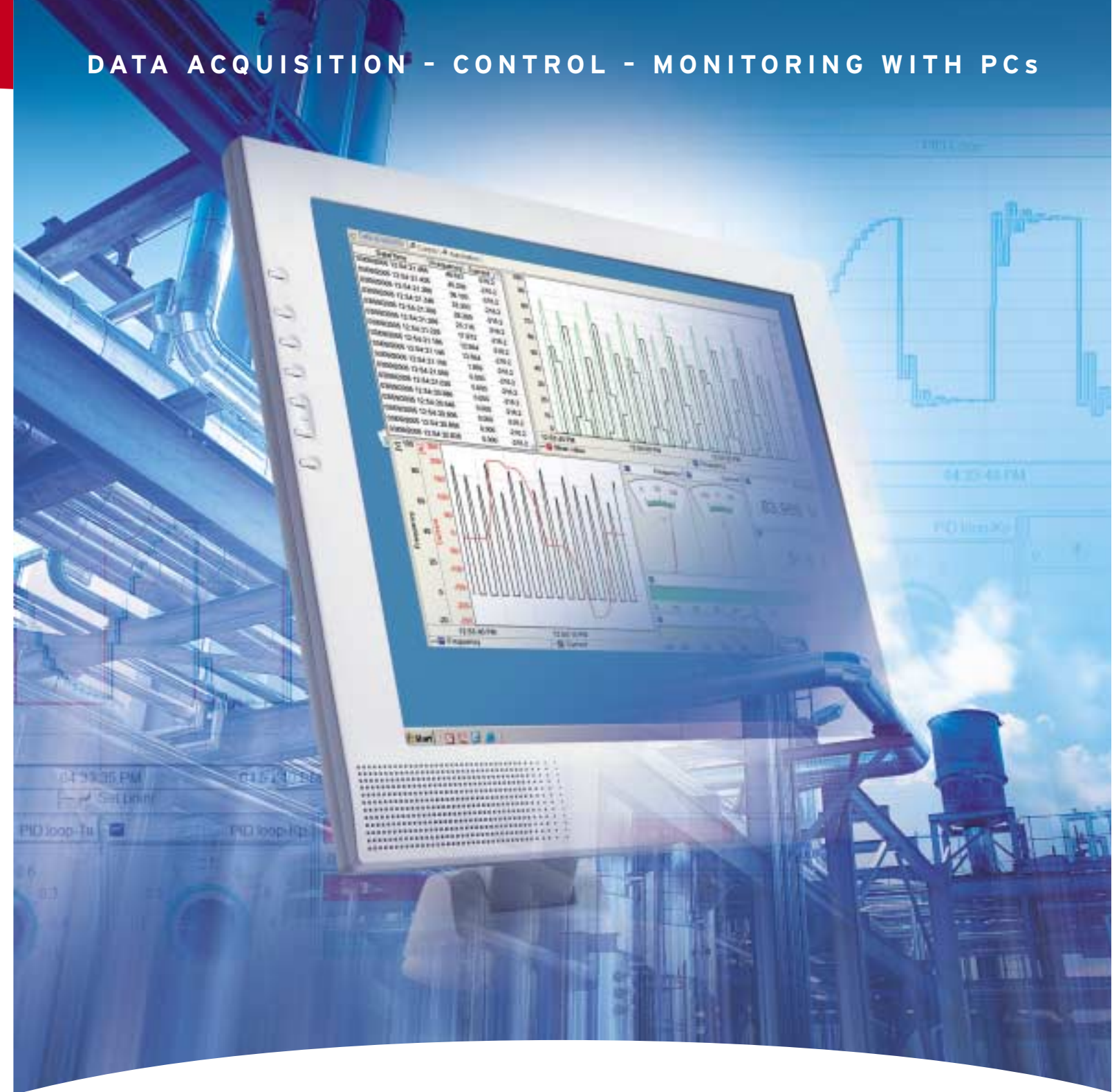
- Network: Ethernet with TCP/ IP and UDP
- Databases: MS Access, MS Excel, dBase, and via ODBC to Oracle, SAP, SQL, IBM
- PC: ActiveX, OCX, OPC, DDE, DLL
- Communication: e-mail, SMS



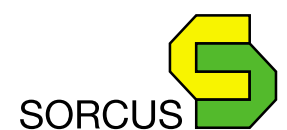
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The future is now!



# ARGUS - The Complete Software Suite for Data Acquisition, Control and Monitoring



SORCUS

# ARGUS: The Standard for Complete Software

ARGUS is a complete PC software package for data acquisition and control - extremely powerful, yet easy to use.

ARGUS runs on any PC with Windows NT, 2000 or XP operating systems.

A PDA version of ARGUS has recently been released under the name ARGUS<sub>pda</sub>. It can run under Windows CE.NET 4.2 or Pocket PC 2003 and above.

ARGUS acquires and displays measured data, saves it, documents it, and can also make it available to all other users in the network. In parallel, ARGUS can also analyze the data online and derive reactions from it, doing all this in real time.

## THE FIVE ARGUS KEY APPLICATIONS

- Data acquisition
- Plant monitoring
- Test-Stand control
- Quality control
- Remote diagnosis

The need for operational reliability, high performance and ease of operation were given high priority in the development of ARGUS.

It was important to the design of the internal structures that ARGUS should be able to run both on single-processor systems and, to improve the real-time capabilities, on multi-processor systems. For this reason, ARGUS is partitioned into a number of independent processes, each of which includes multiple threads. Several tasks can therefore be processed in parallel. ARGUS adapts itself automatically to the hardware configuration, exploiting it optimally. As a user you do not need to concern yourself with this. The multi-processor systems can have a variety of architectures, such as multiple CPUs in one PC, intelligent PCI cards in a PC, or a PC with decentralized, intelligent peripherals.

You will appreciate ARGUS' intuitive operation, fluid graphic structure and extremely rapid data access. With ARGUS you can master even the most complex tasks easily and quickly.

Nevertheless, thanks to the open, modular system architecture, ARGUS can be extended and adapted at any time. The many interfaces supported by ARGUS

make it a universally applicable software for almost every technical application.

## ARGUS grows with the needs

Regardless of whether it is just a few signals or several thousand that you want to acquire or control, ARGUS is the right solution.

Even the simplest ARGUS system offers full facilities for acquiring, analyzing and documenting measured data.

ARGUS can, of course, also work efficiently with very many channels and large quantities of data. It is possible, for instance, to manage measurement archives of several terabytes on appropriate server systems. A supervision process looks after the directories and can automatically delete the oldest files that are not marked for retention, if desired.

## Databases a mouse-click away

Almost any database can be directly linked to ARGUS by mouse-click. MS-Access can be linked directly, while all other databases (e.g. Oracle, SAP, SQL) are linked through the standardized ODBC interface.

ARGUS exploits all the familiar techniques of modern database technology, providing complex search and selection functions to analyze the information stored in the central databases, or to filter out particular features. Different values can be displayed on the screen in synchronized form, scrolled, zoomed and printed out.

## ARGUS is open

Without standard interfaces, even good software products are islands unto themselves. This would not make them good long-term investments.

Many proven interfaces are therefore integrated into ARGUS using modern, network-oriented concepts. The purpose of this is to ensure that exchanging data with both existing and future applications is as simple and economical as possible.

## SOFTWARE INTERFACES

- **Network:** Ethernet with TCP/ IP and UDP
- **Databases:** MS Access, MS Excel, dBase, and via ODBC to Oracle, SAP, SQL, IBM
- **PC:** ActiveX, OCX, OPC, DDE, DLL
- **Communication:** e-mail, SMS

## At home in the network

ARGUS can be operated either as a stand-alone system or distributed across a network. ARGUS' client-server architecture makes all the data available online and offline simultaneously to all the workstations in the network. Additionally, all the research and analysis functions that are part of ARGUS can be used anywhere in the network for fault-finding and for quality assurance. The simple user interface provides an image of the full plant structure, permitting access to all connected systems.

## ARGUS HIGHLIGHTS

- Measurement, control and monitoring in real-time
- Analysis and documentation while measurement continues
- Very easy operation
- Modular from 1 to 4,000 signals
- Open interfaces
- Network capable
- Supports almost every database
- Integrated alarm and logging system

## Real time guaranteed

The only reliable way of meeting the demands of a real-time system under Windows is to swap out all time-critical tasks to intelligent sub-systems. This permits data acquisition, control and communication to proceed quite independently of the PC. The PC can then take care of other, less time-critical tasks, such as display and storage.

SORCUS supplies this kind of system, e.g. modular PCI cards (MAX6pci and MAX9pci), "decentralized, intelligent peripherals" (MAX5dip and MAX8dip) and stand-alone boxes (MAX2box, MAX4box and CANbox®). They are all based on the same modular system using MAX modules. I/O modules and CPU modules can simply be plugged onto these carrier boards resp. systems. Through its support for intelligent sub-systems, ARGUS permits an exceptional performance feature: online analysis. You can scroll, zoom, analyze and document your data, even whilst measurements are being taken.

## ARGUS - operation is child's play

The operation of ARGUS is designed to let you use all its functions in the same way as your office software. Clear menus and dialogs shorten the necessary familiarization time. Even inexperienced users are soon at home with ARGUS. In spite of the wide range of functions, the modern structuring of the various task areas permits a clear overview. The complete solution, from data acquisition and control through to analysis and documentation can be done easily without special programming.

## Easy and intuitive

Thanks to the easily understood symbols, you can master the most important functions in a very short time.

All operating elements are consistent with the Windows standard. The context-sensitive help makes it easy to get to know all the functions and facilities. You will soon come to appreciate the way the screen interface is organized through hierarchical tabs.

When you first start working with ARGUS, you can move the mouse cursor slowly over a screen button. A small text window, with a brief description of this button, then appears.

## Just a few steps to the goal

A tool bar offering the most important functions provide support as you view and analyze the measurements. The standard functions include, for instance, selection of a data record, scrolling, zooming and changing the display of axes. Cursors for analyzing the data, along with an "undo" memory, simplify your work.

## With ARGUS you keep the overview

Diagrams, and a variety of tools, are available to display the measurements:

## DISPLAYING SIGNALS

- y-t diagram
- x-y diagram
- Oscilloscope
- Table
- FFT
- Classification
- Order analysis
- Bar
- Indicator
- Digital instrument
- Tachometer
- Potentiometer
- Customer-specific objects via ActiveX/OCX

These elements can be freely arranged and labeled on up to three levels.

You can select any page at any time, even while measurements are being taken. The other pages continue to be updated and displayed in the background.

## ARGUS and the hardware

The inputs and outputs are most usually made available via PC plug-in cards, through decentralized intelligent systems, or directly by the PC interfaces.

ARGUS, of course, supports the full range of SORCUS hardware. ARGUS can nevertheless use data acquisition boards and measuring devices from third-party suppliers, as well as the PC's standard interfaces.

## Signal types, field buses and protocols

- Analog I/O
- Digital I/O
- Counter/incremental encoder
- Synchronous serial interface (SSI)
- PROFIBUS (master/slave)
- CAN (fast/fault tolerant) including CANdb
- LIN
- Ethernet (TCP/ IP)
- Modem/ISDN
- Serial (RS-232/ -422/ -485) with 3964/R, MPI

## PC cards from SORCUS

- MAX6pci
- MAX9pci
- MODULAR-4®
- Multi-COM
- Multi-LAB®/2



## Decentralized intelligence from SORCUS

- MAX5dip
- MAX8dip



## Stand-alone boxes from SORCUS

- MAX2box
- MAX4box
- CANbox®



## PCMCIA

- CAN-Hardware (Vector/Ipetronik)



## User devices

- Universal interface for linking any hardware (DLL)

## PC interfaces

- Ethernet (e.g. HBM, various PLCs)
- Serial (e.g. MPI to S7-300 and S7-400)
- OPC, DDE (e.g. ABB)



# Data Acquisition

You start with ARGUS by defining your measurement task. This involves configuration of the data flow from the measuring hardware, through the online visualization on to the storage.

Each signal in ARGUS is represented by a channel, and is given a freely choosable channel name. The signals can be immediately calibrated, linearized and be used for further configuration.

The sampling rate can be adjusted for each individual channel or for a group of channels. Slowly changing signals can therefore be recorded at a low acquisition rate, and rapidly changing signals at higher rate.

### Comprehensive acquisition of all data

Any measurement can be started and/or stopped manually, by external triggers or by an online condition. Even complex trigger conditions can be configured using an integrated formula generator. Pre-trigger and post-trigger intervals can, of course, also be set up.

The measurements are written to the PC's hard disk. They are also immediately available for online analysis, without having to stop the measurement process.

### MEASURING WITH ARGUS

- Acquisition of single values with individual sampling rates into the high kHz range
- Multiple independent measurement simultaneously on the same PC
- Event-driven data acquisition using integrated formula generator
- Pre-trigger and post-trigger
- Online computation with signal output
- Real-time alarm and logging system
- Synchronized acquisition with different measuring hardware and sampling rates
- Measurement data available across the network

ARGUS can perform analysis and prepare documentation either automatically or interactively. Simply load the stored data, and display them on expressive diagrams. You will obtain the information immediately.

### Online and offline analysis

ARGUS offers an extensive library of mathematical functions. Calculation channels, which can be configured in the same way as any other channel, are available for these purposes. The majority of functions can be used either online or offline.

### MATHEMATICAL FUNCTIONS

- General formula interpreter for any computations on signals and variables
- FFT
- Filter functions
- Classification
- Order analysis
- Effective value, mean value, standard deviation, smoothing
- Minimum, maximum, etc.

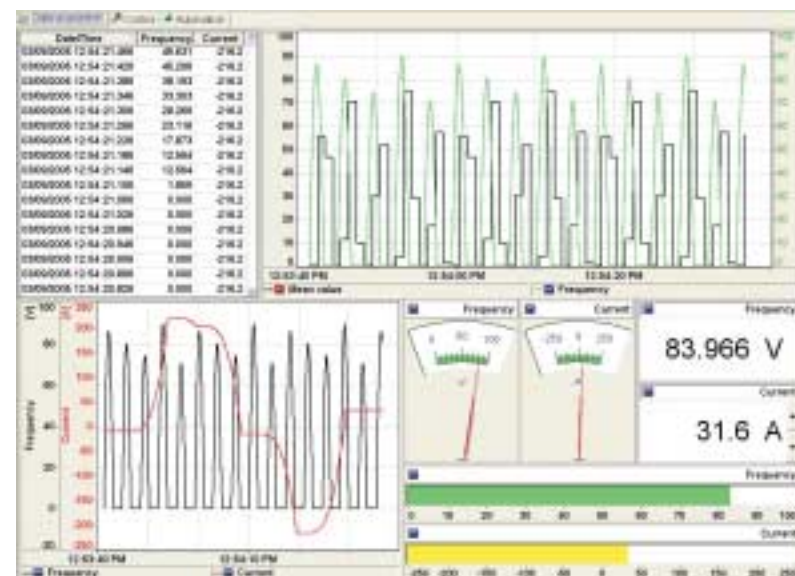
The formula interpreter allows measurements to be combined, online or offline, in freely defined formulas, or to be associated with one another through logical conditions. The result of a formula can be output on a digital or analog output channel. Characteristic values can be calculated automatically or in response to a button, or selected analyses can be carried out.

### ANALYSIS FUNCTIONS IN ARGUS

- Any number of screen pages
- Large numbers of curves in each window
- Copying, deleting and moving curves
- Automatic scaling
- Zooming and scrolling, possible over many measurements
- Determination of curve parameters
- Measurement and conversion of any number of channels
- Selection of data records and time periods with database support
- Time overlaying curves

### FFT

Any signals may be transformed from the time domain to the frequency domain using the fast Fourier transform (FFT). ARGUS can calculate and display FFTs both online and offline. Signals can first be passed through configurable filters to eliminate aliasing. The results are shown on what is known as FFT diagrams; waterfall diagrams can be displayed if desired. Up to 16,384 reference points can be processed. As well as Hamming and Hanning analysis, cursors are available for the harmonics. Operations on FFT diagrams can also be performed, at exactly the same time, on y-t diagrams.



Some of the display facilities in ARGUS

### Classification

Large quantities of measurement data often have to be processed during the acquisition. To obtain a quick overview, samples are taken and the individual measurement data, ordered according to their value. A determination is then made of how often they occur. This type of classification can be carried out by ARGUS either online or offline. The frequency is displayed in classes with configurable width and number.

### Order analysis

In "order analysis" the spectral calculation is carried out according to the angle of rotation. In accordance with an adjustable center frequency, ARGUS calculates the frequency ranges and displays them in special diagrams.

### Documentation

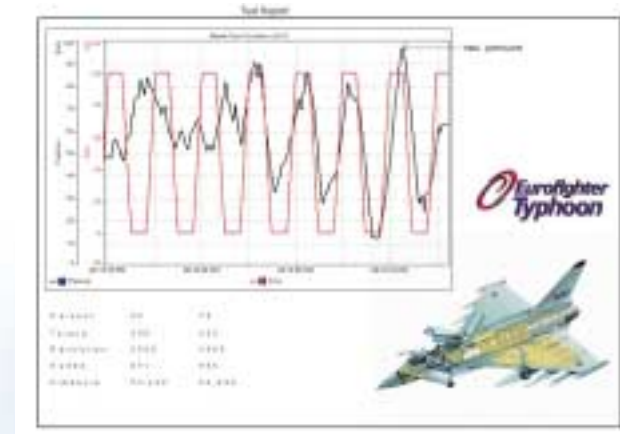
Professional, expressive reports can be created very easily. The results of your analysis can be displayed in diagrams, pictures or tables. Every curve can be given commentaries and additional illustrations, such as your company's own logo.

A print preview shows you exactly how your report will appear when printed. A prepared report can also be stored as a template and provide a basis for further analysis. Completed reports can be printed out or copied into an Office application or presentation program.

The measurements can be converted online or offline into other formats such as ASCII, Excel, DIAdem, FAMOS, Flexpro, etc.

### DOCUMENTATION - A SUMMARY

- Freely configurable layouts with print preview
- Import of graphs and images
- Import of measured data
- Free scaling of all diagrams, tables and graphs
- Labeling and commenting on the measurements
- Transfer to Office applications and presentations
- Export into numerous formats



A test report generated automatically by ARGUS



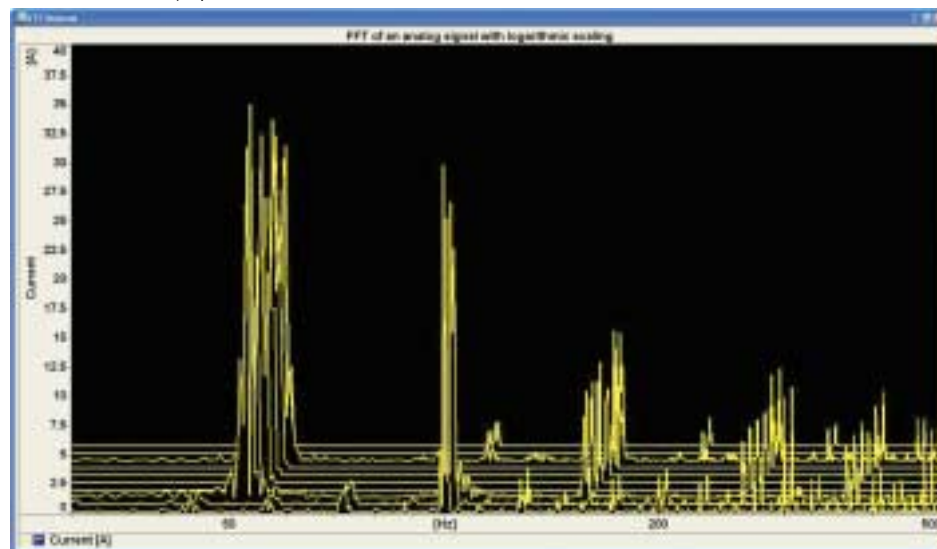
# Plant Monitoring

ARGUS can continuously monitor, supervise and service plants of any size. This guarantees long periods of operation without faults and almost without downtime. Using ARGUS for this task pays for itself very quickly, as it has been optimized for exactly this purpose, on top of which it supports an extremely flexible interface concept.

## State-dependent acquisition

ARGUS has been tailored to work together with a wide variety of interface hardware. Several thousand measuring channels can be linked to one PC. Acquisition rates from a few Hz up to many kHz are possible. In addition to various analog and digital interface modules, signals for plant monitoring can also be connected via CAN-Bus, PROFIBUS and Ethernet. ARGUS permits single, serial and parallel measurements to be taken, under the control of a large number of possibly complex trigger functions. Parallel measurements involve several measurements being taken independently of one another. For instance, all the measurements from a measuring process can be recorded continuously, while a second measuring process - not triggered until a fault occurs - records and also stores the measured data at higher frequency.

FFT with waterfall display



## Company-wide transparency guarantees reliable operation

A single PC is sufficient to record all the process-relevant data for a small plant, whereas in a large plant a number of autonomous PC stations may acquire data at various locations, storing it over a network on a common server.

ARGUS supports powerful databases such as Oracle, SQL Server and the like for this purpose. The data can be accessed from anywhere, through the company's LAN or over remote links. Security is nevertheless maintained: multiple, password-protected user levels only grant access to authorized personnel.

If old measurement data become irrelevant after a certain period, e.g. because no faults or irregularities occurred, ARGUS offers ring buffers that automatically delete the oldest data.

ARGUS exploits all the familiar techniques of modern database technology, providing complex search and selection functions to analyze the information stored in the central databases, or to filter out particular features.



Fault message database with filter

Measurements taken from various data sources, e.g. analog values, PROFIBUS signals or CAN events can be displayed on the screen in synchronized form, scrolled, zoomed and printed out.

## ARGUS HIGHLIGHTS

- Up to 4,000 analog and digital signals
- Integration with automation and control technology
- Multiple independent measurements in parallel
- Pre-trigger and post-trigger with freely selectable conditions for each measurement
- Network-based systems
- Online and offline access to all measurements on any PC in the network
- Ring buffer storage with automatic deletion of the oldest records (FIFO)
- Analysis of all data without interruption of the measurement
- Limit value monitoring of all signals
- Fault message system with messages in plain text in the database, sending e-mails and SMS messages
- Complex search and selection functions
- Analysis of PLC data via MPI and PROFIBUS

## The ARGUS fault message system provides prompt information

Abstract numbers and codes are not very meaningful to human beings at first sight. Messages in plain text, including a date and the precise time of occurrence, and which can be linked to defined events, are far more expressive. These messages allow the operating personnel to identify the causes of a fault at a glance, and to initiate the necessary corrective procedures immediately. It is equally possible to trigger specific actions in response to events. In such cases, ARGUS processes the previously specified action lists, such as starting and ending messages, setting outputs and so forth.

The integrated fault message management system also documents the times at which events have occurred, so that a list of every case can be obtained at the press of a button. Any chosen data channel, any analog or digital input, and any definable event such as parameters that pass outside limit values can be included on the monitoring list.

## REFERENCE PROJECTS WITH ARGUS

### Steel industry

- More than 100 continuous, network-supported monitoring systems
- Systems for vibration monitoring
- Fault message system with more than 2000 signals
- Transient recorder for monitoring rolling mills

### Power supply

- 400-channel monitoring of a nuclear reactor with TUV approval
- Recorder substitute systems with a remote interrogation

### Rail

- Monitoring systems for signal boxes, 200-channel fault acquisition coupled to master computer

### Process technology

- Long-term monitoring for parallel temperature recording in furnaces

The event database provides a record of exactly what has happened. The entries, marked with date and time, permit detailed investigations with the aid of the chronological list.

## Linking to controllers

For interfacing automation and control systems to measurement systems, ARGUS provides a large number of interfaces to PLCs and to control systems (PROFIBUS, Ethernet, OPC, DDE, etc.).

The MPI communication interface from Siemens permits PLC data to be read into ARGUS and analyzed at any time via Ethernet, PROFIBUS, or serially. The data is stored in parallel along with the other signals.

## Vibration analysis

The vibration analysis procedure is suitable for assessing the condition of rotating machines. Evaluation of the periodic frequency components in the vibration signal, which are directly related to the speed of rotation, permits conclusions to be drawn about the possible causes of faults.

The frequency range of the signal can be divided in ARGUS, according to the speed of rotation, into up to 16 regions. The individual frequency bands are represented on the graph as columns. If desired, the frequency bands can be assigned to channels, which permits them to be monitored for exceeding limit values.





# Test Stand Control

Anybody who is involved in the automation of test stands or with the construction of test systems knows what sort of challenges are hidden in this complex field. In typical applications, it is not only necessary to record large quantities of data at high speed, but also for a large number of parameters to be controlled in real time, or for set values to be generated. For this purpose ARGUS offers a large number of functions, turning a PC together with intelligent PC cards and decentralized intelligent peripherals into a process computer for test stands with real-time capability.

## ARGUS simulates and controls in real-time

In addition to data acquisition, the simulation of environmental conditions to which the object under test is to be exposed plays a central role for test stands. For this purpose ARGUS can replay pre-recorded transit and movement profiles, or can use function generators to generate artificial data streams corresponding to almost any curve. At the same time, parameters such as rotation speed and torque are regulated through control groups in order, for instance, to permit smooth start-up, or to swap between different operating situations. Data is, furthermore, evaluated, and appropriate actions can be initiated when previously defined events occur. Its real-time capability permits ARGUS to master all of these tasks without difficulty.

### ARGUS HIGHLIGHTS

- All control functions in real time
- Initiation of events via freely definable conditions
- Automatic processing of action lists (set outputs, start testing, etc.)
- PID controller can be parameterized online, e.g. for smooth start-up/change-over
- Set values specified by database
- Simultaneous output of sine, rectangle, ramp, triangle and simulated data files via any number of function generators
- Linking to Matlab/Simulink

## Powerful functions for test stand automation

ARGUS permits the current data or system conditions to be displayed at any chosen scale or in any format while the tests continue. It is also possible to browse backwards, scroll, zoom, evaluate, print data out and so forth. Freely definable trigger conditions are used to initiate events through which the test procedure can be controlled in detail. If a large number of actions are to be carried out automatically in reaction to a particular event, this can be specified in action lists. In this way, ARGUS automatically begins measurements, sets outputs, prints logs, issues warning messages or initiates emergency situations with lightning speed.

## Customizing

In the test stand field it is often necessary for software to give the appearance of having been specially programmed for this purpose and a particular company. The customizing functions allow ARGUS to be adapted to meet these particular demands. A large number of hardware and software interfaces are available for this purpose. They allow your own programs, operating or interface elements to be integrated into the system. Programming interfaces for C/C++, Visual Basic and Delphi, and the real-time development environment for C, permit any desired adaptation of the system.

As an ActiveX container, ARGUS can also execute customer-specific OCX programs.

## Linking to databases

The data, along with its accurate time-stamp, is written into an Access database. ARGUS also supports the Excel, dBase, Foxpro and Paradox formats. The ODBC interface is available for linking to large server databases such as ORACLE, SQL Server, SAP, and so forth, and OPC for access to other automation components. ARGUS can also read specified set values out of databases or files, and use them to synchronously control electric motors, hydraulic cylinders, valves and so forth. ARGUS is fully network-capable, which means that the data can be accessed for analysis and evaluation purposes from a second PC, even as values are being recorded.

## Simulation

ARGUS can easily be linked to Matlab/Simulink. System models created, for instance, in Simulink can be directly connected online via interfaces to the ARGUS PID controller.

## Series tests

ARGUS allows all measurement and control tasks to be carried out in parallel. This makes it possible to record multiple test systems simultaneously yet independently.

## INTERFACES

- OPC, Ethernet and ODBC
- Direct linkage to MS Excel and MS Access
- Multiple user levels with password protection
- Automatic documentation
- ActiveX container for accepting customer-specific OCX programs
- Programming interface to Visual Basic, Delphi, C/C++
- Linking to your own real-time programs

## REFERENCE PROJECTS WITH ARGUS

### Aircraft industry

- Test stands automation for the Tornado and Eurofighter fuel controller

### Automotive industry

- Test stands for steering components, airbags, and for measuring piston rings

### Automotive industry suppliers

- Test systems for selector lever via CAN
- Service life test stands for selector levers
- Universal test stands for retarders

### Power supply

- Test stands for electricity meters
- Mobile test systems for natural gas valves

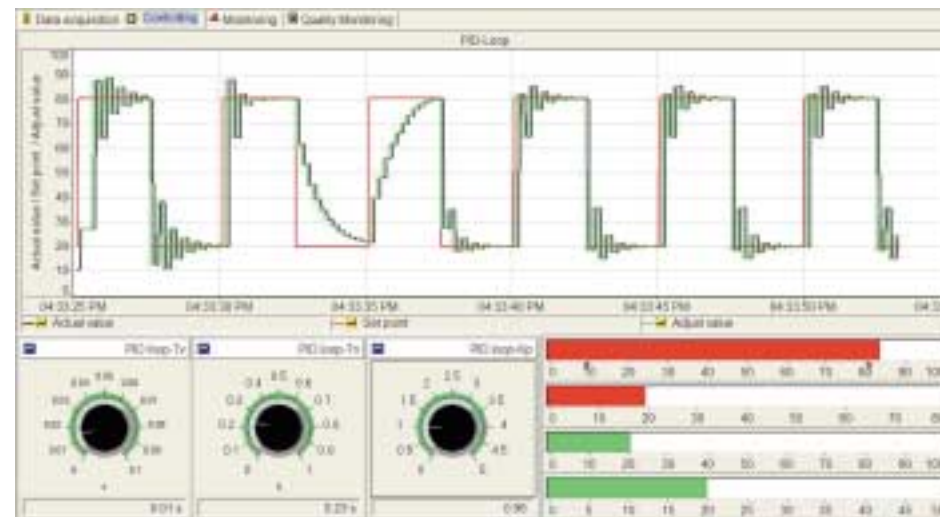
### Plant

- Automation of a servo-hydraulic earthquake test stand
- Service life testing of rubber-metal components

### Process technology/medicine

- Test system for testing medical components
- Automated test stand for artificial joints

PID controller that can be parameterized online





# Quality Control

Complex production plants require intelligent quality assurance systems. To ensure modern quality standards in production, all the quality-relevant data must be recorded continuously. The observance of specific limit values must be subject to unbroken monitoring during the production process. Exceeding limit values may need to be indicated immediately. It is possible that the control of the production process may need to be modified immediately. A key element of quality insurance is the comprehensive documentation of all measured data and of the monitored limit values.

### Online monitoring

ARGUS permits the simultaneous acquisition of many different data. The support of multi-processor systems allows large quantities of data to be measured from a large number of channels at high speed. Sampling rates in the high kHz range are possible here. Limit value conditions can be defined for every measured channel. Also all channels can be combined mathematically to configure limit value conditions. The reaction required to the violation of each limit value can be specified in ARGUS. This can be done, for instance, by setting alarm outputs. ARGUS can, however, also directly manipulate the control of the production process and can, for instance, halt production.

Messages in plain text can also be issued and sent by SMS or e-mail. Comprehensive interfaces such as OPC, DDE or PLC interfaces are available in ARGUS for passing information to higher-level controlling systems.

### Logging

All measured data is stored either locally or on a central server. It is available immediately to all users for online or offline analysis. In continuous operation, ARGUS determines static characteristic values such as the minimum, maximum, mean and effective values, or can carry out other computations, at regular intervals. These characteristic values are entered into the database, and are therefore immediately available for production monitoring and quality assurance purposes. Trends and statistics can be derived from these files.

### The database at the heart

The standardized ODBC interface permits professional data management, and allows integration with practically any database (SAP, Oracle, SQL Server, etc.). This is important for management of the quantities of data, which can sometimes be very large. This also greatly simplifies the exchange of given data and results with other applications.

A further advantage is that values stored in external databases can be accessed, displayed and processed in ARGUS in the same ways as measurement channels. A synchronization system permits data of varying origins, even from outside the system, to be displayed and documented together.

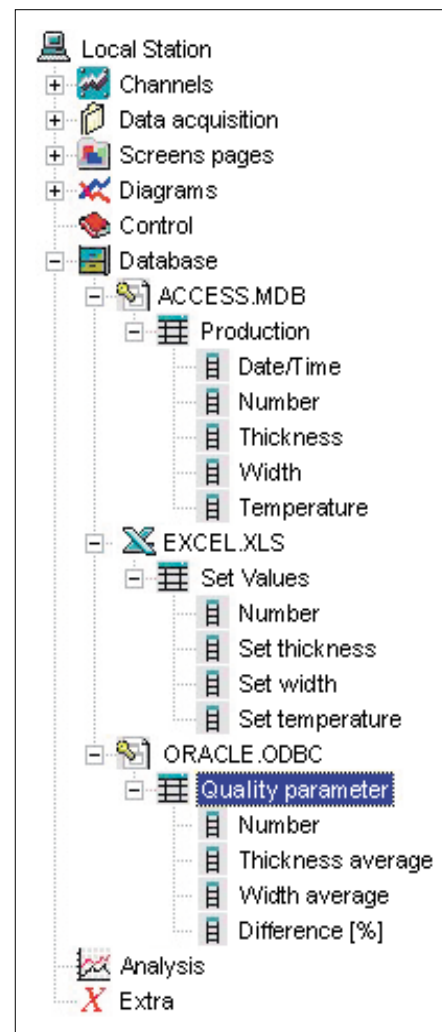
Configurable filter criteria permit the data records to be sorted and selected. SQL commands for extended searching can also be entered directly.

### Report generation

Output functions are available to generate reports. This can be done automatically at the end of a shift, periodically, or in response to other events such as the violation of a limit value.

The reports can be commented, and additional graphs can be included. Once they have been created, reports can be stored as a template and can therefore be reused.

They can be output on a printer; paperless output via e-mail is also possible. The reports can, of course, also be exported into other applications without difficulty.



Linking various databases and office packages to ARGUS

### ARGUS HIGHLIGHTS

- Database linking directly via DAO/ADO or ODBC
- SQL commands and filter functions
- Intelligent search and analysis in all measurement data files
- Configurable export interface
- Importing external data
- Report generation

### Search and find

You can search through measurement data according to specific criteria by means of the measurement search and analysis facility. The results are rapidly and clearly provided in a list. With one click on a search result the data is loaded, and can immediately be compared with the actual data.

### Import/Export

ARGUS offers an import interface (ASCII) for reading external data. ARGUS provides a powerful export interface for passing data on to existing programs. Any of the data in a record can be converted to other formats (e.g. SAP, MSExcel or ASCII) either entirely, channel by channel, or with reference to selected items.

### Total Production Maintenance (TPM)

The flexible provisions for establishing interactions between databases, network stations and production plant means that ARGUS becomes the central organization and exchange area for all quality-relevant information. ARGUS therefore satisfies all the requirements of total production maintenance.

The spectrum of users within a company is very wide, ranging from the operative performing plant supervision, through the process engineer in quality assurance to the developer in process analysis. All users can be given access to the ARGUS data, and can obtain meaningful information, independently of one another.

### REFERENCE PROJECTS WITH ARGUS

#### Steel industry

- Network-supported systems with database integration for the determination and control of manufacturing costs
- Determining operating data for quality assurance in the manufacture of shadow masks

#### Aircraft industry

- Calibration of sensors and actuators for quality assurance

#### Chemical industry

- Continuous monitoring of tablet production with long-term recording

#### Electrical industry

- Online process analysis of light fittings to reduce faulty production





# Remote Diagnosis

Monitoring complex test stands and plants is both time-consuming and expensive. Modern systems call for trained personnel, who must not only be available during ordinary working hours, but also at night and over the weekend. Rationalization through remote monitoring, remote diagnosis and remote service is a much more contemporary approach than the continuous presence of appropriate staff on site. With the aid of online access, fax, voice messages, SMS and e-mail, decentralized intelligent systems nowadays permit easy, cost-effective solutions for industry.

## Rationalization through remote monitoring

At any time a service engineer can dial into a MAX5dip or MAX8dip from any PC via a modem or ISDN for the purposes of remote diagnosis. It is only necessary for the carrier system to be connected to the telephone network via a modem or ISDN module. In this process, the system monitors a plant autonomously or records measurements.

The service engineer can access the entire system just as if it were standing on his bench. It is possible, for instance, to display and analyze all the measurement data, or to make changes in the configuration so that a limit value or the sampling rate of a channel

can be changed. The modified configuration is stored in non-volatile memory on the carrier system, and remains effective even after the remote diagnosis access has concluded. If power and return to the carrier system fails, the system will subsequently restart and continue its work on the basis of whatever configuration was most recently valid. Processing of the measurement and control tasks is performed autonomously on the carrier system.

## Information instead of data

Because connections over ISDN or modem often restrict bandwidth, it is frequently necessary for the carrier system to perform intelligent pre-processing. ARGUS can for this reason, for instance, perform many calculations on the remote carrier system, so that only the results have to be transferred to the host and not the complete data.

ARGUS permits the limit values of every signal to be monitored. If a limit value is violated the associated measurement is transmitted by, for instance, SMS or e-mail. An individual address can be specified for each signal that is to be monitored. This means that in the case of a mechanical problem, for instance, the appropriate mechanical specialist is called, not the electrician.

## Event database provides deep insight

Violation of the upper or lower limit of a signal is a typical event. When such an event occurs, the system automatically works through a list of actions, which in turn can consist of multiple individual actions. Typical actions include sending an SMS or e-mail, setting an output, sending a fax or issuing a message in plain text.

Each event and each action is marked with a time stamp, and registered in a database implemented in MS Access. This database information can be read or displayed at any time. The database can, moreover, be sent by e-mail to a freely configurable address. This puts the recipient or service engineer in a position to precisely reconstruct the sequence of events associated with a fault.

## Flexible platform with a secure future

Monitoring distributed plants is greatly simplified and reduced in cost by networking the individual stations. The individual stations can be conveniently accessed via a central server. It is possible, for instance to modify the parameters of a serial test stand from a central location via remote connections.

The use of a decentralized system makes it possible to control the process, directly at the point where the signals are generated, without long cable routes. Decentralized intelligent peripheral systems operate fully autonomously, and can be interrogated at any time over a network or via ISDN/modem.

## Data acquisition on the road

**NEW**

It is often necessary to record data during the test drives made by automotive manufacturers, and yet be able to observe them at the same time. The PDA version of ARGUS - ARGUSpda for Windows CE - allows measurements to be recorded and to be displayed simultaneously on a PDA (Personal Digital Assistant). The PDA is attached where the driver can see it, allowing him to see the acquired data conveniently. At the same time, the measurement data is written into a Flash memory card, and can be evaluated at the end of the test drive on a PC using ARGUS, or can be transmitted to the central office by e-mail.



## REFERENCE PROJECTS WITH ARGUS

### Automotive industry suppliers

- Remote monitoring of continuously operating test stand via ISDN

### Plant

- Worldwide monitoring of boiler feed pumps
- Remote service of production plant for lamp manufacture in Japan

### Power supply

- Remote monitoring of sub-stations via modem
- Monitoring burner lances in power-station boilers with SMS messaging

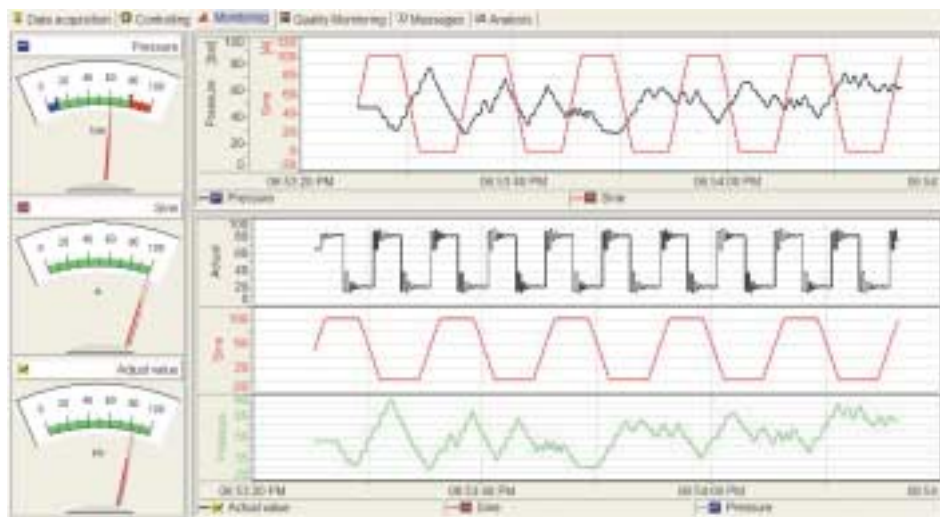
### Steel industry

- Remote diagnosis of rolling mills

### Automotive industry

- Data acquisition in vehicles on a PDA with subsequent analysis and documentation in the laboratory

Remote diagnosis of drives in a power station



## ARGUS HIGHLIGHTS

- Data transmission directly by ARGUS
- Connection via Ethernet, serial, PROFIBUS or CAN
- Simple configuration of decentralized sub-systems
- Dial-up connection via modem/ISDN or Internet
- Automatic data transmission in the event of a fault
- Transmission of calculated characteristic figures
- Data can be analyzed at any location
- Mobile data acquisition and monitoring on a PDA with ARGUSpda





# Complete Solutions

## Competence from A to Z

SORCUS is also able to supply you with complete, turnkey systems. This extends from initial design, through control cabinet construction and wiring, signal conditioning and network installation, up to test runs and final start up. SORCUS can also take care of the adaptation needed for special software, existing programs and databases. Selection of the server, construction and setting up the network, and the installation of all the measuring stations to the point where they are ready to operate are part of the job.

We know, from many years of experience, what it means to meet deadlines when working under pressure and to carry responsibility. That is why we can provide you with skilled help and support.

## Customer-specific software

SORCUS can also create customer-specific software. On the basis of the large number of open interfaces in ARGUS, both real-time programs (e.g. emergency-off controllers) and special diagrams (such as locus curves) can quickly and easily be implemented. ARGUS can easily integrate these diagrams into the interface as ActiveX containers.

## COMPLETE SOLUTIONS

- Development of requirement specifications
- Control cabinet construction
- Wiring and signal connection
- Signal conditioning
- Network set-up
- Customer-specific software
- Configuration
- Start up
- Training

Final start up of a reactor hall



# Support and Service

## SORCUS supports you

SORCUS offers you the help and service you need at every phase of your project. This begins with the tender specification (performance specification), continues through planning and development up to installation, acceptance and servicing.

## Manuals and online help

English or German manuals are included with all products. All the menus and dialogs in ARGUS are also available in English and German. This is also true for online help in ARGUS. It offers you a full description of all ARGUS functions. You can reach help, giving you the necessary information, from within almost any of the dialogs. The help is written in HTML format, and can also be opened with, for instance, Internet Explorer.

## SORCUS Service Portal

The SORCUS service portal is open for you day and night. It gives you access to the latest documentation, hardware and software manuals, current drivers and the latest libraries. If you register you can be informed of all our news automatically by e-mail.

## SORCUS Hotline

Inquiries can be sent to SORCUS by e-mail, fax or telephone. They will be passed to a specialist immediately, and you will receive a prompt answer. This service costs you nothing. To simplify communication both for you and for us, the "File" menu of ARGUS contains the item **Hotline by File**. In this case, a compressed file containing all the information about the system, including the user's problem description, is prepared. This file can be written to a CD or onto the hard disk drive via this menu item and then sent to the SORCUS support.

If a modem connection is available, the **e-Mail Hotline** item permits this file to be sent by e-Mail directly.

## Training

We offer training and start up services to familiarize your staff with ARGUS. If desired this can be done at your own site. In this way we get to know the concrete details of your situation, and this can sometimes allow us quickly and appropriately to find a way around particular obstacles.

Perhaps you would like to get to know ARGUS a bit before you take part in training? You can download a 60-day test version of ARGUS free of charge from the internet (at [www.sorcus.com](http://www.sorcus.com)), or order it on CD. Intensive training courses in hardware and software are also carried out regularly at all SORCUS sites.

## Remote service

If you wish, SORCUS can also provide remote service via a network (internet, WLAN /LAN) or ISDN/modem. A problem can be analyzed promptly and without delay with the aid of suitable software such as pcAnywhere. Immediate correction may even be possible.

## Maintenance

You can also make a maintenance contract with us, providing guaranteed reaction times. We will then examine your system at regular intervals, and so draw your attention to possible problems at an early stage. Supervision and support of the machine usage can be ensured for the whole of the operating period. The advantage of this is that the results can be applied immediately to optimize the processes.

## Worldwide support

SORCUS' subsidiary branches and distributors guarantee fast assistance anywhere in the world. You can find the addresses at our website:

[www.sorcus.com](http://www.sorcus.com)



## SUPPORT

- Integrated online help
- Comprehensive manuals
- English and German versions available
- On-site training
- Free support via e-Mail or fax anywhere in the world
- Remote service and remote maintenance options