SIGMATEK

LASAL Engineering Tool

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Contents

LASAL

All-in-One

Efficient Automation with the Engineering Tool LASAL

The all-in-one engineering tool LASAL offers all the advantages of a modern and integrated engineering environment. Innovative programming techniques allow the simple and fast implementation of machine applications. With LASAL, development times as well as time-to-market cycles are significantly reduced – achieving a higher software quality.

All-in-one: One Tool for all Aspects of Automation

LASAL provides **all functions needed** for the solution of automated tasks: PLC programming, visualization, motion control, safety, service, diagnosis and remote maintenance.

This integrated engineering environment **significantly reduces engineering time and costs.**

The individual software modules can be **combined like a modular system**. Object oriented programming guarantees the machine manufacturer the highest possible **flexibility,** since the object oriented design of the software allows a quick reaction to individual customer requirements.

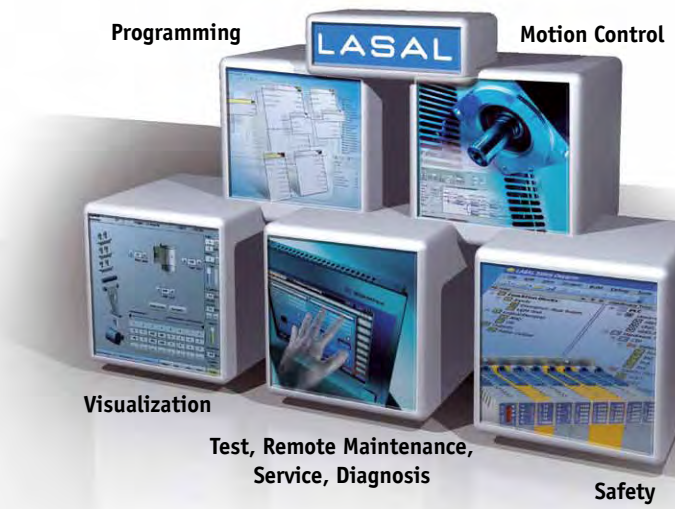
LASAL CLASS — Object oriented project development with high modularity

LASAL SCREEN — Visualization on all SIGMATEK display units

LASAL MOTION — Motion control

LASAL SAFETY — Programming of logic connections for Safety components

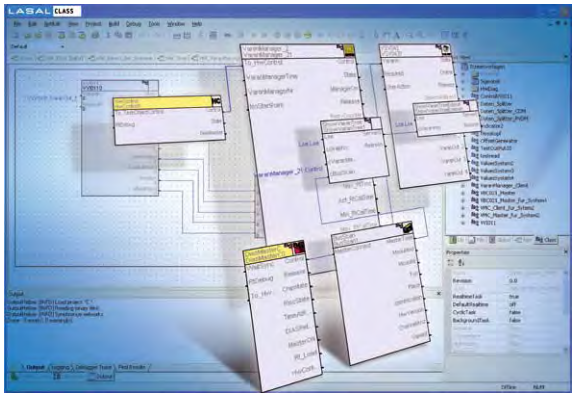
LASAL SERVICE — Service and remote maintenance over internet



Object Oriented Programming

LASAL is a highly modern engineering tool: In 2000, SIGMATEK was the first company to integrate **object oriented programming** with graphic representation and client/server communication into automation technology. With object orientation, LASAL sets a **new standard for modularity and reusability.**

Through the inheritance of class properties, a structure of program components in hierarchical levels is possible. The **clear software structures** simplify the development of applications. Through the modular structure, **previously created application components can be changed or reused easily**.



Clear Organization with Graphic Representation

Through the graphic representation of program components, the **complexity of the program is encapsulated**. This means the program code itself is not visible at the first glance, rather the relationships between the program components are shown. The developer can therefore **get a quick overview of the project structure** and the interconnection of the individual modules is clarified. Complex applications can also be displayed transparently and clearly organized. This simplifies the implementation and helps reduce the engineering and maintenance time. For service technicians, it is possible to diagnose malfunctions in a machine quickly and easily.

Comprehensive and Future-proof

LASAL can be used on all platforms. The entire SIGMATEK product palette such as CPUs, terminals and industrial PCs are supported. In addition, **the hardware platform can be changed without having to adapt the software**. The automation system can therefore be easily expanded at any time; the user therefore has a future-proof system.

Programming according to the IEC 61131-3 Norm

LASAL CLASS

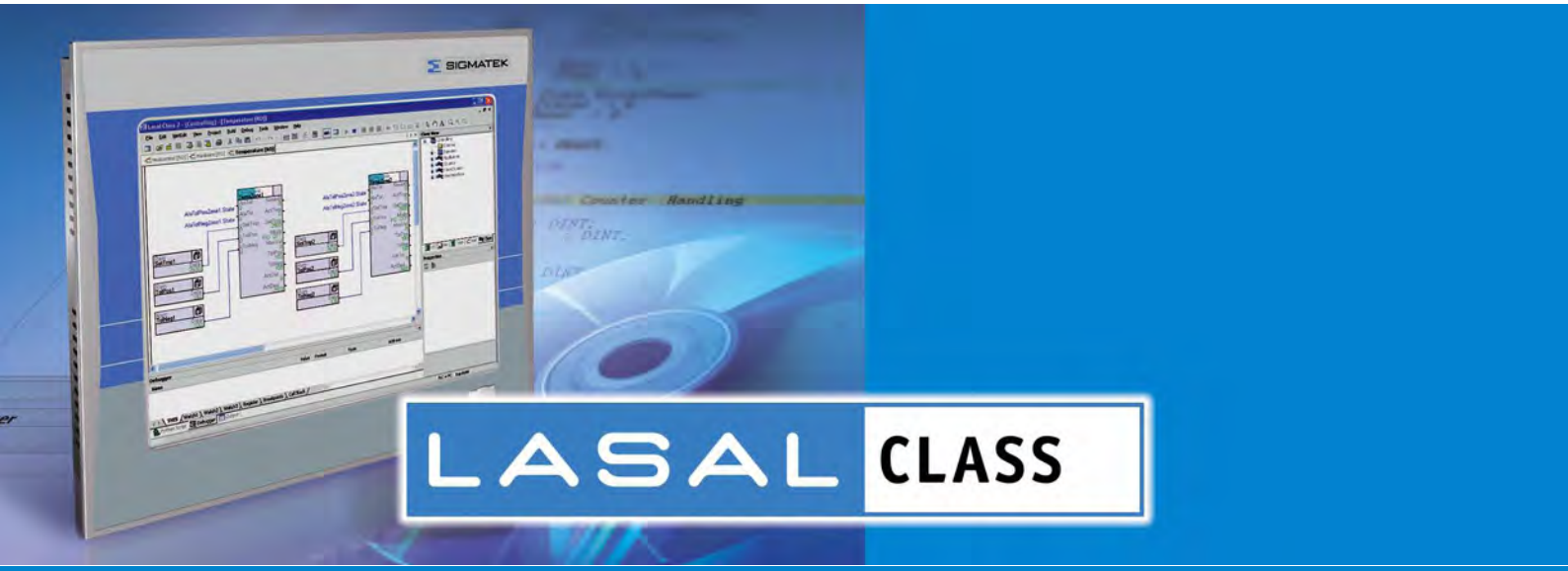
LASAL CLASS (Control Logic Application Software System) is THE engineering tool for the solution to your automation tasks. With an integrated operating concept and clearly organized surface, LASAL CLASS offers a comfortable design environment for object oriented programming - from the most simple machines to complex applications.

Object Oriented Programming

LASAL expands the **IEC 61131-3 Norm** with object oriented programming and ensures the **simple** and **clear development of applications**. Thanks to the modularity, reusability of the classes and the encapsulation of user programs, the application is more efficient and can be tested more easily. The **development time** is thereby considerably shortened and **the engineering costs are reduced**.

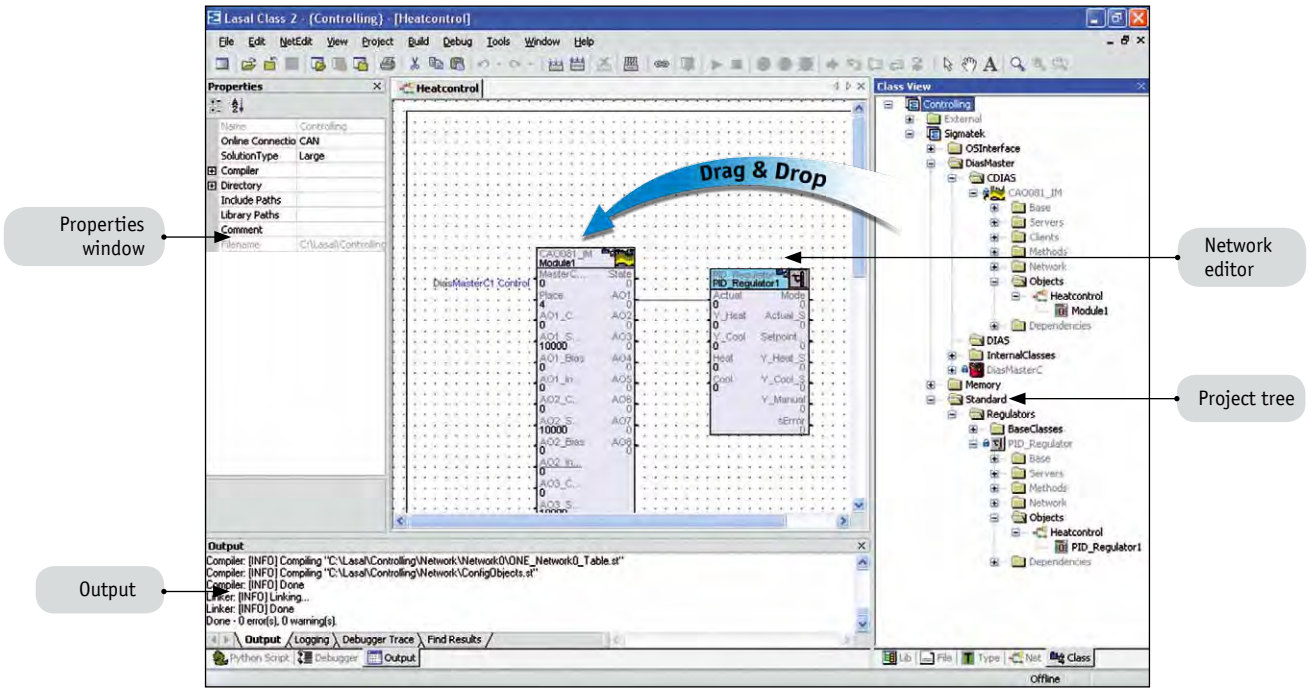
With object oriented programming, the various components of a machine or system are represented in the form of objects. Behind each object stands a class containing the program code and the corresponding data elements. The usual **separation of data and program code** with procedural programming **is eliminated.** Each class can assume a specific task, for example, the measurement and evaluation of a temperature or control of a valve.

The **classes** defined by the programmer are **stored in clearly organized libraries** (Class Library). For the exchange of information, defined interfaces are available in the library classes, which can send and receive data.



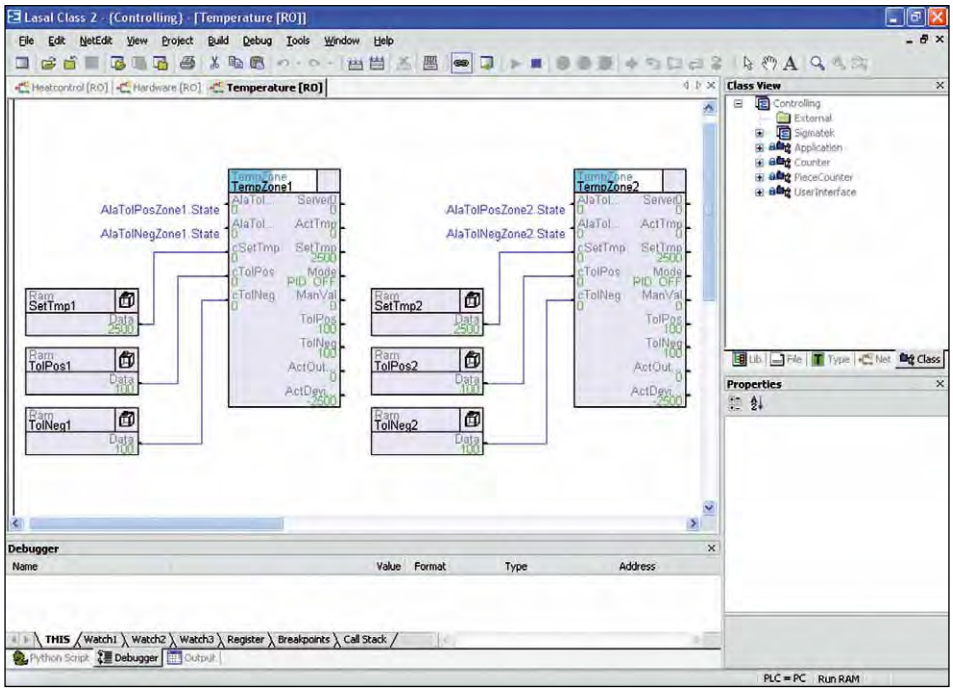
Object Network and Graphic Representation

Modern engineering tools such as LASAL support the programmer with the graphic representation of classes and objects. **Using Drag & Drop**, a class is **linked to** the network **from the project tree** and an instanced, real object is generated. The objects must only be connected to one another and an application is created. LASAL CLASS creates all declarations and function bodies automatically. The user only has to program the individual methods and does not have to worry about the declaration syntax, as with conventional systems.



Instancing: Generating an object with Drag & Drop

With graphic representation and a comfortable debugger, programming applications are child's play. **A complete overview of the project**, the **functions**, **data traffic** and **interfaces** is possible **at a glance**. Complex relationships are much more transparent and easier to test or change.



Graphic representation

Inheritance, Aggregation and Creation of Complex Classes

LASAL CLASS supports the creation of complex classes through the object oriented concepts, inheritance and aggregation.

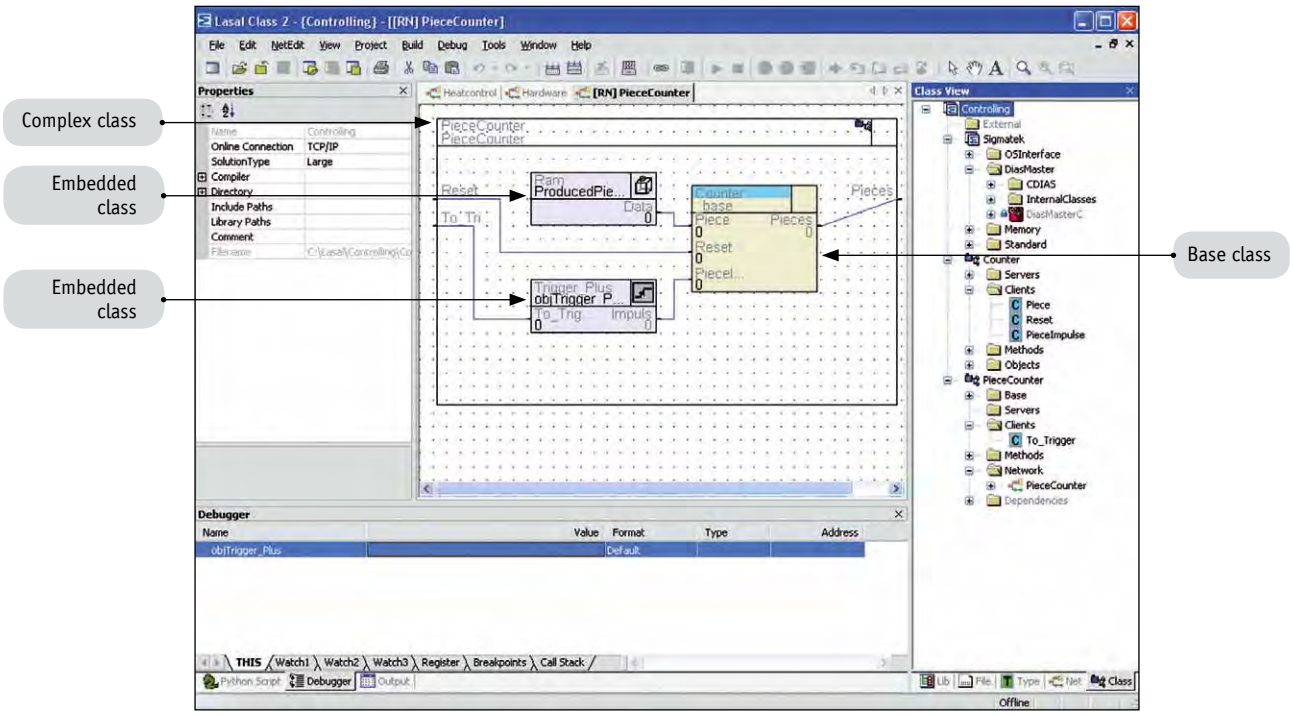
Using **inheritance**, an object class can be duplicated and refined. Inheritance describes the **relationship between** the **general class (base class) and** a **derived class**. The derived class inherits the properties of the base class but also contains additional information (attributes, operations, associations).

Through **aggregation**, several individual **classes** can be assembled **into one complex class**.

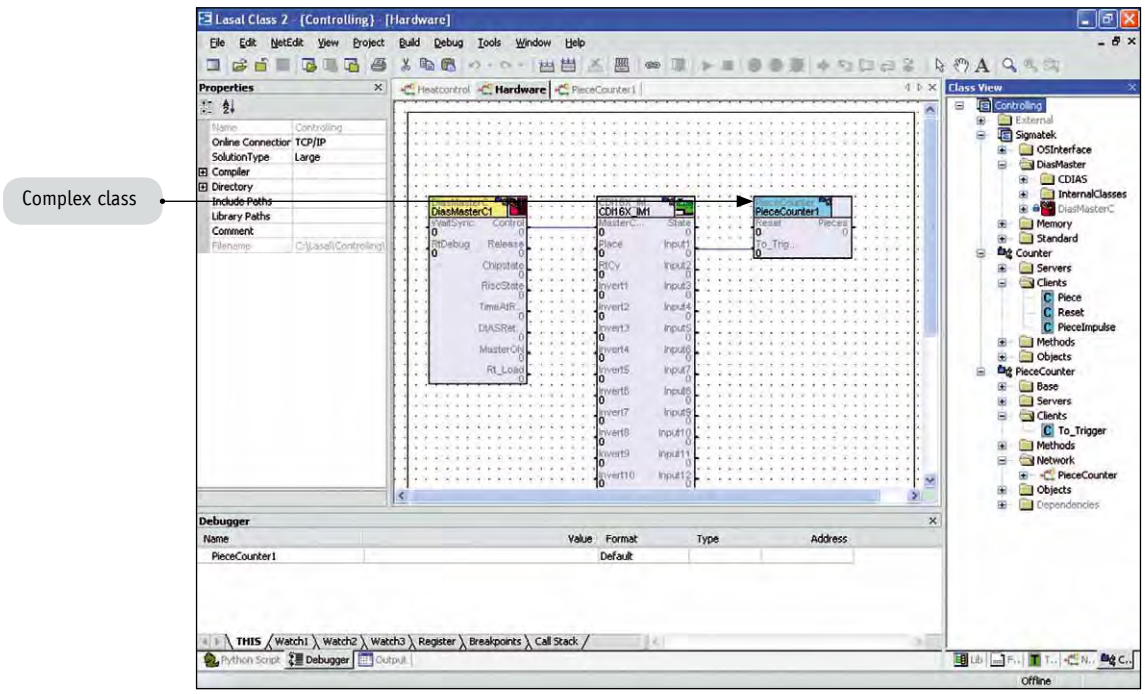
Previously tested classes can be easily combined into highly complex program structures using the toolbox principle.

With these programming techniques, it is possible to implement new machine properties with **minimum programming**.

Example: The »Counter« class is labeled as the base class, the properties are then inherited by the »PieceCounter« class derived therefrom. Through aggregation, the classes »Ram« and »Trigger_plus« are also integrated in the complex class »PieceCounter«.



Creating a complex class through aggregation and inheritance



Representation of an instanced complex class in an object network

Multilanguage Programming Tool

LASAL supports the most important programming languages. The application can be created using **Structured text (ST), Instruction list (IL), Ladder diagram (LD)** – all three meet the IEC 61131-3 Norm – **Sequential function chart** (Interpreter) and **ANSI-C**. The methods of object oriented programming are available as an integrated extension of trusted languages.

Client-server Technology

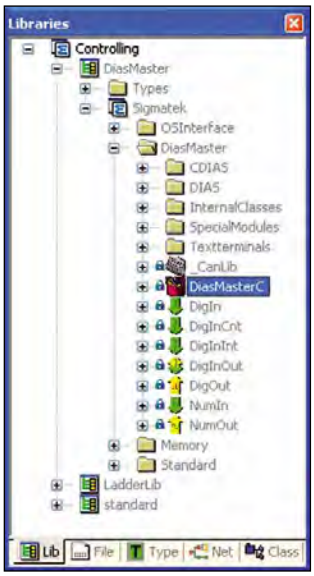
The **communication** between the client and server functions like a PC network **over** a **Request/Response mechanism**. This means, the client requests a service that is provided or processed by the connected server. Read and write access occurs over a single connection. Through this technique, an **event-triggered system** can be realized: A program component is then only active when it is "initiated" (i.e. by writing a reference value in the visualization). The **CPU load** can therefore be **optimized considerably** in comparison with conventional systems.

Communication between client and server

Class Library

The **classes** can be **managed centrally** in a **library**. When importing a class, all required program components are loaded into the project tree by copying, linking or referencing. In LASAL CLASS, an **extensive standard Class library** is available, which provides numerous function classes such as Memory, Time and Date, Motion, Logic, Controllers, Triggers, etc.

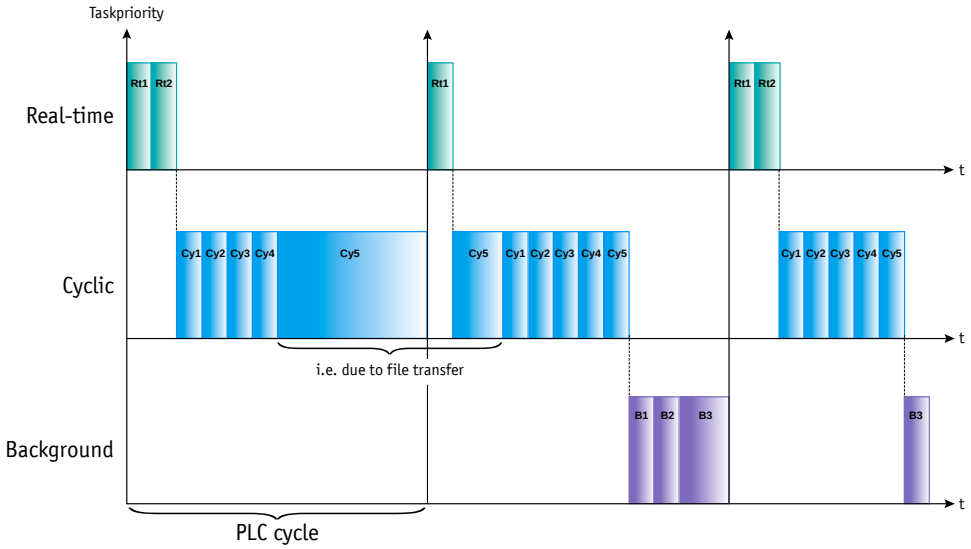
Each user can create and use as many **individual Class libraries** as desired.



SIGMATEK
Standard Class library

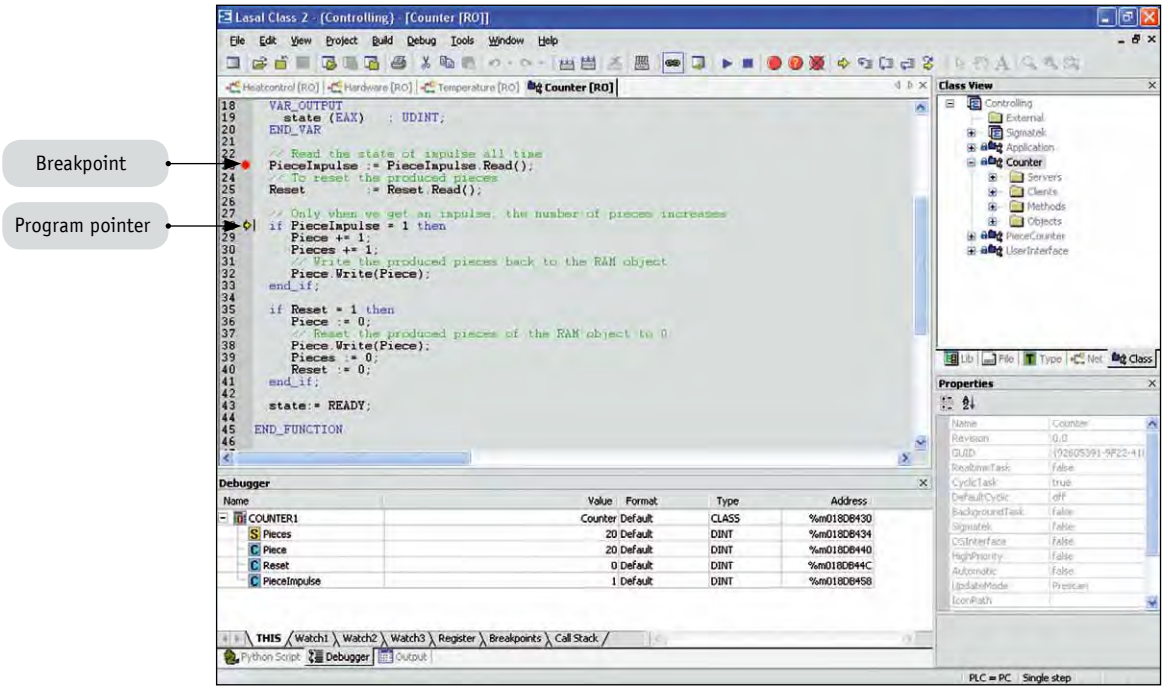
Real-time Multitasking System

The **real-time operating system** provides the user with three **different task priorities** (real-time, cyclic and background). The operating system maintains the control over the tasks to be processed (preemptive multitasking). Within a task priority, cooperative multitasking is used. Through this real-time multitasking system, the **visualization** and **application can run on one processor.**



Source Code Online Debugger

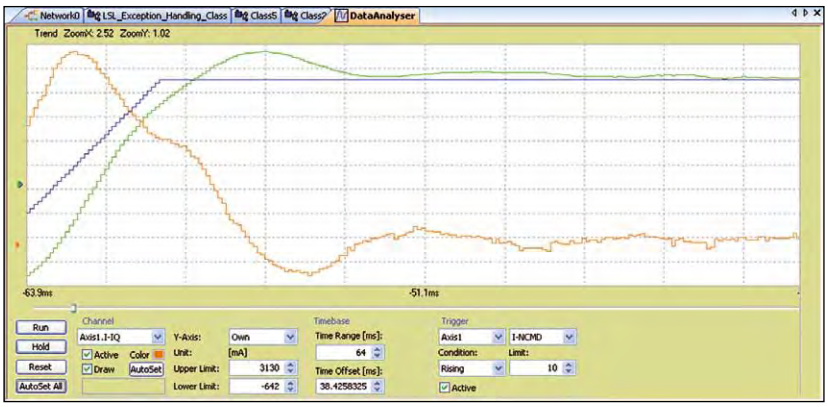
With the "Source Code Online Debugger", functions are provided such as breakpoints, conditional breakpoints, scan counters, single-step processing and forcing, with which program errors can be found quickly and easily.



Online debugger with real-time values

Real-time Data Analyzer

The Data Analyzer allows **real-time representation of signal processes** with an additional history function. The view can be switched between trend and the classic oscilloscope display (with or without luminescence). Start and stop triggers can also be set and a hold function is integrated.

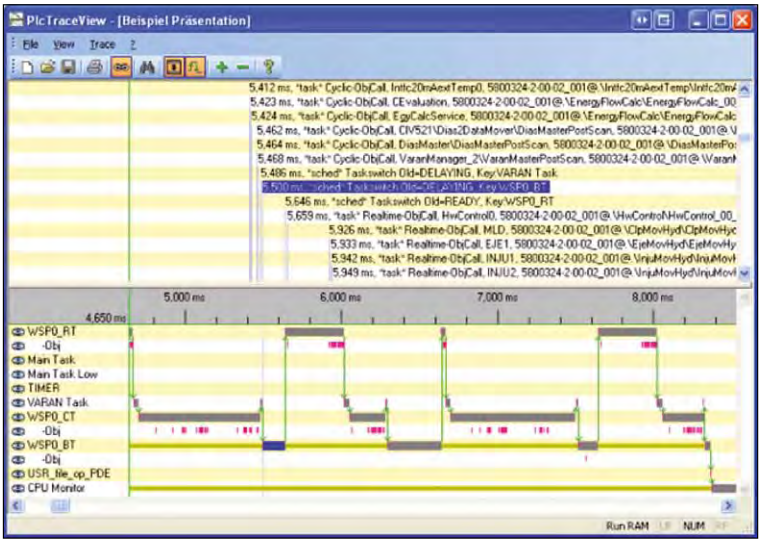


Real-time display of signal processes in the Data Analyzer

Advanced Debugging Tools

With the advanced debugging tools, the user is provided with **comfortable tools for online diagnostics and testing**.

- **PlcTraceView** Recording of a project's time response
- **File Commander** File operations to/from the PLC
- **RAM Image** Save and restore remanent data
- **Remote CLI** Online instruction interface
- **Object List** List of all existing objects with addresses
- **Memory Dump** Displays a memory area of the PLC



With the **"PlcTraceView" tool**, the **time response** of a project can be recorded. This tool is used for analysis, diagnostics or time measurement of the task response.

Recording the CPU tasks

Scripting

The **automatic generation** and **adaption of the machine software** is made possible through the use of the **scripting language Python**. From a base project, various characteristics and types of a system can then be formed. A library with predefined classes is thereby accessed, which represents the various modules and components.

The developer can concentrate on the implementation of the new machine functions. Once these are completed, the project developer - similar to the generation of parts lists - can **generate and define specific machines or systems with the push of a button**.

Online Help System

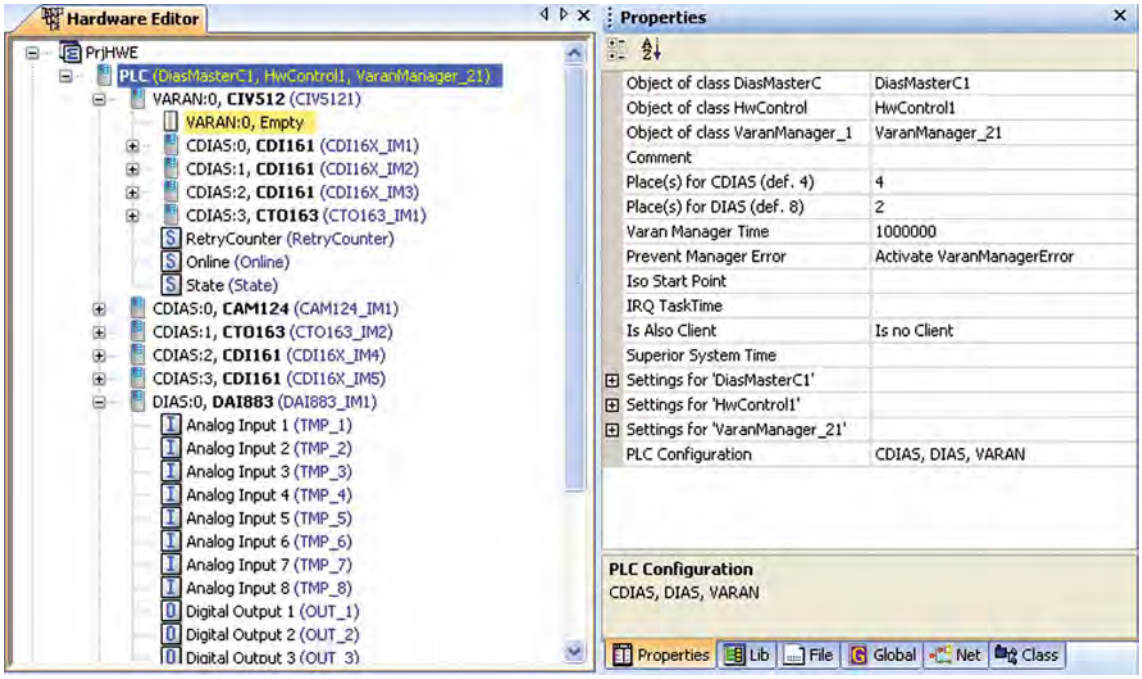
LASAL has an extensive help system, which describes all functions in detail. With the help of a **demo project**, a **quick start in the system** is guaranteed.

Version Management and Multi-user Project Structure

LASAL allows a **simple connection to version management systems.** All source code files are stored as pure ASCII files so that importing and exporting to other systems can be done easily. The version management allows **multi-user project structures for cooperation in large engineering teams:** modules and/or program components can be developed separately and then combined into an integrated whole. This increases the flexibility and the **time-to-market cycles** are **shortened.**

Hardware Editor Simplifies I/O Projects and Diagnostics

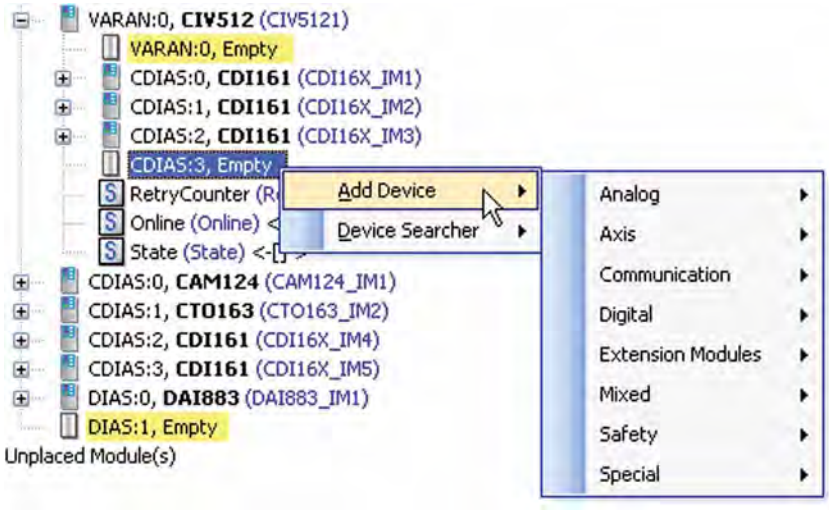
With the Hardware Editor, a flexible and comfortable tool is provided to **easily create, parametrize as well as diagnose hardware modules** (I/Os, interfaces,...) in the control. The Hardware Editor is an essential part of the LASAL CLASS development platform and is seamlessly integrated into the control concept using a tree representation. The tree representation is especially ideal, since the bus structures can be clearly shown in the tree topology. As part of the project development, the hardware configuration of the machine is mirrored in the tree.



Hardware Editor with parametrization over the property browser

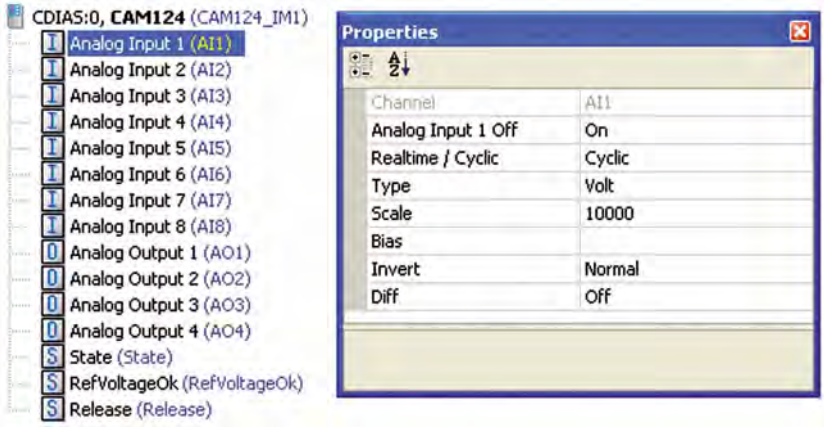
The user no longer has to manually create and then parametrize an instance of the corresponding software component (class) for each hardware module. With the Hardware Editor, LASAL CLASS automatically performs these actions in the background.

A module is located and added to the tree more easily, since only the modules allowed for the respective slot can be selected. In addition, they are divided into groups such as „Analog“, „Digital“, „Axes“, etc. and can be easily located by name with the „Device Searcher“.



Module assignment in the Hardware Editor

The parametrization of modules as well as individual I/Os is performed in the usual LASAL CLASS manner **using the property browser**. LASAL CLASS can also support users here with plausibility checks and therefore avoid the assignment of incorrect values.



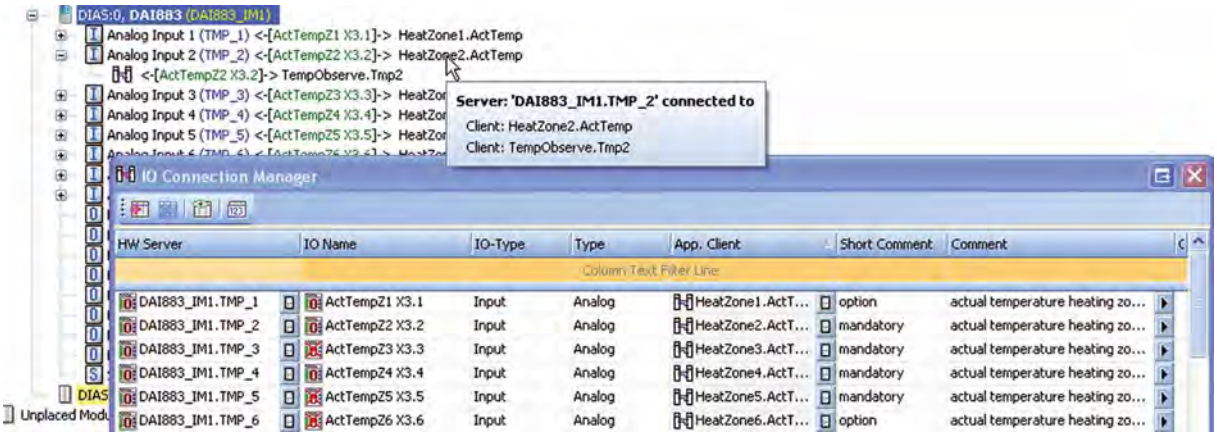
Configuration of individual I/Os

If **the hardware assignment** in a project **must be changed**, the Hardware Editor supports the **Drag & Drop function.** A module can therefore be simply assigned to a different slot.

With object oriented programming using LASAL, specific I/O points and/or addresses are no longer anchored in the code, since there can be several objects with different I/O applications.

The I/Os are assigned per object in the graphic view of LASAL CLASS, without affecting the class code.

The **Hardware Connection Manager** provides a dialog function, in which the connection of all I/O points to the user objects are listed in a table. An available I/O point can therefore be quickly and clearly assigned to an interface variable of an object.

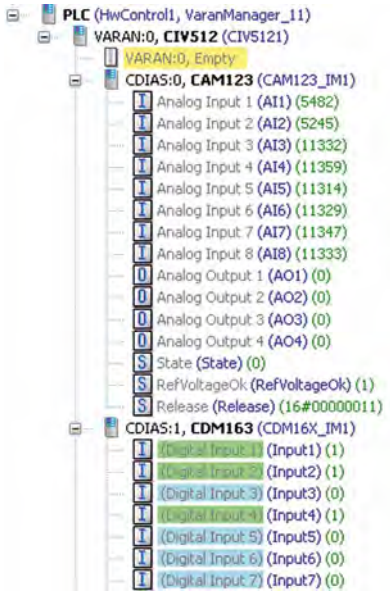


Connection of the Hardware I/Os to the user program in the Connection Manager

For the I/O layout in the user software or if „rewiring“ is required, the user is supported with a **clear dialog containing filter and sorting functions**. In addition, „I/O names“ can be assigned in the connection dialog. These represent an interlayer between the physical I/O point of the hardware and the software usage in the application program, in order to encapsulate the hardware once more and allow I/O points to be assigned the same name in multiple projects.

A great feature of the Hardware Editor is provided in the **online view** when a connection to the control exists. The **Hardware Editor compares the configuration in the project with the actual hardware connected to the PLC** and shows possible deviations, which indicate an incorrect project or incorrect wiring. The **diagnostic statements** can be made with the Hardware Editor **during active operation**. Through the background color, the user can see at a glance which modules are in error status due to a disconnected voltage supply for example.

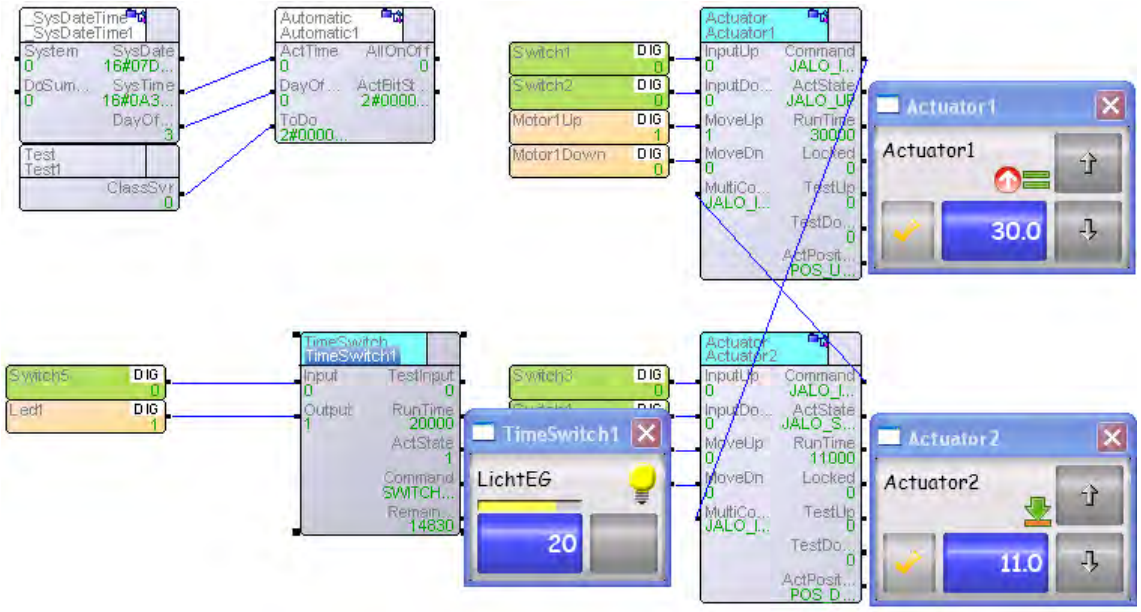
The **online diagnosis is also possible down to the individual I/Os**: In analog I/Os, the actual values are displayed numerically. The I/O point of the digital signals is assigned a background color depending on the ON or OFF status.



Online display with actual values

Visual Object View

Sigmatek developed the "VisualObjectView" (VOV) so that the user is not restricted to utilizing graphic objects in the visualization only. The **visualization of individual classes** can therefore also be **used in** the LASAL CLASS **programming environment directly**. For example, to set the parameters of individual system components while offline or visualize and test them over an online connection. The SIGMATEK library contains a selection of VOV files such as initial start-up or parametrization of axes, controllers and timers. With a mouse click, these can be added to the visualization project or edited. Naturally LASAL SCREEN also allows the simple creation of user-defined VOV elements.



In the Visual Object View (VOV), visualization objects can also be inserted into LASAL CLASS.

Convincing Visualization Comfortably Applied
LASAL SCREEN

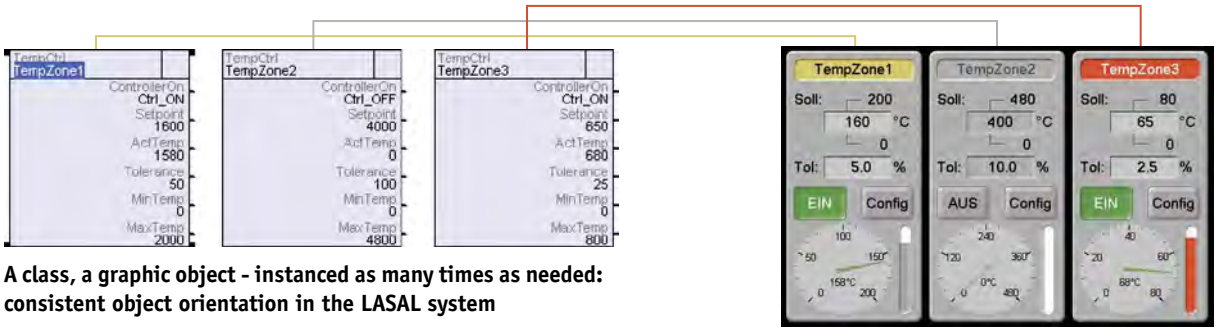
With LASAL SCREEN, the user is provided with a comfortable HMI tool for visualization on all graphic display units from SIGMATEK.

Simple

Programming knowledge **is not required** for creating the visualization. LASAL CLASS defines the variables available for the visualization. During the runtime, the visualization can access the variables of one or several controls directly.

Graphic Objects

LASAL SCREEN also offers the option to create graphic objects, which like in LASAL CLASS, can be combined into complex objects through aggregation. Each **graphic object** can be **connected with an object in LASAL CLASS.** Individually created graphic objects can be placed and scaled as desired, whereby each instance can be assigned a reference to a corresponding LASAL CLASS object. The display and operation of a temperature regulation zone, for example, is defined only once and then reused for any number of regulation zones.



A class, a graphic object - instanced as many times as needed: consistent object orientation in the LASAL system

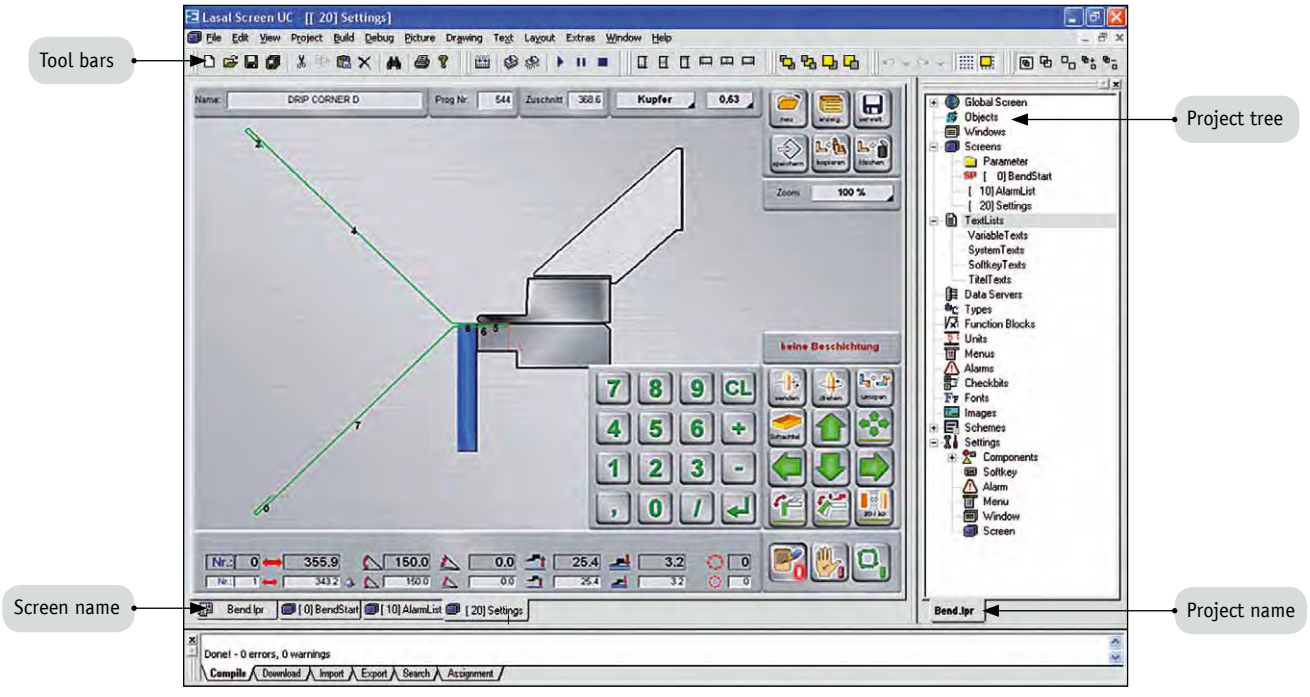
Flexible Screen Creation

With LASAL SCREEN, **screens** can be comfortably created **in the corporate design of the customer.** For project development, integrated designs and a large graphic pool (library) are available. Naturally, user-defined graphics can also be imported.

With the **definition of a global screen** and the **individual screens derived therefrom,** the **project development time** can be significantly **reduced**. LASAL SCREEN supports all resolutions of the various SIGMATEK displays. In the target, the operating mode - touch screen, keyboard and/or mouse - can be selected. The operating mode can be changed individually at any time.

Several input elements are available, from direct value entry with upper or lower limit setting options to input elements with pull-down menus.

LASAL SCREEN also offers the user functions such as alarm and event management (logbook), trend display, bar diagrams, recipe management, etc.



Editor for creating screens

Standard Graphic Functions

For creating pictures, **several standard functions** for drawing, aligning, importing, translation, etc. are provided. In addition, existing graphics in standard formats (BMP and JPG) can be linked. This results in **significant time and cost savings**.

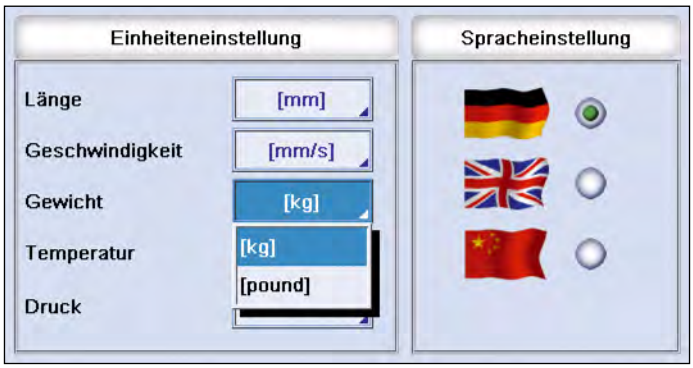
Standard graphic tool bar

Language and Unit Conversion

LASAL SCREEN can **manage any number of languages in one project**. Text information is entered in the form of ASCII or Unicode; all languages are thereby supported. Translation into a different language can be completely text-based or supported using the LSE translation tool provided.

To **ensure the clarity** of the text to be displayed, text lists can be created and assigned individual names. When compiling the visualization, the required language can be selected from the entire language pool. This reduces the amount of memory required in the target. Individual languages from this project can be installed later into an existing machine.

With the online conversion, **measurement units can also be converted**. For example, lengths can be converted from »mm« to »inches« automatically. The appropriate conversion type is selected during the project development directly. The programmer does not have to worry about unit conversion in LASAL CLASS, as all system values are available in the LASAL base unit.



Unit and language conversion

FDA Conformability

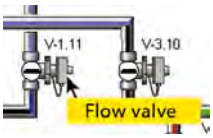
LASAL SCREEN offers integrated user and password management as well as the possibility to log data, conditions and events. The engineering tool thus **meets** the **requirements of** the American Food and Drug Administration **FDA** (21 CFR part 11) for machines in the pharmaceutical, food and beverage industries.

User-defined Graphic Area "MyIO"

In LASAL SCREEN, the user can define sections of the screen that are filled with contents **from a program created in LASAL.** The programmer is thereby supported with **ready-made interfaces**, which can be automatically called as needed (i.e. Touch-Events, Redraw-Methods, etc.). In the user program, all elements and information included and parametrized in LASAL SCREEN can be accessed.

Bubble Help

Each variable can be assigned an **additional help text**. When this variable is selected, additional information can be displayed in the form of bubble help text.



Bubble help function

Exporting and Importing Project Components

LASAL SCREEN offers the possibility to **selectively export or import project components** such as pictures, text lists and variables. Since an additional SCREEN project is generated when exporting, the user can also create libraries with reusable elements here as well.

Visualization in Windows

With the DotNetKernel or „kernel“ in short, the user can **visualize the individual machine data in Windows**. The visualization project created in LASAL SCREEN can be interpreted by the kernel and then displayed.

All controls from the LASAL SCREEN Editor are supported by the DotNetKernel. **The entire range of functions for Microsoft .Net frameworks is provided.** The integration of user-defined controls and connection to networks, database, Microsoft Office, e-mail, Internet, etc. are easily possible.

No programming knowledge in LASAL CLASS is required for the adaptation or continuous development of visualization projects. Fundamental knowledge of .NET programming however, is an advantage. Visualization projects in the .NET environment of Windows programs can be thereby created and maintained. Special knowledge of PLC programming is not required.

DotNetKernel is widely implemented in C#, based on the .NET framework 3.5. As the **graphics framework**, the modern and powerful **WPF** (Windows Presentation Form) is used. The **Microsoft Visual Studio** (from version 2008) is used as the **design environment**. The PLC and the visualization communicate over Ethernet.

A High Performance Tool for Drive Technology

LASAL MOTION

LASAL MOTION simplifies all drive technology tasks and is fully integrated into LASAL CLASS. The modular construction allows the efficient implementation of the drive concept. The project development and start-up software for SIGMATEK drives is integrated. A large drive library is also provided.

LASAL MOTION offers a **large "construction kit" for Motion control:** all motion functions such as absolute positioning, relative positioning, endless positioning and CNC functions as well as coordinated movements and several referencing types are provided as standards.

Axial movements can be run **without programming** by using simple data inputs or instructions.

LASAL CLASS contains the predefined parameter sets for SIGMATEK DIAS Drives and motors. **This simplifies and shortens the initial start-up, configuration and diagnosis**. In addition, **possible error sources are avoided**. As an alternative, user defined parameter sets can also be configured and stored, thereby ensuring the optimal fit for user-specific requirements.

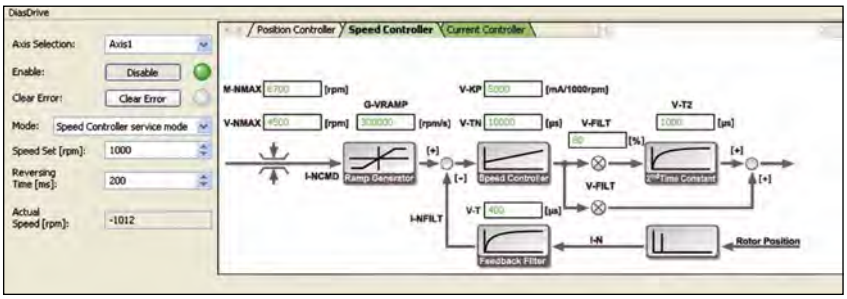
Data Analyzer

The DIAS Drives contain an **internal data analyzer**, with which all drive configuration and controller data can be recorded up to a **scan rate of 62.5 µs** (corresponds to the cycle time of the controller). All data from the DIAS Drives can be displayed online for analysis and optimization of the controller response. **Current**, **rotation speed and the position controller** are represented graphically in the software and therefore ensure a quick overview at any time.

Online display of the DIAS Drives

Graphic Representation of the Controller Start-up

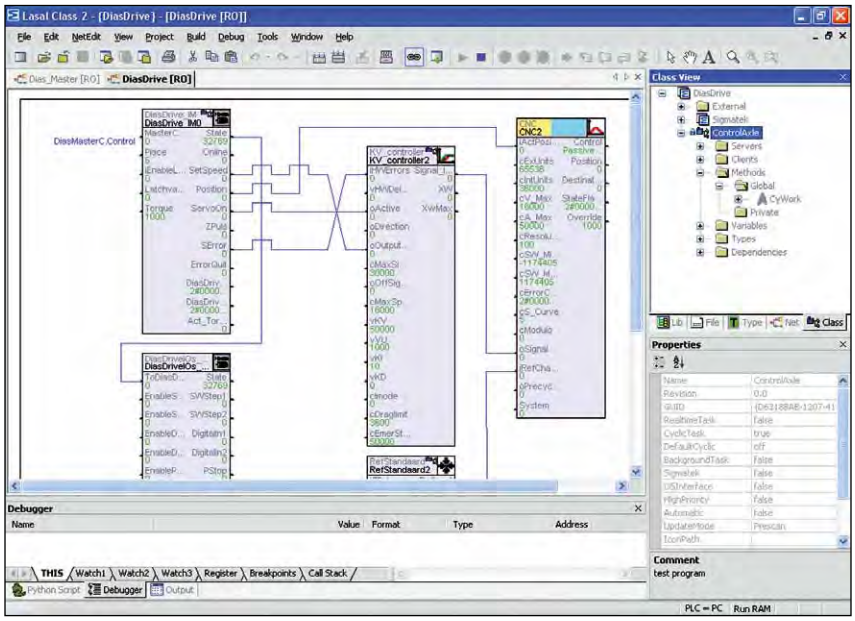
All associated control parameters are visible at a glance and can be customized individually. **Optimization of the controller** is therefore **fast** and **simple**.



DIAS Drive controller structure

Central Management of Drive Parameters

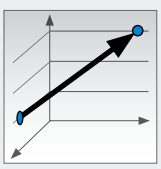
The configuration data of the DIAS Drives is stored in the control system; the drive therefore **always has the correct parameters.** The servo amplifiers can thus be changed without additional labor and without a software tool.

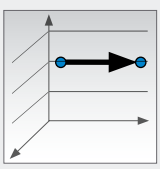


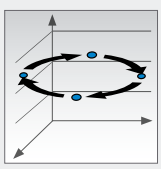
Principle construction of a standardized axis controller

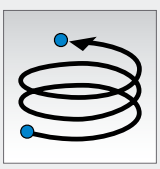
Motion Control

The seamless integration of PLC and motion control results in improved synchronization of process and motion operations in the machine. The core is made up of **motion control and technology functions.** They cover a broad spectrum: from electronic CAM switches and measuring sensors over various positioning modes, synchronous speed and electronic CAMs to CNC functions, path and CNC control with transformations for various robot kinematics. With LASAL MOTION, the connection of virtual lead axes, the creation and execution of profiles, the coupling of several axes and multiple applications are simple to apply. All necessary motion functions for a production machine are provided from one source and range from simple one-axis to complex multiaxis applications. In addition to numerous basic functions, **ready-made standard applications** such as flying saw are available to make applying the most frequently occurring tasks as easy as possible for the user.

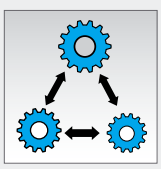

Linear interpolation

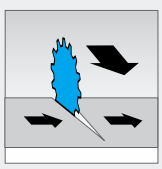

Point to point


Circular interpolation


Helix


Electronic CAM function


Electric gear


Flying saw

Seamlessly Integrated Safety with the LASAL SAFETY Designer

The full integration of the Safety Designer into the LASAL engineering toolkit simplifies programming and configuration of the Safety controller for the user. Logic connections and I/O configurations can be created comfortably.

Simply Integrate Safety

With a function library that in addition to **standard function blocks,** provides **Safety function blocks** based on the PLCopen standard such as Emergency Stop, Two Hand Control or Guard Locking, the user can easily create the logic connections between safety-related processes.

In the **integrated graphic editor,** the function blocks as well as the in- and outputs can be easily placed with Drag & Drop and connected to the non-safe variables in the PLC.

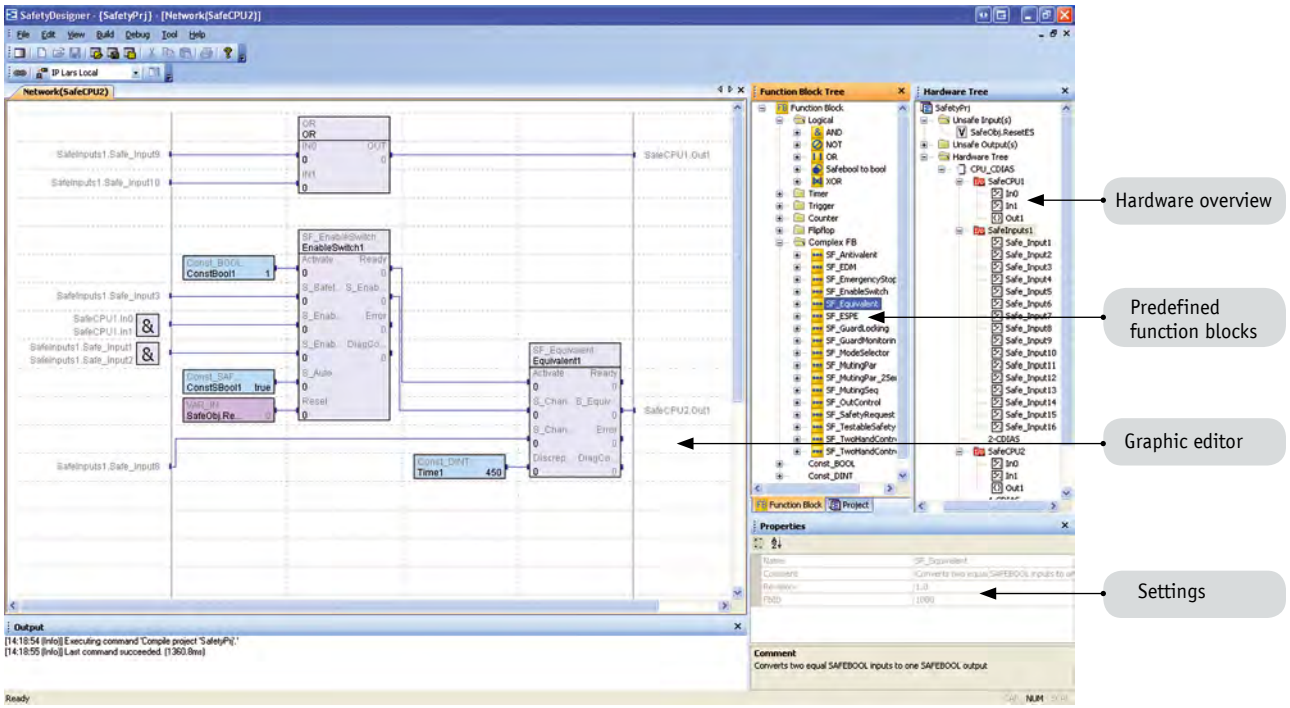
Downloading, online monitoring and debugging are performed over LASAL's online interface.

Per project, several Safety controllers can be used, whereby the program of each Safety controller can be distributed over any number of networks.

The **ease of use** and **clear representation** reduce labor for programming, troubleshooting and especially validation.

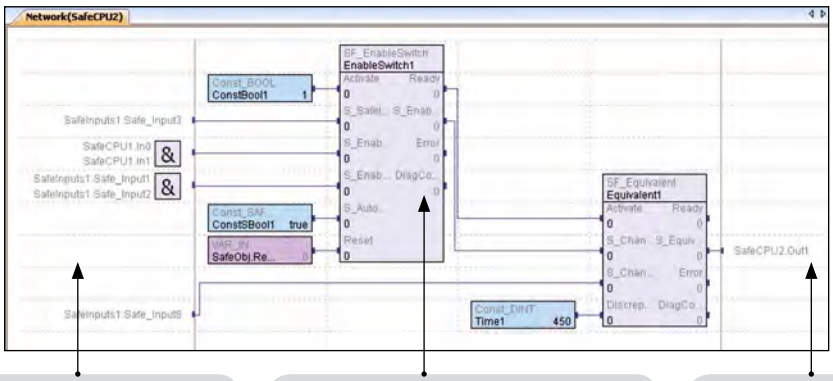
LASAL SAFETY Designer User Interface

The LASAL SAFETY Designer offers the same operating comfort as LASAL, into which it is seamlessly integrated. Predefined function blocks simplify programming and maintenance.



Graphic Editor

In the graphic editor, the function blocks as well as the in- and outputs can be simply allocated from the project tree. Logic AND connections can be created directly in the input module.



Inputs

- Allocated per Drag & Drop from the hardware tree
- AND connection of two-channel inputs

Function blocks

- Allocated per Drag & Drop from the function block tree
- Free wiring of predefined function blocks with I/Os, variables, constants and help variables

Outputs

- Allocated per Drag & Drop from the hardware tree

Login and Program Download

The **online actions** for all Safe CPUs in the project are **performed centrally in the Online-State dialog.** This includes actions ranging from login over acknowledging errors to downloading and programming the SD card. In addition, status information from the Safe CPU and diagnostic messages for in- and outputs are displayed.

Login

- Login for debugging, program or Firmware download/data exchange
- Password change

Execution actions

- Error confirmation
- Service mode (reset)
- Program start (run)

Download actions

- Delete program
- Load program
- Write the SD card
- Verification

Safe PLC infos

- Safety number
- Firmware version
- Cycle time

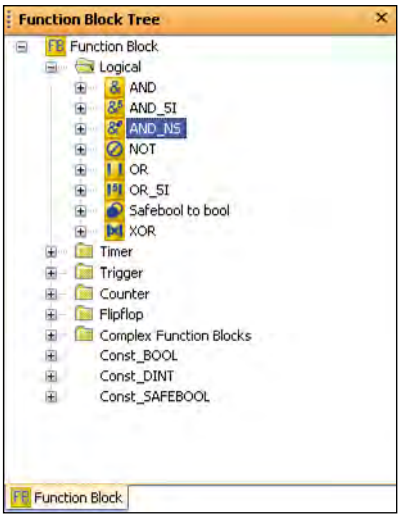
Debugger

The SAFETY Designer provides a comfortable debugger, which **graphically displays all values, including the signal flow** and allows the **forcing** of in/outputs and constant values.

Safety Function Blocks

The LASAL SAFETY Designer's function library contains, in addition to predefined and certified standard function blocks (logic blocks, timers, counters, etc.), function blocks based on the PLCopen standard:

- **Equivalent** - AND connection between 2 normally open inputs with time verification of the transition state
- **Antivalent** - AND connection of a safe normally open and normally closed input with time verification of the transition state
- **ModeSelector** - Selection of the system operation mode (e.g. manual, automatic, semi-automatic,...)
- **EmergencyStop** - Monitoring of an emergency stop switch and restart mechanism
- **GuardMonitoring** - Monitoring of protective equipment with 2 switches and a restart mechanism
- **TwoHandControl TypeII** - Implementation of a two-hand control
- **TwoHandControl TypeIII** - Implementation of a two-hand control with a predefined time difference of 500 ms
- **GuardLocking** - Controlling access to a dangerous area through a lockable protective device
- **TestableSafety Sensor** - Periodic testing of Safety sensors to avoid a dangerous failure
- **MutingSeq** - Suppression of the Safety functions, if the component moves into the danger zone, with 4 sequentially allocated sensors



- **MutingPar** - Suppression of the Safety functions, if the component moves into the danger zone, with 2 parallel allocated sensors
- **MutingPar_2Sensor** - Suppression of the Safety functions, if the component moves into the danger zone, with 2 parallel allocated sensors
- **EnableSwitch** - Evaluate the status of a release switch with 2 channels
- **SafetyRequest** - Request for the security function of an output and safe status monitoring
- **OutControl** - Combination of the control application with the Safety control to activate a safe output
- **EDM** - Activation of a safe output with monitoring of the output status using two feedback signals

Simple Diagnosis, Service and Remote Maintenance with LASAL SERVICE

The all-in-one engineering tool is equipped with an extensive service package: remote maintenance, software updates and data exchange are comfortably realized with LASAL SERVICE tools.

Web Server

The web server operating in the control provides information using the Hypertext Transfer Protocol (HTTP). The **user-created websites** must be written in HTML and are stored in a user-defined directory **in the control**. The websites can be viewed through a browser (i.e. Internet Explorer). With this feature, the PLC application can also be accessed for remote maintenance regardless of where the active visualization is located. Naturally the access is password protected.

OPC Server

For **fast** and **simple data exchange with Windows applications,** an OPC server has a standardized interface. This server supports read and write access to the respective data server. The user therefore has the option, for example, to link **process data** in a visualization, **guidance system** or in Excel and create individual analyses without having to worry about proprietary data formats and protocols.

LRS API

With the LRS API (Application Programming Interface), any type of remote maintenance or visualization tool can access the world of SIGMATEK controls online. The **API is part of a Windows DLL**. All communication interfaces such as RS232, CAN bus, Ethernet and Modem are supported.

LASAL Remote Manager

The LASAL Remote Manager (LRM) is used for remote maintenance of machines. In addition to a tabular overview of user-defined machines (controls), this tool offers a **remote view of the visualization**. For **data exchange between the PC and control**, a control explorer is provided. Additional features: starting and stopping the application, CPU reboot, software updates (application and operating system), setting and reading application data, etc. The connection between the PC (LASAL Remote Manager) and the control can be made over RS232, CAN bus, Ethernet and modem.

LRMView

LRMView is an add-on software for the control system. It offers the possibility to **display** or control an **on-site visualization** with a **standard web browser** (i.e. Internet Explorer) without having to install special software on the PC. Naturally, the system is protected with user names and passwords for secure access. LRMView is a modern Java applet with so-called PUSH technology, which can be used in connection with the web server in the control.

All-In-One Engineering

LASAL Highlights: Compact

Integrated Engineering

With LASAL, all automation tasks are comfortably realized: PLC, visualization, motion control, Safety, diagnosis. An integrated and simple to operate tool is therefore provided for all phases of the development process: from creating the project over programming to the initial start-up and service of the machine in the field. The programming is extremely simplified and the development and maintenance times are reduced significantly.

Efficient and Clearly Organized

The object oriented programming with graphic representation allows the highest modularity, reusability and a clear software structure.

Comfortable: Several Integrated Tools

The rapid development and comprehensive analysis of programs are supported through an extensive collection of tools such as

- Online debugger with all the functions that one expects from an integrated engineering environment
- Real-time data analyzer and real-time trend recording
- Time response analysis of the real-time multitasking operating system (PlcTraceView)
- Project comparison

LASAL

Reflects your machine

SIGMATEK International

Austria – Corporate Headquarters
SIGMATEK GmbH & Co KG
5112 Lamprechtshausen · Sigmatekstrasse 1
Tel. +43/62 74/43 21-0 · Fax +43/62 74/43 21-18
www.sigmatek-automation.com · office@sigmatek.at

Germany
SIGMATEK GMBH
76829 Landau · Marie-Curie-Strasse 9
Tel. +49/63 41/94 21-0 · Fax +49/63 41/94 21-21
www.sigmatek-automation.com · office@sigmatek.de

Switzerland
SIGMATEK Schweiz AG
8307 Effretikon · Poststrasse 2
Tel. +41/52/354 50 50 · Fax +41/52/354 50 51
www.sigmatek-automation.ch · office@sigmatek.ch

Great Britain
SIGMATEK Automation UK Limited
Bramcote, Nottingham NG9 3DH · 33 Bridle Road
Tel. +44/77505 66 5 961 · Fax +43/62 74/43 21-18
www.sigmatek-automation.co.uk · office@sigmatek-automation.co.uk

USA
Sigmatek U.S. Automation, Inc.
44133 North Royalton, Ohio · 10147 Royalton Rd. · Suite N.
Tel. +1/440/582 12 66 · Fax +1/440/582 14 76
www.sigmatek-automation.us · office@sigmatek.us

China
SIGMATEK Automation CO., Ltd
315040 Ningbo · Room 504 Building A No.555 Jingjia Road
Tel. +86/574/87 75 30 85 · Fax +86/574/87 75 30 65
www.sigmatek-automation.cn · office@sigmatek-automation.cn

Belgium
Sigma Control B.V.
2994 LB Barendrecht · Zwolseweg 43 a/b
Tel. +32/329/770 07 · Fax +31/180/69 57 76
www.sigmacontrol.eu · office@sigmacontrol.eu

China
Shanghai Dimension Automatic Control System Solution Co., Ltd
200032 Shanghai · Room 806, Building 1, No.3000, Long Dong Road
Tel. +86/21/68 79 46 80 · Fax +86/21/68 79 47 10
www.dmxtech.com · buyer@dmxtech.com

Denmark
Wexøe A/S
3500 Værløse · Lejrvej 31
Tel. +45/45 46 58 00 · Fax +45/45 46 58 01
www.wexoe.dk · wexoe@wexoe.dk

Finland
SARLIN Oy Ab
01610 Vantaa · Kaivokselantie 3-5
Tel. +35/8105/50 42 33 · Fax +35/8105/50 42 01
www.sarlin.com · info@sarlin.com

France
JS Automation
38507 Voiron Cedex · BP 245
Tel. +33/476/67 48 48 · Fax +33/476/67 48 49
www.jsautomation.fr · jsaut@jsautomation.fr

Greece
2 kappa Ltd
54628 Menemeni Thessaloniki · Sofokli Venizelou 13
Tel. +30/2310/77 55 10 · Fax +30/2310/77 55 14
www.2kappa.gr · info@2kappa.gr

India
LTM Business Unit
Chennai - 600 089 · Mount Poonamallee Road, Manapakkam
Tel. +91/44/22 49 19 32 · Fax +91/44/22 49 40 75
el@ltmindia.com

Netherlands
Sigma Control B.V.
2994 LB Barendrecht · Zwolseweg 43 a/b
Tel. +31/180/69 57 77 · Fax +31/180/69 57 76
www.sigmacontrol.eu · office@sigmacontrol.eu

Portugal
Plasdan Lda
Máquinas para plásticos
2430-520 Marinha Grande · Rua 52, No. 44
Tel. +351/244/572 110 · Fax +351/244/572 112
info@plasdan.pt

Serbia
Rovex Inzenjering d.o.o.
11070 Belgrad · Bulevar Mihaila Pupina 10d/VP62
Tel. +381/11/13 79 34 · Fax +381/11/13 79 34
romeov@ptt.rs

Spain
Brotomatic S.L.
01010 Vitoria-Gasteiz (Álava)
c/ San Miguel de Acha 2 - pabellon 3
Tel. +34/945/24 94 11 · Fax +34/945/22 78 32
www.brotomatic.es · broto@brotomatic.es

Sweden
SIGBI Automation AB
254 64 Helsingborg · Pinnmogatan 1
Tel. +46/42/654 00 · Fax +46/42/654 70
www.sigmatek.se · info@sigmatek.se

Turkey
DEDEM Elektrik Taah. Otomasyon San. Tic. Ltd. Şti.
35477 Tekeli-Menderes · 10023 Sokak No: 5
Tel. +90/232/472 18 48 · Fax +90/232/472 17 03
www.dedemotomasyon.com · sigmatek@dedemotomasyon.com