Overview of SIMATIC WinCC

Process Visualization and
Platform for IT & Business Integration

Brief Description

simatic hmi

WinCC

SIEMENS

SIMATIC WinCC
Universal applications

One of the particularly impressive things about SIMATIC WinCC right from the start was on the one hand the high level of innovation, which makes it possible to recognize coming trends at an early stage and to implement them; on the other hand, the long-term product strategy based on standards guarantees your investment.

Thanks to this approach, WinCC – the Windows Control Center under Microsoft Windows 2000 and XP – has advanced to become the industrial standard and **market leader in Europe**. WinCC is always the first choice when you want to run plant and machinery on an optimum basis: that is to say to increase availability and productivity.

HIGHLIGHTS

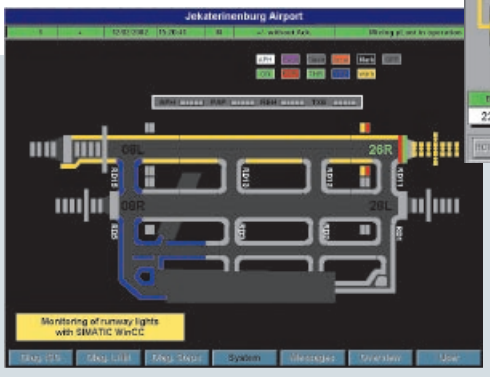
- **Universal applications**
  - Solutions for all branches of industry
  - Multi-lingual for applications on a worldwide basis
  - Can be integrated in all automation solutions
- **All O & M functions on-board**
- **Simply and efficiently configurable**
- **Consistently scaleable across the Web too**
- **Open standards for simple integration**
- **Integrated Historian as a platform for IT & Business Integration**
- **Can be extended using options and add-ons**
- **Part of Totally Integrated Automation**

Solutions for all branches of industry and technologies

WinCC's wide range of applications is most impressive. The basic system is designed on a non **technology- and industry-specific** basis, it is modular and you can extend it in a flexible way; it makes possible both simple single-user applications in mechanical engineering as well as complex multi-user solutions or even distributed systems including several servers and clients in industrial and building technology.

WinCC combines both production and process automation – numerous references across any number of applications and branches of industry prove this:

- Automobile production and suppliers,
- chemical and pharmaceutical industries,
- printing industry,
- energy supply and distribution,
- trading and service industries,
- plastic and rubber industries,
- mechanical and plant engineering,
- metal-processing industry,
- food, beverages and tobacco industries,
- paper manufacture and processing,
- steel industry,
- transportation,
- water treatment and sewage clarification.



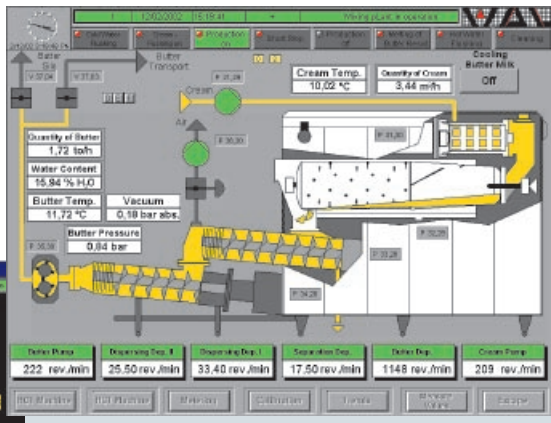
WinCC is the HMI component in the SIMATIC PCS 7 process control system and in other Siemens control systems too.

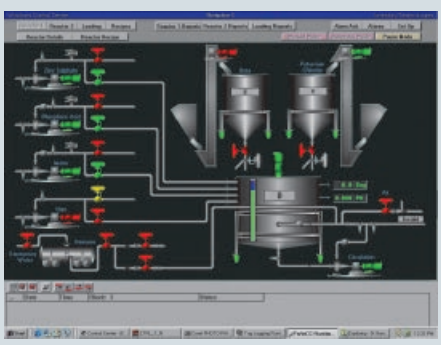
You can find a large selection of **current application articles** at www.siemens.com/hmi-success-stories

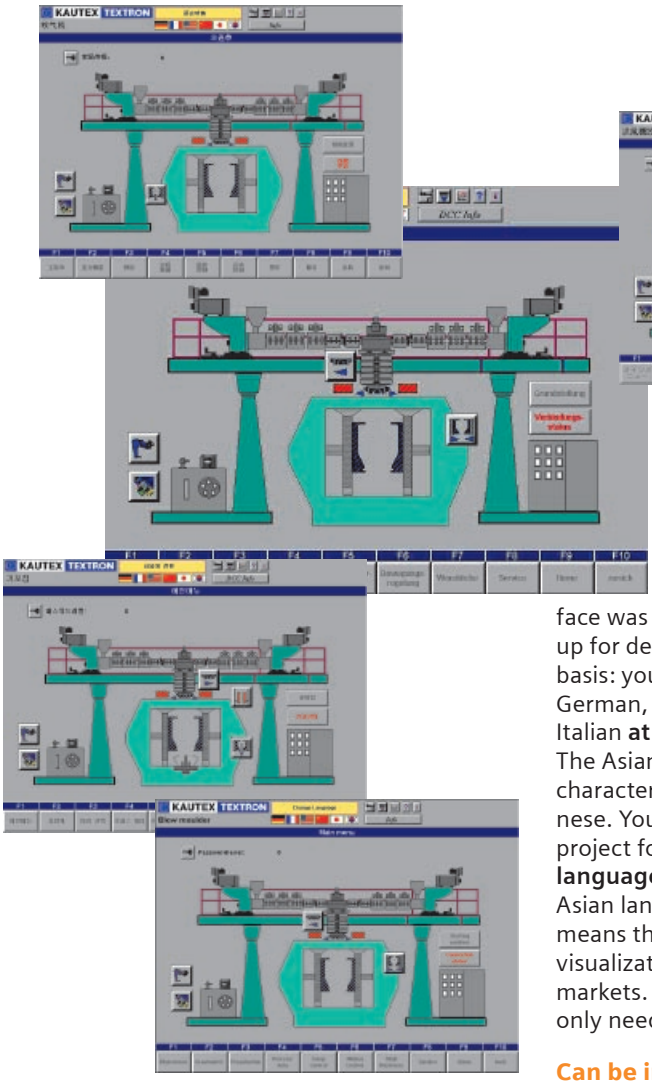
There is a wide range of WinCC options and add-ons for vertical market solutions.

Using **"FDA options"** and with appropriate measures at engineering - which are documented in a white paper - SIMATIC WinCC V6.0 complies with the requirements of **FDA 21 CFR Part 11** in the pharmaceuticals and food industries (FDA = Food and Drug Administration). The options make it considerably easier to validate plants and this provides the most convincing and comprehensive response to the requirements in these branches of industry.

For applications in the water economy, for example, a number of vertical market **WinCC add-ons** have been developed: telecontrol using Sinaut ST7cc, archiving and logging using PM-Aqua, operating cost optimization







Picture from the plastics processing industry with language switching

using Siwa-Plan, alarm management using FunkServer-Pro.

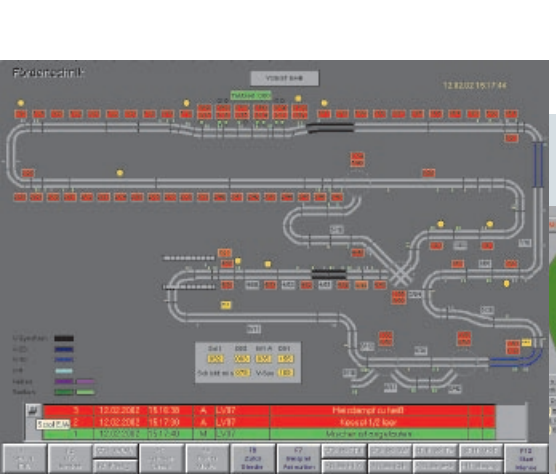
Multilanguage capability for global deployment

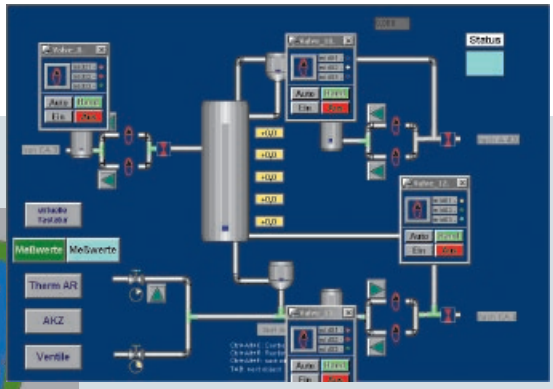
WinCC's configuration interface was designed from the ground up for deployment on an international basis: you can switch between German, English, French, Spanish and Italian **at the push of a button**. The Asian variant even supports the characters of Chinese, Korean or Japanese. You can of course design your project for **several runtime target languages**, i.e. several European and Asian languages at the same time. This means that you can use the same visualization solution on several target markets. To translate the texts, you only need a standard ASCII text editor.

Can be integrated in any automation solution in any company

The scope of supply of WinCC includes all the most important communications channels for linking to SIMATIC S5/ S7/ 505 controllers (e.g. via the **S7 Protocol Suite**), as well as non-proprietary channels like PROFIBUS-DP/FMS, DDE (Dynamic Data Exchange) and OPC **(OLE for Process Control)**; you can get other communications channels as add-ons. Since all controller manufacturers provide appropriate OPC servers for their hardware, there are virtually no limits to what you can connect to WinCC.

SIMATIC WinCC integrates a powerful, scaleable Historian based on Microsoft's SQL Server 2000 in the basic system to be used as a central information exchange in the form of a cross-company Historian server. Different clients for evaluation, **open interfaces** (Open database interfaces: ADO, OLE DB, ODBC, SQL / programming interfaces: VBScript and ANSI-C with access to the COM object model and API functions) and **various options** (WinCC/Dat@Monitor, WinCC/Connectivity Pack, WinCC/Industrial-DataBridge) are the basis of flexible and efficient IT and business integration. In particular, this makes it possible **to link to the production and company management levels** (MES and ERP).





SIMATIC WinCC
All SCADA functions on board

Integrated User Management

Using **WinCC User Administrator**, you assign and control users' access rights for configuration and runtime. As the administrator, you can set up at any time - including at runtime - up to 128 user groups each containing up to 128 individual users and assign them appropriate access rights to WinCC functions.

All operator stations are included in user management, including, for example, Web Navigator clients too. WinCC's SIMATIC Logon option gives you central, plantwide user management that supports validation according to FDA 21 CFR Part 11.

Graphics System

WinCC's **graphics system** processes at runtime all the inputs and outputs on the screen. You use the **WinCC Graphics Designer** to create the pictures that you use for visualization and operation in your plant.

Regardless of whether you have small simple operation and monitoring tasks or complex supervisory tasks: Using WinCC standards, you can create custom configured user interfaces for any application - for safe process control and optimizing your entire production.

Operation...

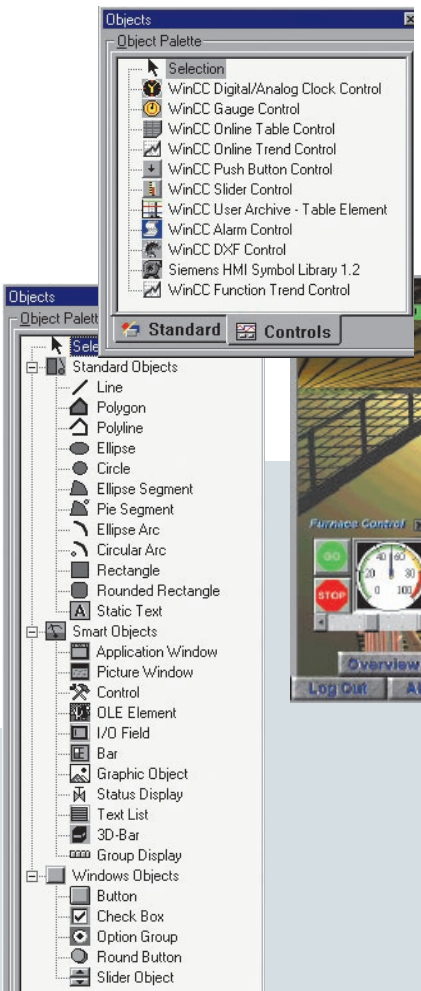
You can protect every operator input to the process, the archives and WinCC **by locking it against unauthorized access**. WinCC can record variable inputs – with the date, clock time, user name and a comparison between the old and new values. For applications in the food and pharmaceutical industries, which must be validated according to FDA 21 CFR Part 11, you can use the WinCC/Audit option.

... and Monitoring

Draw your own conclusions! If you want to create an attractive **user interface that is appropriate to the process**, SIMATIC WinCC provides you with everything you need. The system offers various objects for this ranging from graphics objects through push-buttons, bar representations and controls to separate user objects.

Configuring engineers dynamically control the final appearance of the graphics portions. They can be directly controlled and specified by means of variable values or from programs.

Apart from this, WinCC supports representation of pictures measuring up to 4096 x 4096 pixels including panning, zooming and decluttering – a completely new feeling when carrying out operation and monitoring!



Object palette of the WinCC Graphics Designer

Message System

Minimize downtimes – by means of alarms and messages

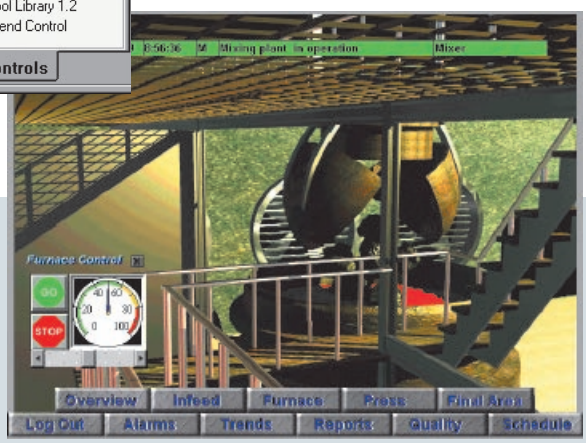
SIMATIC WinCC doesn't just acquire process messages and local events, it also stores them in circular archives and then makes them available as desired on a filtered or sorted basis. Messages can be derived from individual **bits**, can be a result of an **alarm message frame** directly from the automation system or of **analog alarms** in the case of out of limit conditions. You can configure a message such that users need to acknowledge it.

Freely definable message structure

Since you can freely define the message structure, it is possible to tailor it to the special requirements of your own plant. Differentiating into up to 16 message classes makes possible easy disturbance and status message as well as separate processing of alarms, warnings, disturbances and errors for several plant areas.

Archiving and logging messages

Microsoft SQL Server is used for archiving messages. The system archives messages in the case of **message events**, e.g. when the message occurs and in the case of changes of status in the message.



A WinCC process picture from the steel industry

In the **message sequence log**, you can document the messages (selectively) on a chronological basis. In this connection, the system prints out all the changes in status (arrived, departed, acknowledged) of the currently pending messages. In the **message archive log**, you can selectively create specific views of the archived messages.

Archive System

High-performance archiving for messages and measured values

Values from the past are saved in process value archives. In addition to process values, WinCC archives messages. Archiving is carried out in the **high performance** Microsoft SQL Server 2000 database: up to 10,000 measured values and 100 messages per second present no problems with a dedicated server. The efficient, loss-free compression functions mean that the memory requirement is very low. You can archive process values cyclically (continuously), on an event or process-controlled basis (e.g. in the case of limit violations), as well as on a condensed basis (e.g. averaging).

Archive size and segmenting tailor-made

The system saves measured values or messages in an archive of a configurable size. On a practical basis, you can determine the maximum archiving period as one month or one year, for example, you can also specify a maximum data volume. Each archive can be segmented. You can regularly export completed individual archives (e.g. a weekly archive) to the long-term archive server. If required, you can of course read them out of WinCC and use on-board facilities to analyze them.

In the basic WinCC system, you can configure 512 archive variables. Powerpacks allow you to extend the number of tags to up to 80,000.

Reporting and Logging System

WinCC has an integrated logging system that you can use to print data from WinCC or from other applications. This system prints data that was acquired at runtime in **configurable layouts** by means of different types of logs: from message sequence logs through system message logs and operator logs up to user reports.

Before printing reports, you can save them as files and preview them on the monitor.

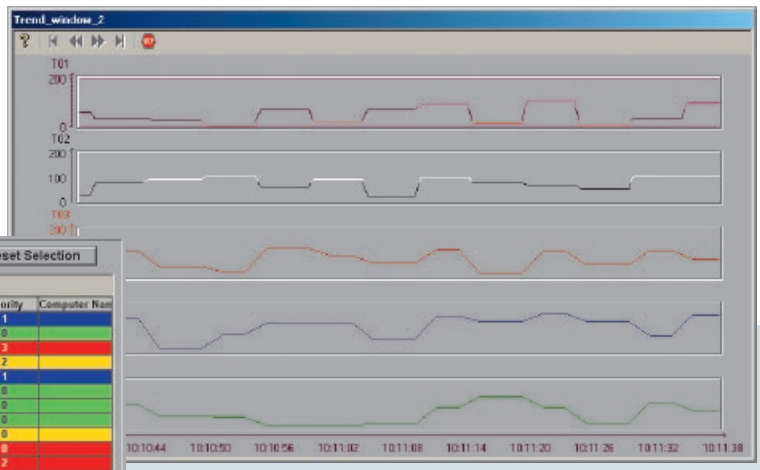
Individually configurable layouts with flexible printing

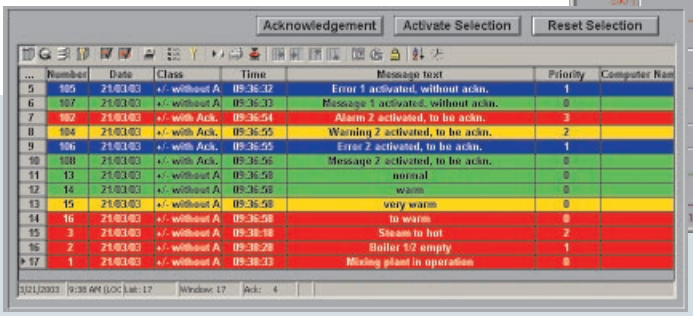
It is possible to start output of a report **on a time- or event-driven basis or by means of a direct operator input**. You can also assign a separate printer to each print job. You can determine the contents of a protocol dynamically at runtime. It is possible to determine or set online the appropriate log parameters.

Open and integrable

WinCC logs can also contain **data from the database and external data** in CSV format as a table or a curve in a log. To display data from other applications as a table or a graphic, you can also develop your own Report Provider.

WinCC Trend Control for display of current or historical measured values





A WinCC Alarm Control with current messages

SIMATIC WinCC
Easy and efficient to configure

In the life cycle of an automation solution, engineering costs make up as much as 50% of the total costs. Anyone who wants to noticeably lower those costs needs simple and efficient configuring tools - and an intuitive, user-friendly system. Once again, WinCC points the way.

Just use your day-to-day PC application experience and apply it to your industrial processes – that was the idea behind SIMATIC WinCC. The result was an object-oriented multilingual engineering environment with configurable user interface, tool tips, a comprehensive on-line Help function and application examples.

Simply brilliant – or ingenious across the board

Linking a graphic object to an internal PLC tag for animation purposes is as easy as can be. As soon as a new object has been placed in the picture, an easy to edit dialog box appears. The WinCC Graphics Designer also allows the user to easily specify and animate virtually all object properties. To ensure total flexibility, it is even possible to enhance an object's functionality with scripts.

The WinCC Graphics Designer supports configuring of 32 picture layers. In complex pictures involving a large number of layered objects, individual layers can be hidden to maintain a clear view. Another user-friendly feature is that of modifying the properties of a group of objects simultaneously.

In general, you just copy objects that appear several times in the picture. When copying the objects, their tag links are copied one-to-one. To optimize rewiring, i.e. connection to other tags, WinCC offers the rewiring dialog, in which all tags connected to the selected object are listed and direct rewiring is possible.

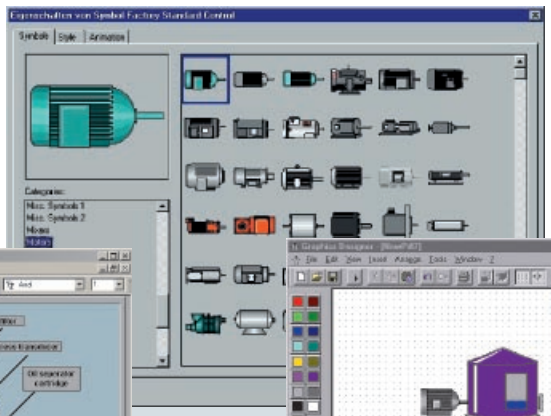
Wizards help cut engineering time

SIMATIC WinCC supports developers by providing Wizards (assistants) for easy configuration tasks. The message wizard, for example, offers default settings which developers can confirm or modify. Preview windows show the effect of the chosen parameters. If the developer confirms the settings, he can implement cost-effective – and practical! – solutions in a very short time.

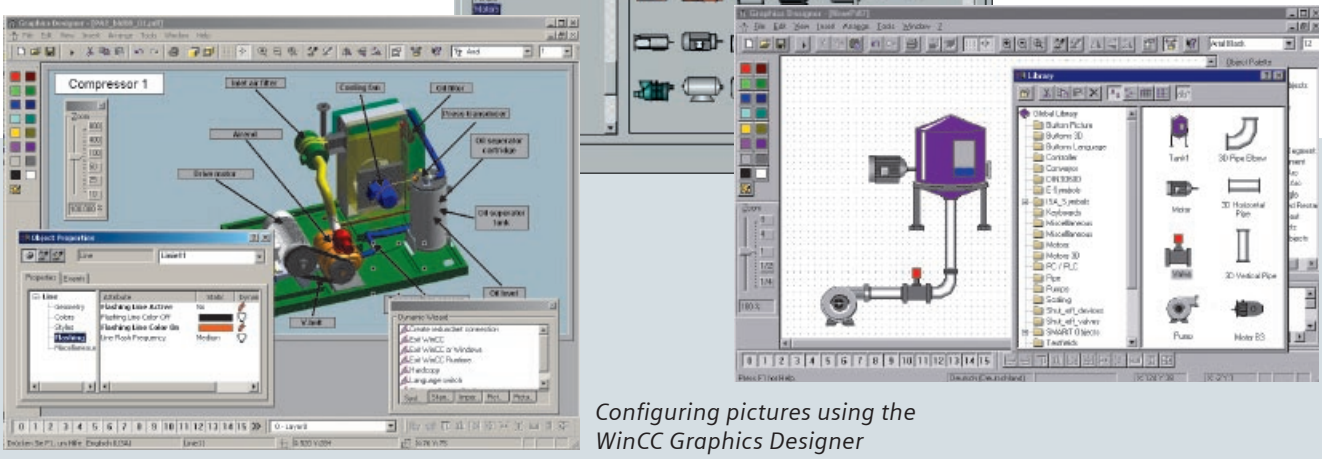
Simply retrieve preconfigured modules from the library

Why keep reinventing the wheel? Once graphic objects have been created, the library makes it possible to integrate them in pictures again and again. The library already comes with a large number of preconfigured objects like pumps, motors, pipes, gauges, switches etc. Developers can create company-, technology-, or industry-specific standards, making it quick and easy to create projects. The objects for those projects are finished and sorted by topic in the library and can be brought into the pictures via Drag & Drop. Inserting objects in the library is just as easy. In order to be able to make full use of multiple languages in WinCC's runtime mode objects like these should be configured in several languages.

You can also carry out configuration using modular technology where you can group any number of graphic objects you like to form a new object, which means that only the interface



SIMATIC HMI Symbol Library and WinCC Library



Configuring pictures using the WinCC Graphics Designer

parameters that are relevant to process linking are visible to users. Using WinCC/IndustrialX, you can configure your own technology-specific ActiveX controls. And the best thing about this is that you can change things once on a central basis and it has an effect on every location where you use the object!

Always in the picture thanks to cross-reference lists & picture properties displays

Service technicians or plant supervisors often find it difficult to find their way into a project and to analyze the individual aspects that are specific to a project. In this case, the ideal aid is a **cross-reference list** containing a listing in table form of all the tags, pictures and functions that are defined in the project, as well as central display of the picture properties directly in WinCC Explorer. In this way, WinCC makes the project transparent and makes easier changes in configuration even after a long time.

Configuration of multilingual applications

The texts for the runtime application can be edited in all Primary Languages of Windows. This includes static texts and tool tips as well.

The **EasyLanguage** utility makes it possible to export or import all the static texts in *.csv format – either picture-specifically or globally across all applications. This makes it easy to carry out translation using a standard tool.

Configuration tool for handling mass data

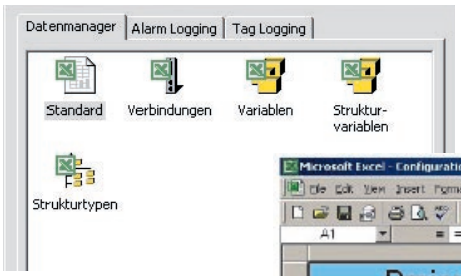
For convenient and quick configuration of mass data, WinCC provides a configuration tool based on Microsoft Excel. You can read in existing projects and create new ones. In addition to process connections and process tags, you can edit measured value archives, alarm messages and the Text Library. The table format allows convenient editing, which also includes auto fill-in. Experienced users can expand their options in any way they like using macros based on VBA (Visual Basic for Applications).

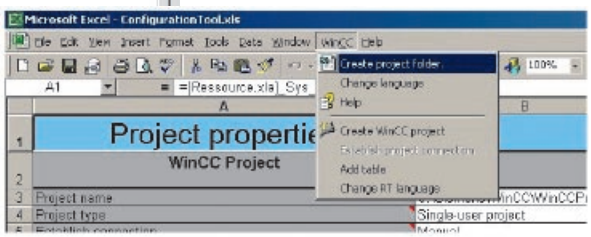
Check it out off-line

A WinCC configuration can be tested without ever having to be linked to a PLC by just using the simulator. To simulate tags, each tag can be assigned a value characteristic. When the pictures appear on the monitor during the test, it quickly becomes clear via a color change, for example, whether or not the configured animations are correct.

A boost for the commissioning phase: on-line configuring

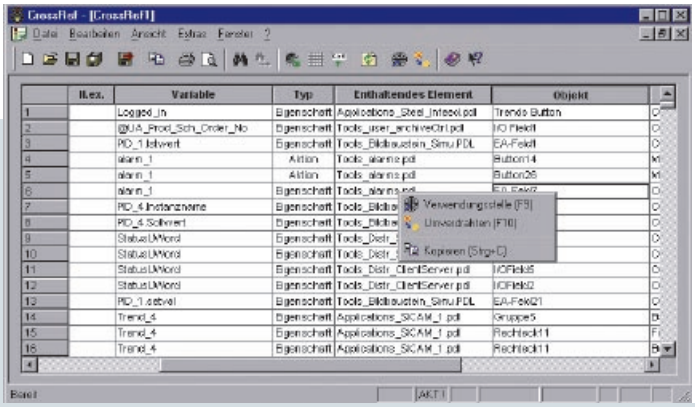
Modify configuring data right in the middle of a critical test phase? No problem. You can do it on-line. When the next picture is selected, the system updates the modified picture (which considerably reduces commissioning time). At the same time, the process data such as quality information messages is continuously acquired to provide complete documentation.



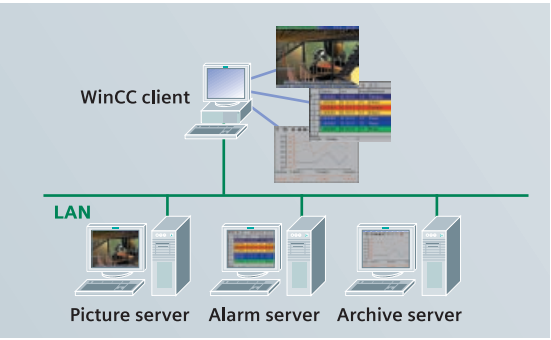


Configuration tool for handling large projects

Cross-Reference – listing of all used tags, functions etc



SIMATIC WinCC
Consistently scaleable – across the Web too



WinCC client with WinCC servers distributed on a functional basis

In general, you don't create automation and IT solutions that are never going to be changed. Rather, they are subject to continuous changes that are implemented on a step-by-step basis. This includes, for example, modernizing individual plant areas, retrospective extensions to plants, implementing central monitoring of different sites in a company and optimizing process sequences at a Site or in a company.

To be able to cope with growing requirements, you must be able to extend process visualization at any time without breaking with the original technology or needing to carry out complete reconfiguration. This means that **security of investment** is of the essence. SIMATIC WinCC offers the required consistent scaleability, from a single-user solution right through to a client/server solution with integrated Historian and operator stations on the Web.

From a single-user system to a distributed client/server solution

The term scaleable means that you can expand the number of tags in your project using **Powerpacks** on an as-required basis – and in total this is no more expensive than if you had decided to purchase the expanded solution from the start.

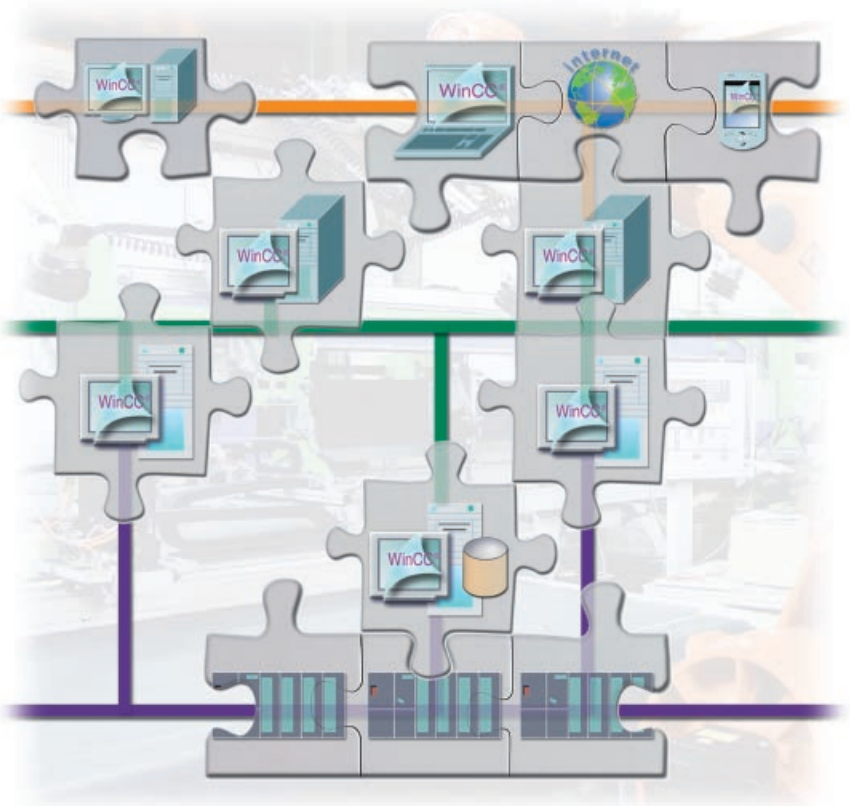
The **server option** allows you to set up coordinated operator stations from single-user systems at any time. In this way, you can deploy a total of up to 12 WinCC servers and 32 WinCC clients per server in a contiguous plant configuration. You can configure these servers as a **distributed system**. Distributing the complete application or the tasks to several servers makes possible a much higher performance profile, takes the load off the individual servers and ensures good performance. Distribution also takes into account the topology of a plant.

The complete view of the plant is implemented using WinCC clients that have access to or a view of the pictures and data of different server projects at the same time. It is even possible to use clients for online configuration. You can configure a common message and trend view of the archives of different servers for these clients.

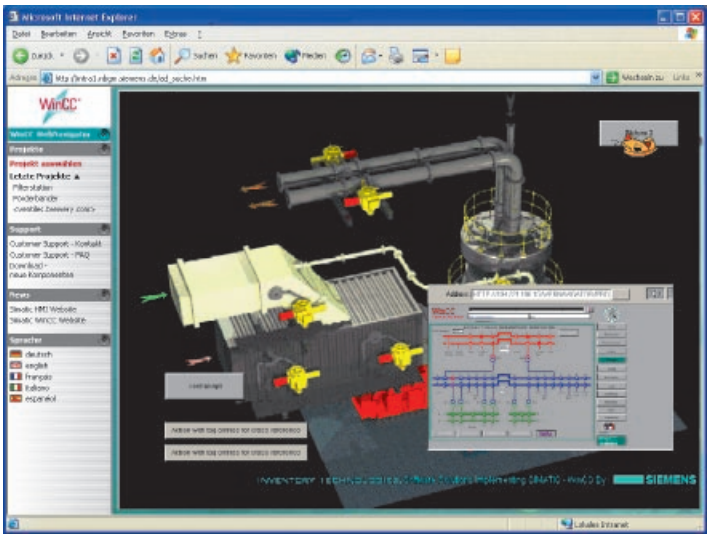
Operation and Monitoring without limits

You can also extend the solution across the local network (LAN) of a site; regardless of whether you only want to be able to remotely monitor a plant area on a sporadic basis (for example in sewage plants or in station supervisory systems) or to be able to access current or historical process information (for statistical evaluations) from anywhere you want.

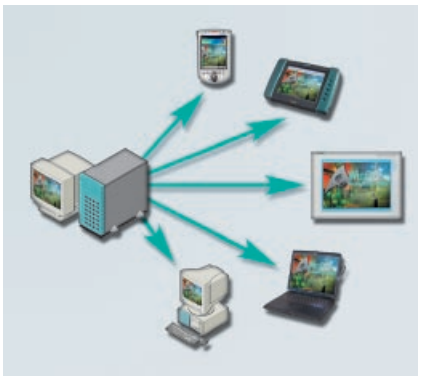
WinCC/Web Navigator supports full Operation and Monitoring **via the Web** – usually without needing to



Consistently scaleable, from a single-user system to a client/server solution



Operating and Monitoring of a plant using a Web browser



Terminal server with Thin Clients on a different platform

make changes to the project. You can set up a Web server on any SCADA client to establish a data concentrator. This means that a Web client that is connected to the Web server can **access the projects** of all the (redundant) WinCC servers (up to 12) in a plant from anywhere in the world.

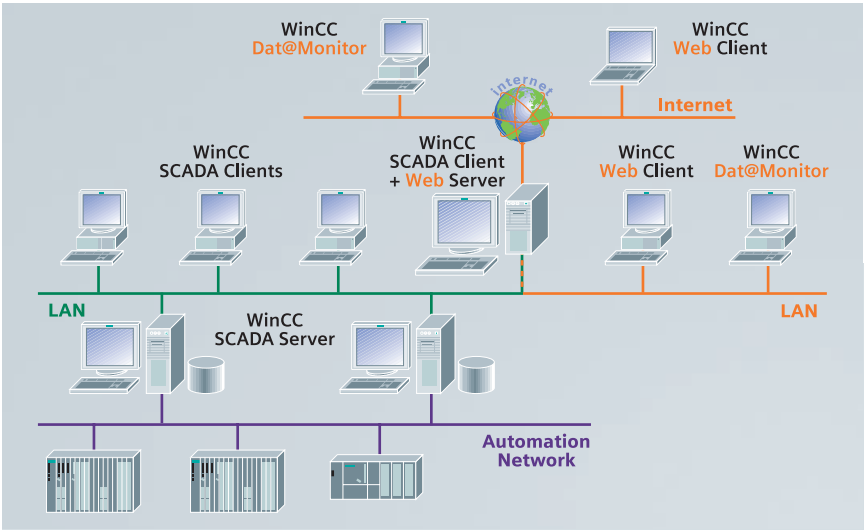
User management of the Web operator stations is included in the data stock of the plant on-site. Different user access levels regulate the access rights that different people have. In addition, the system of course supports common security mechanisms for Internet operation.

With **Thin Client solutions**, you can also link robust local units (e.g. SIMATIC MP370 with the ThinClient/MP option) and mobile clients Personal Digital Assistants (PDAs) under Windows CE. Solutions of this type make minimal requirements of the hardware, since the application itself runs on the terminal server.

High availability due to redundant solutions

When you have high availability requirements (minimizing non-productive time), WinCC also provides the right concepts:

- Redundant server with the WinCC/Redundancy option
- Redundant process communication



WinCC servers and SCADA clients as a Web server for different clients on the Web

SIMATIC WinCC
Open standards for simple integration

Right from the start, SIMATIC WinCC has stood for the highest levels of openness and integration, since it has consistently backed Microsoft technologies.

Microsoft Windows 2000/XP – No Compromises with the Operating System

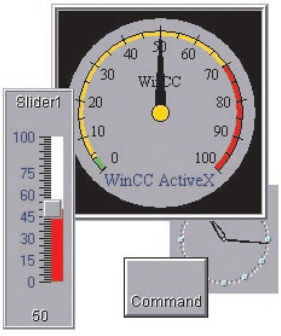
WinCC was the first process visualization system on the market using 32-bit software technology under Microsoft Windows 95/NT 4.0. Today, Windows 2000 (Advanced) Server and Windows XP Professional represent the open standard platform for WinCC servers and clients or single-user systems. In the final analysis, this means a very safe investment for you, since you can easily keep up with innovations in operating systems.

Microsoft SQL Server 2000 – a high-performance real-time database

Microsoft SQL Server 2000 is integrated in the basic WinCC system – including its real-time response, performance and industrial standard. In individual cases, you can store up to 10,000 measured values or 100 messages per second on a compressed basis and then analyze the data using WinCC on-board facilities. Using a variety of open interfaces (SQL, ODBC, OLE-DB and OPC HDA), you can further-process archive data using any external tools you like at any time you choose.

ActiveX Controls – open for application modules

Using OLE, you can integrate further applications in process pictures and exchange the associated data. Technology-specific or vertical market ActiveX controls can also enter the system and this means that the time and effort that you have invested in engineering can also be used for your operation and monitoring tasks. There are plenty of components of this type on the market.



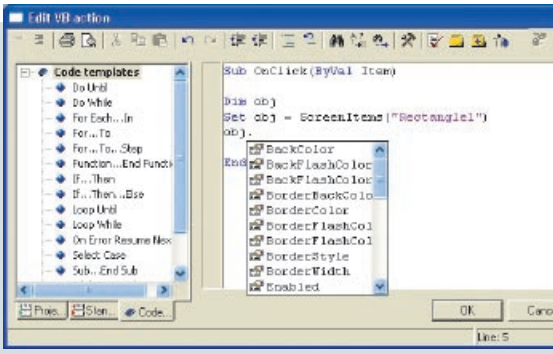
Visual Basic for Applications – for individual extensions

Whenever people want to create standards for solutions that are specific to branches of industry or to projects, there is a desire for individual customizing and extensions to the configuration tool. This means that with WinCC Version 6, we integrated VBA in the WinCC Graphics Designer - which is the user-friendly standard environment for application-specific extensions and is also in Microsoft's Office products. This means that the Visual Basic knowledge that is available to many configuring engineers and users can be used in an effective way.
And apart from this, standards for repeat engineering tasks save time and money! So you can define any menu entries or fast configuration dialogs you like for your own user-specific objects

VBScript or ANSI-C – it's your choice when scripting

Normally pictures, logic operations and animation are configured via simple dialogs. Scripts can also be programmed using VBScript or in ANSI-C when necessary, for example to convert values, to initiate a report or to generate operator messages.

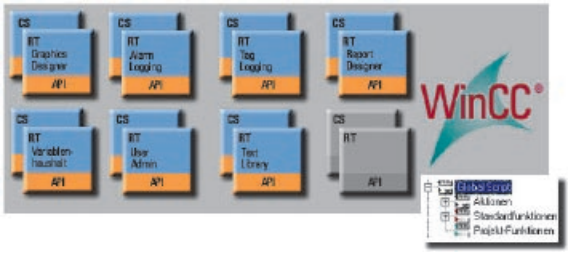
VBScript has its own user-friendly



editor with debugging support. The scripts themselves have access to the properties and methods of all WinCC graphics objects, to ActiveX controls and to the object model of other manufacturers' applications. This allows you to control the dynamic behavior of objects as well as to easily establish connections to other manufacturers' applications, for example to Microsoft Excel and SQL databases.

Open programming interfaces – C-API

Would you like more individual applications? The WinCC function modules are open due to API interfaces that allow access to the data and functions of the configuration and runtime system. This means that you can use WinCC configuration and runtime functions in your scripts or even develop standalone applications with direct access to WinCC. And using the



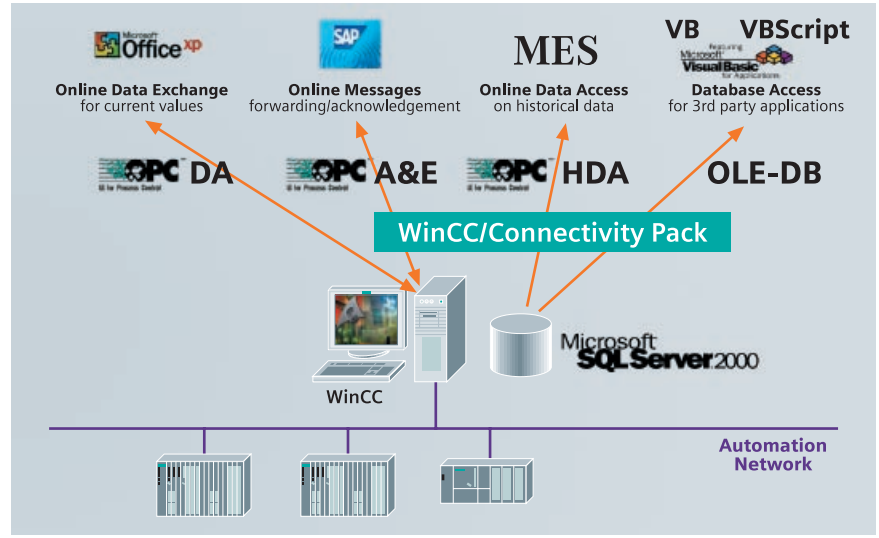
Open Development Kit (ODK) accessing the programming interfaces is really easy.

OLE for Process Control – for non-proprietary communication

In WinCC, non-proprietary communication in the field of automation has always been very important. As an **OPC DA** client, WinCC can log on locally or across the network in the case of lower-level controllers for current process data and has this data sent to it from the associated OPC DA server on a cyclical basis. In the other direction, the WinCC OPC DA server can make available current process data to other OPC compatible applications like Microsoft Excel, for example, for further-processing.

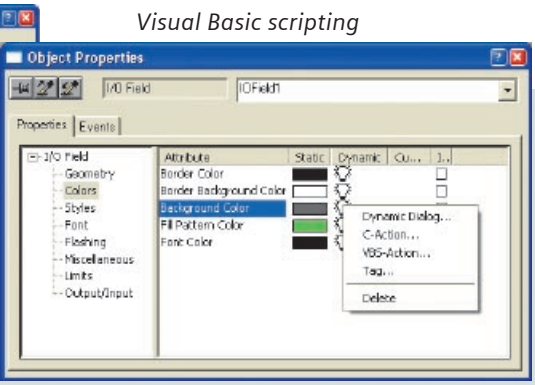
You can implement access to WinCC archive data via **OPC HDA** (Historical Data Access). As an HDA server, WinCC makes available historical data from the WinCC archive system to other applications. The OPC client (e.g. a reporting tool) can specify the start and end times of a time interval and thus selectively request the data to be transferred. Apart from this, the client can request already conditioned data from the HDA server, i.e. actively trigger data compression before the data is transferred.

In OPC A&E, the system displays a WinCC message as an alarm and, together with all the ancillary process values, passes it on to any subscribers on the production or company management levels. Due to the filter mechanisms and subscriptions, the system only transfers selected, changed data. It is, of course, also possible to carry out acknowledgement at the MES or ERP level.



WinCC/Connectivity Pack – Access to WinCC archives via OPC & OLE-DB

Visual Basic scripting



SIMATIC WinCC
Integrated Historian for IT & Business Integration

SIMATIC WinCC integrates a powerful, scaleable Historian based on Microsoft's SQL Server 2000 in the basic system. This offers users a wealth of options ranging from high-performance archiving of current process data and events, through long-term archiving with high levels of data compression and backup function, up to a central information exchange in the form of a cross-company Historian server.

Archiving ...

- Archiving process data
- Long-term archiving with data compression and backup archives
- Application as a central (redundant) archive server

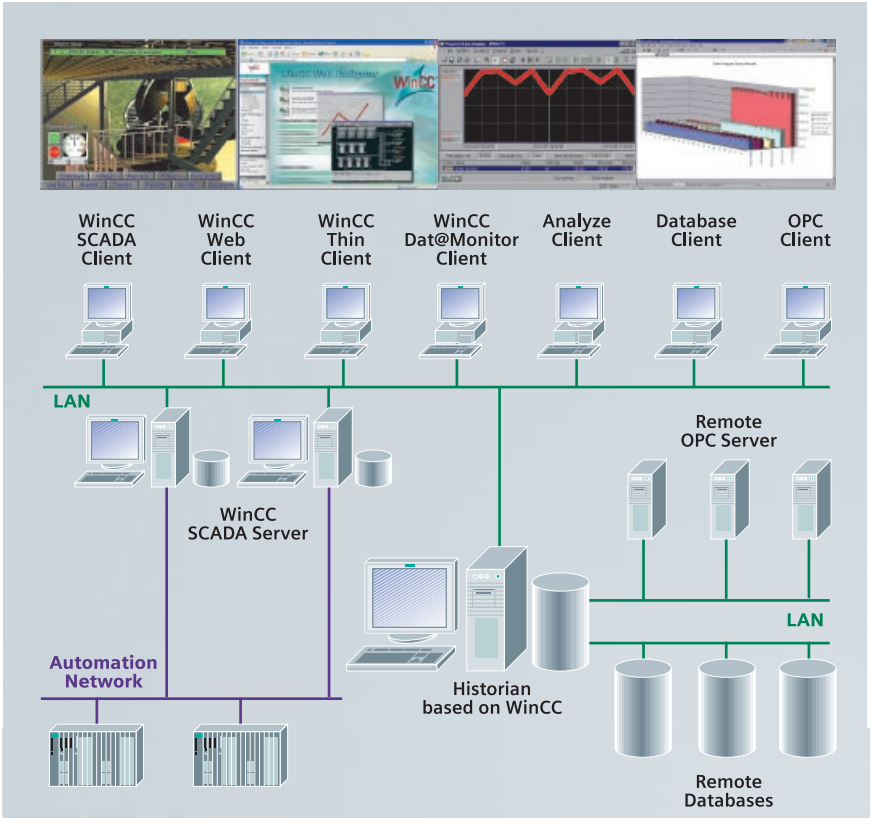
Process data and events are archived in the form of process value, alarms and user archives with **high levels of performance** at up to 10,000 measured values and 100 messages per second. The efficient compression functions mean that the memory requirement is very low. You can export completed individual archives (e.g. a weekly archive) to the long-term archive server (backup server). Up to 11 WinCC servers, remote OPC DA servers or remote databases are used as the **data sources**. If you have high availability requirements, you can set up consistently redundant solutions using redundant WinCC, archive and backup servers.
In the basic WinCC system, you can configure 512 archive variables. Powerpacks allow you to increase this number to up to 80,000 tags.

... and evaluation

You can display the data from the WinCC archives (Historian) via the WinCC process pictures using the integrated WinCC Trend Control or WinCC Alarm Control, or you can use special tools with WinCC options (e.g. WinCC/Dat@Monitor) and WinCC add-ons. This means that a large number of different clients are available for evaluations:

- WinCC SCADA clients for Operating & Monitoring (and Engineering)
- WinCC Web clients with full O & M functionality via the Web
- WinCC/Dat@Monitor clients (for current process views using MS Internet Explorer and statistics using MS Excel)
- Analyze clients for determining optimization potential
- Any client application accessing online and historical data (e.g. via OPC or OLE DB)

Historian based on WinCC – Process data archiving and information exchange



Platform for IT and Business Integration

Integrated Historian functionality in conjunction with open database interfaces (ADO, OLE DB, ODBC, SQL), programming interfaces (VBScript and ANSI-C with access to the COM object model and API functions) and various options are the WinCC basis of flexible and efficient IT and business integration.

Every company needs to represent complex business processes in an adequate software model to achieve **optimum productivity and quality**. The term IT & Business Integration describes exactly the way to **horizontal and vertical integration** of processes in a company by distributing information with different content between the IT solutions that are used in various areas.

These can include applications from the fields of **ERP** (Enterprise Resource Planning: Finance and Order Management, Logistics), **MES** (Manufacturing Execution System: Production Management with Track & Trace, Performance Analysis and Optimization, Maintenance, Document Management, LIMS and Quality Management) and **Controls** (Automation: Visualization, Control).

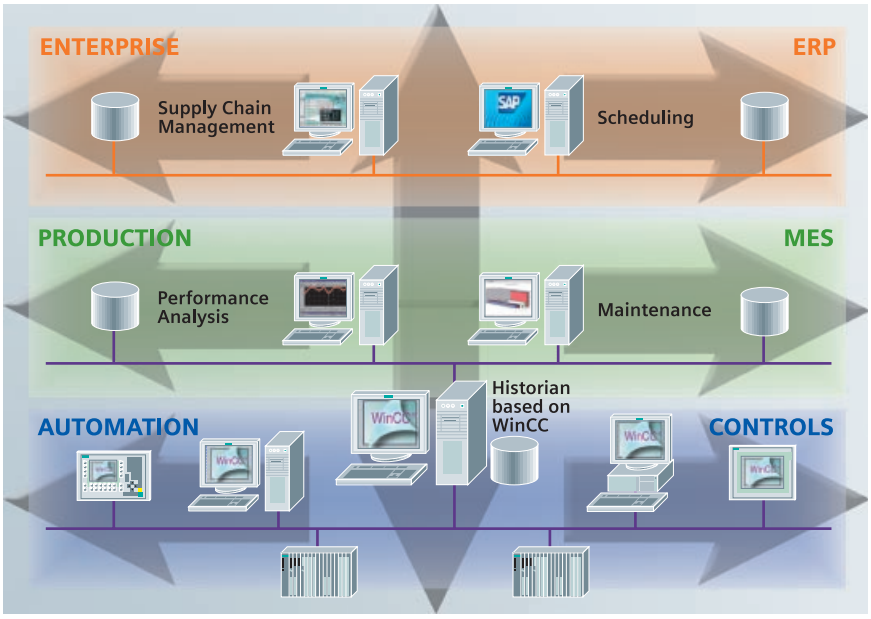
In this connection, the flow of information must not just be possible horizontally on the individual levels but also vertically across levels. It continues in companies involved in preprocessing and further-processing such as automobile component suppliers, for example (Supply Chain Management). The crucial factor that influences how easily and quickly you can implement consistent IT and Business Integration in a company is an application landscape that supports this goal by means of

- **uniform data storage,**
- integrated **standard interfaces**
- and **consistent handling** of all the data.

For solutions of this type to meet the company's future requirements, it is especially important to be able to easily extend and scale this solution. Version 6 of WinCC meets all these requirements:

- Microsoft SQL Server 2000 standard database as the central, cross-company Historian and information exchange
- Designed for use in an industrial environment (throughput, performance profiles, redundancy)
- Long-term archiving with data compression and backup mechanisms
- Support for different, scaleable configurations
- Evaluation options using different clients and tools
- Simple integration in cross-company applications due to open interfaces

In addition to a database-based solution approach, SIMATIC WinCC integrates into the SIMATIC IT Framework that represents a flexible and powerful integration platform on the basis of a framework. Via an adapter, SIMATIC WinCC is integrated as a SCADA system and a connection to the automation level and, being a basic component of the SIMATIC IT Historian together with the SIMATIC IT PPA option that groups production data from different sources and evaluates it, serves a **central Enterprise Historian.**



IT & Business Integration – horizontal and vertical integration

SIMATIC WinCC
Expandable by options and add-ons

Scaleable plant configurations

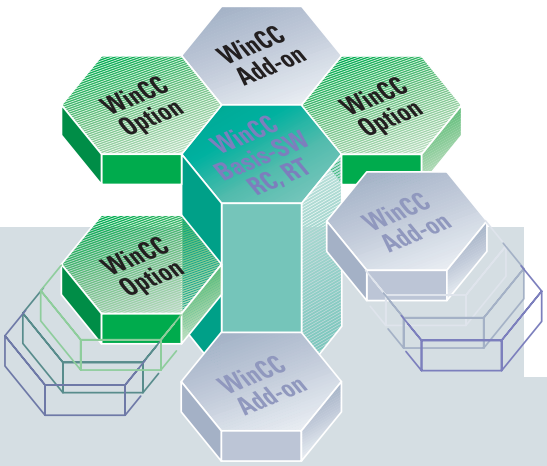
WinCC/Server – is for expanding a single-user solution into a powerful (distributed) client/server system with up to 12 WinCC servers and 32 clients.

WinCC/Web Navigator – gives you the option of operating and monitoring the plant across the Internet/Intranet with the help of Microsoft's Internet Explorers without needing to make any changes to the WinCC project. Thin Client solutions allow you to use robust local equipment and mobile PDAs under Windows CE in addition to PCs.

Increased availability

WinCC/ProAgent – makes possible selective and rapid **process diagnostics** with plant and machinery. Due to its complete integration into the SIMATIC process diagnostics world, ProAgent offers a consistent solution based on STEP 7, the Engineering Tools and on SIMATIC S7 control systems.

WinCC/Redundancy – increases system availability due to redundant WinCC stations or servers that monitor each other, that ensure operability of the plant and make possible contiguous data acquisition.



IT & Business Integration

The crucial factors for consistent IT and Business Integration are standard interfaces and powerful evaluation tools.

WinCC/Dat@Monitor – for displaying and evaluating current process status conditions and historical data on any office PCs you like using Internet-capable standard tools like Microsoft Internet Explorer or Excel.

WinCC/Connectivity Pack – allows other applications to access the WinCC archives via OPC HDA or OLE-DB, as well as to pass on messages via OPC A&E.

WinCC/IndustrialDataBridge – supports linking of external databases, Office applications and IT systems via OLE-DB and OPC DA with the help of parameterizable standard software.

SIMATIC IT PPA – Using this option, you can read the process and production data from different sources, group it for subsequent analysis in an optimum way, evaluate it and store it in compressed form for long-term data archiving in a Microsoft SQL Server database. SIMATIC WinCC and SIMATIC IT PPA together form the SIMATIC IT Historian.

SIMATIC IT WinBDE – Ensures efficient machine data management (failure analysis and machine characteristic data) ranging from one machine up to a complete production facility.

SCADA extensions

WinCC/User Archives – supports the use of user archives in which you can save data in the form of data records and exchange it as recipes or charge data between WinCC and the controller.

Extensions for validation according to FDA 21 CFR Part 11

Using the **WinCC/Audit** (operation and version tracking), **SIMATIC Logon** and **SIMATIC Electronic Signature** options and corresponding measures at engineering (White Paper), SIMATIC WinCC meets the die FDA requirements for the pharmaceutical and food industries.

System extensions

WinCC/IndustrialX – allows you to configure user-specific objects using ActiveX technology. The objects can be standardized, used several times and you can change them on a central basis.

WinCC/ODK – describes open programming interfaces **(C-API)** that you can use to access data and functions of the WinCC configuration and runtime system and even to create your own applications.

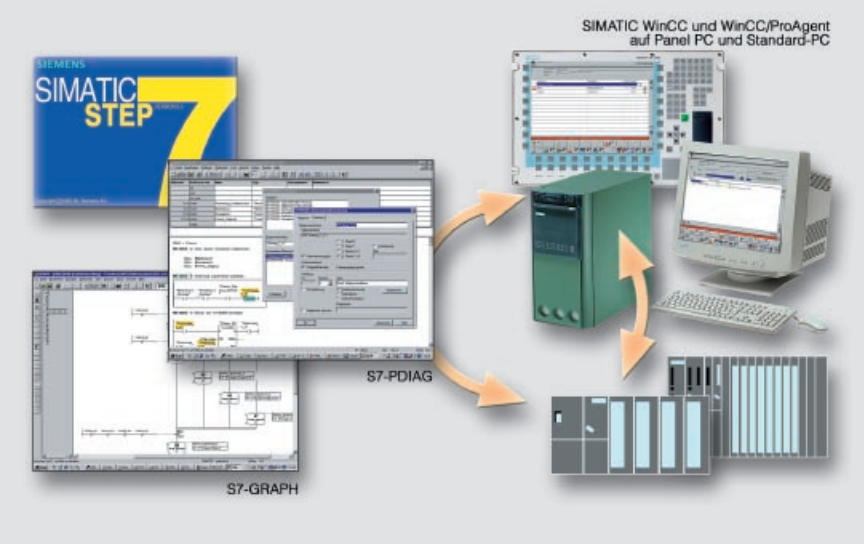
For more information about WinCC options, visit
http://www.siemens.com/options

WinCC Add-ons

These were developed by Siemens-internal and -external partners and they include additional products for WinCC in the following categories: SCADA extensions, configuration tools, software for MES, ERP and IT integration, industry and technology solutions and communications channels.

For more information about WinCC add-ons, visit
http://www.siemens.com/addons

SIMATIC WinCC
Part of Totally Integrated Automation



Process diagnostics using WinCC/ProAgent and the STEP 7 Engineering Tools

Saving engineering and lifecycle costs

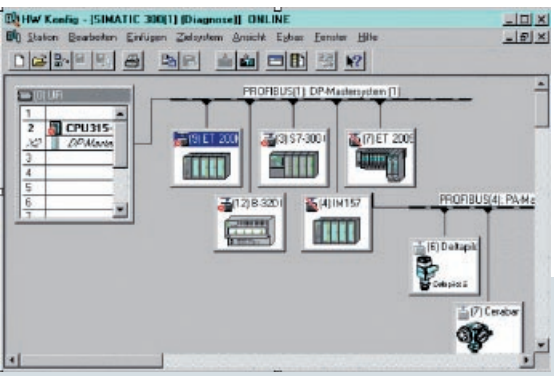
TIA allows you to completely integrate individual automation components - ranging from controllers, distributed peripherals and drive technology through Operating & Monitoring up to the production management level. In this connection, you always benefit from the triple consistency of configuration/programming, data storage and communication. In other words: You can reduce your engineering costs for automation solutions by up to 50% - with a corresponding reduction in lifecycle and total costs.

As a part of TIA, SIMATIC WinCC uses identical configuration tools under Windows, accesses common data, and communicates consistently. This means, for example, that WinCC uses the lists of tags and messages of the SIMATIC controller and its communications parameters. This avoids time-consuming and expensive multiple inputs and the sources of errors - right from the start.

Integrated diagnostics increase productivity

Totally Integrated Automation offers integrated diagnostics as a significant system feature. In conjunction with other SIMATIC components, SIMATIC WinCC also supports **system and process diagnostics** in ongoing operation:

- Entering STEP 7 hardware diagnostics directly from WinCC
- Calling STEP 7 blocks from WinCC pictures
- System diagnosis using web technology with WinCC Scope
- Diagnosing the communications connection using WinCC Channel Diagnosis
- Reliable process diagnostics with WinCC/ProAgent



Calling STEP 7 hardware diagnostics from WinCC

System diagnostics

You can, for example, start **STEP 7 hardware diagnostics** directly from the WinCC picture, which provides comprehensive fault diagnostics ranging from circuit diagrams right up to the PLC program. Just as directly, you can call STEP 7 blocks from WinCC pictures, which sets up a direct connection to the corresponding STEP 7 logic.

Diagnosing system errors includes all the components that are connected to the controller via PROFIBUS - without needing any configuration time and effort on the WinCC side. At configuration, the system automatically takes all the relevant diagnostics data from the diagnostics data that STEP 7 stored. At runtime, the system automatically issues a system message to WinCC in the case of an error.

WinCC Scope carries out diagnostics of the WinCC station and its environment across the Web. With communications in particular, faults often occur that are difficult to analyze. WinCC Channel Diagnosis helps you to quickly detect and eliminate errors.

Process diagnostics

And the process diagnostics messages from the S7-PDIAG and S7-GRAPH controller display irregularities in the case of an error using WinCC/ProAgent in WinCC - without needing any further configuration time and effort or any additional diagnostics facilities. This means that WinCC supports you in an effective way in localizing and eliminating errors, which considerably reduces machine and plant down times.

SIMATIC WinCC
All around WinCC

WinCC software

You can choose between the following basic variants of **WinCC system software:**

- WinCC complete package (**RC**: license for runtime and configuration)
- WinCC runtime package (**RT**: runtime license)

There are different packages available with 128, 256, 1K, 8K and 64K **PowerTags**. Only tags that have a process connection to the controller are designated as PowerTags. Up to 32 messages can be derived from one PowerTag. In addition, internal tags without a process connection are available as a complementary system feature.

Powerpacks allow you to move up to a version with a higher number of tags. Go ahead and start with the smallest available package and then later expand with one of the powerpacks.

Individual functional or industry-specific expansions are available in the form of **WinCC options** and **WinCC add-ons**®.

A competent partner for automation solutions

With SIMATIC WinCC, you don't just get excellent products for your requirements; we also help you to choose a partner for your automation solution.

Siemens Automation SolutionProvider certified

In our global network of **Siemens Automation Solution Providers**, you can find competent contacts close to you who are always up to date with SIMATIC WinCC technology.

Siemens Automation SYSTEMPARTNER WinCC Competence Center

Our Siemens-internal **WinCC Competence Centers** implement WinCC-based technology-specific products as well as customer-specific and vertical market solutions.

Siemens Automation SYSTEMPARTNER WinCC Professional

WinCC Professionals are external system integrators. As experts, they combine WinCC competence with their industry and technology expertise for tailor-made economic solutions.

The world of Operating & Monitoring

With SIMATIC HMI®, Siemens Automation and Drives offers you a complete range for many different tasks in the field of operation and monitoring – from a single source. Of course, we also implement customer-specific requirements.

From operator panels and visualization software for local Operating & Monitoring through to scaleable SCADA systems for a wide variety of different requirements in process visualization: We offer you a finely graduated range of innovative and economic products and systems.

Comprehensive services such as on-site training courses or worldwide service through to orders across the Internet round off this range.

SIMATIC HMI.
The Human Machine Interface.

For further information about SIMATIC HMI customized products see:

www.siemens.com/wincc

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