

SIMATIC WinCC Version 6.0 SP3

Process Visualization using Plant Intelligence



SIMATIC WinCC Version 6.0 SP3 contains important functional enhancements for process visualization and optimizing processes by means of Plant Intelligence:

- **Evaluation functions for online analysis**
 - Statistical functions for process value archives
 - Configurable line thickness, tool tips and logarithmic representation with curves
 - Message hit list with sort function in the column header
- **WinCC/Web Navigator V6.1**
 - Basic Process Control – across the Web too
 - Support for operator messages
- **WinCC/IndustrialData-Bridge V6.1**
 - Read and write access to user archives
 - Configurable time base for data transfers
- **WinCC/Dat@Monitor V6.1**
 - Extended analysis functions
 - Multi-server support for Dat@Workbook
- **WinCC/Connectivity Pack V6.1**
 - Integrated analysis functions
 - Reading out several archives using just one call
 - Access to user archives
- **Other functional enhancements**

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WinCC

SIMATIC® WinCC® offers complete SCADA functionality under Windows for all branches of industry ranging from single-user to distributed multi-user systems with redundant servers and cross-site solutions with Web clients. WinCC is the information exchange for vertical integration on a cross-company basis.

The WinCC basic software is the heart of a wide variety of different applications. Based on open programming interfaces, development has already been carried out on a number of **WinCC options** (by Siemens A&D) and on **WinCC add-ons** (by Siemens-internal and external partners).

SIEMENS

SIMATIC WinCC V6.0 SP3

Process Visualization using Plant Intelligence

Ongoing globalization and increased competition have led on the one hand to an intense process of concentration; on the other hand, these factors demand a consistent flow of information across all the levels and sites of an organization. SIMATIC WinCC provides the appropriate solution for this: Scalable client/server systems for process visualization, options for IT & Business Integration and Plant Intelligence – the basis of high levels of transparency and process optimization with a rapid return on investment.

Plant Intelligence is based on the intelligent use of information to improve a company's processes. This is intended to reduce the costs of a plant, to prevent scrap, to have better rates of utilization of production facilities and in the final analysis to guaran-

tee greater effectivity and profitability for the company.

WinCC V6.0 is the best jumping off point for this, since WinCC has an **integrated Historian** (process database) based on Microsoft SQL Server 2000 to acquire important production data. Using intelligent functions and tools, it is possible to condition this process data into **information that is relevant to decision-making** and to make it available on a cross-company basis at any time and anywhere – to operators as well as to plant managers or to anybody else in the company.

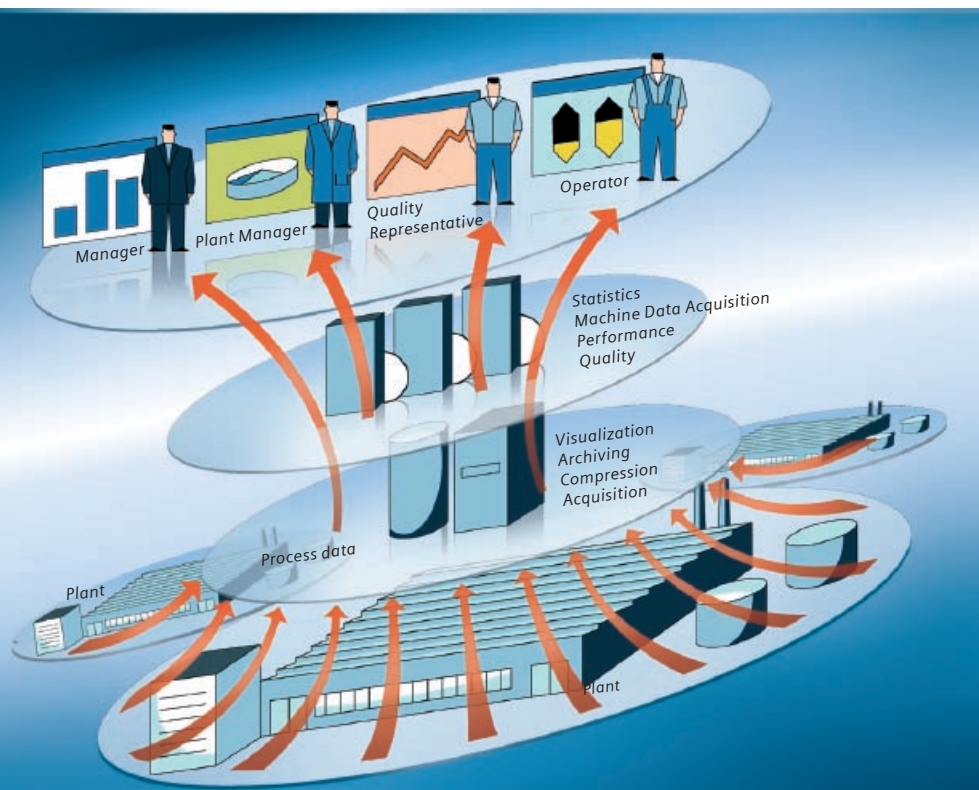
In the basic system, WinCC provides a wide range of display and evaluation functions. The WinCC options for IT & Business Integration make available additional **intelligent tools for optimizing production** by means of Plant Intelligence:

WinCC/Dat@Monitor: For displaying and evaluating current process status conditions and historical data from any PC you like. For this, you only need an Internet-capable standard tool like Microsoft Internet Explorer or Microsoft Excel.

SIMATIC WinBDE: For efficient machine data management, ranging from a machine up to a whole production facility. WinBDE calculates Key Performance Indicators (KPIs) like availability, performance, quality, rates of utilization and helps to reduce downtimes and to increase rates of utilization.

WinCC/Connectivity Pack: For external evaluations, WinCC opens up its interfaces: Using the WinCC/Connectivity Pack, you can access WinCC archives via WinCC OLE-DB as well as OPC HDA or access current WinCC values on a cross-operating system basis by means of OPC XML. It is possible to pass on WinCC messages via OPC A&E to other systems too.

WinCC/IndustrialDataBridge based on standard interfaces bridges the gap to external databases, Office applications and IT systems. In this connection, you can exchange tags and archive data between different sources and destinations. Just carry out configuration – you don't need to carry out programming.



Process Visualization using Plant Intelligence

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New Evaluation Functions for Online Analysis

The new WinCC version V6.0 SP3 with its corresponding options contains further important functional enhancements that you can use to provide even more transparency in production and further optimization potential.

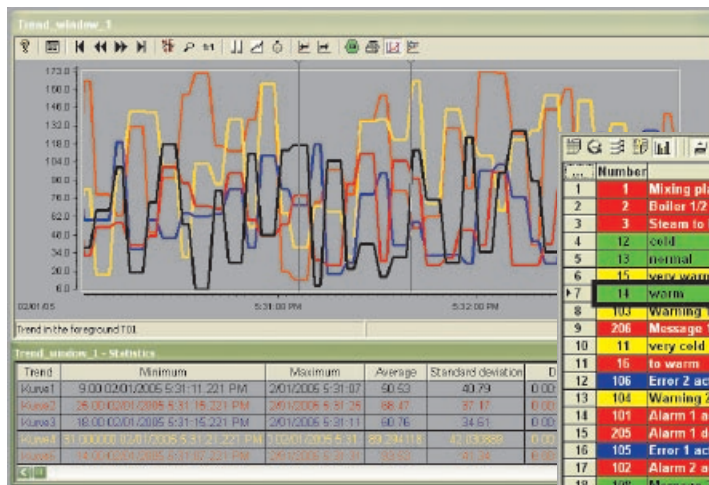
Statistical functions are now available for online evaluations of process value and message archives. The results are output in the WinCC Online Trend Control or the Alarm Control.

In the case of acquired process values, you can determine for a specified time range the **minimum, maximum, average** and the **standard deviation** and display them. To provide improved representation and analysis options, you can configure the thickness of trend lines. If you press the right mouse button with the cursor above

the curve, a tool tip shows detailed information on the test point: archive, archive variable, date/clock time and value. This yields easier data analysis due to the fact that it is also possible to use a second cursor line. It is now also possible to represent curves on a logarithmic basis.

The **message hit list** indicates the average and total times that specific messages have been pending for (**message duration**) and, in a similar way, the average and total **acknowledgement time**. In this connection, you can of course filter by the relevant events, alarm locations and time intervals. You can choose to sort in ascending order or in descending order in each case. This allows you to quickly appreciate where critical locations and

bottlenecks are located on the shop-floor. To sort the messages on the message display, you just need to proceed as you would in Excel: just click on the head of the column and choose the desired sort criterion (e.g. "Frequency in descending order"). It is now possible to emphasize selection of a message line by a border on the message line as an alternative to a change of colour; this means that the system always retains the configured colours (e.g. "Red" for "ALARM").



Statistical functions for process value archives (Online Trend Control)

Message hit list for arrived messages (Alarm Control)

Number	Message text	Frequency	Avg. +/-	Sum +/-	Avg. +/-1	Sum +/-1
1	Mixing plant in operation	1532	5.784	8855	0.000	0
2	Boiler 1/2 empty	766	28.282	21636	0.000	0
3	Steam to hot	383	54.764	20920	0.000	0
4	12 cold	13	12.154	158	0.999	0
5	13 normal	13	9.192	2	0.999	0
6	15 very warm	13	0.000	0	0.000	0
7	14 warm	12	9.091	1	0.999	0
8	104 Warning 1 activated, without ackn.	2	21.857	153	0.000	0
9	206 Message 1 deactivated, without ackn.	7	21.857	153	0.000	0
10	11 very cold	7	0.000	0	0.000	0
11	16 to warm	7	0.000	0	0.000	0
12	106 Error 2 activated, to be ackn.	6	25.167	151	2.667	8
13	104 Warning 2 activated, to be ackn.	6	22.667	136	11.000	33
14	101 Alarm 1 activated, without ackn.	5	40.000	160	0.000	0
15	205 Alarm 1 deactivated, without ackn.	5	40.000	160	0.000	0
16	105 Error 1 activated, without ackn.	5	39.500	158	0.000	0
17	102 Alarm 2 activated, to be ackn.	5	31.400	157	16.000	32
18	108 Message 2 activated, to be ackn.	4	38.250	155	3.000	6

SIMATIC WinCC V6.0 SP3

Other Functional Enhancements

VBScript script language

The integrated VBScript (VBS) script language now also supports **global VBS variables** via the DataSet object, which means that you can exchange data between different scripts.

Using a **synchronous** or **asynchronous Multi Read/Write**, you can use one command to read or set several WinCC variables at the same time. This function corresponds to the SetTagMultiWait or GetTagMultiWait system functions under ANSI C; under VBScript, however, it has the special feature that it can also execute without a „Wait“. This means that it is possible to send several variable values to the controller using just one command, which means that the script can continue to run without needing to wait for feedback from the controller. When reading/writing several variables, this leads to improved performance and a reduction in the communications overhead.

The **@DataSourceNameRT** system variable is now available for more flexible access to the current project. It provides the current ODBC name (DSN = Data Source Name) for database accesses. The **@LocalMachineName** system variable designates the current computer name. In addition, you can use the **ActiveProject** property to access the project path.

You can now use a VBS script to **Restore** and **Remove** process values or messages to or from long-term archives on a flexible basis.

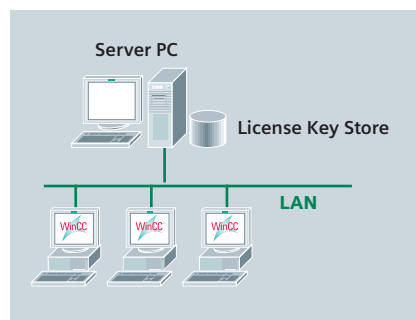
FDA-compliant long-term archiving

In the case of long-term archiving for long periods of time, you have to export your back-up archives sooner or later. With plants in which process or production data has to be tracked and which are accountable (e.g. plants in

the pharmaceutical industry that are validated according to FDA 21 CFR Part 11), this makes it important to sign the exported archives electronically to make it possible to detect whether data has been manipulated.

Automation License Manager

The new Automation License Manager, which will be used consistently with SIMATIC software in future, offers more convenient engineering and new functions. On the network, it is possible, for example, to set up several WinCC engineering stations that can use the same licenses in succession.



With the Automation License Manager, the **License Key (LK)** replaces authorization with AuthorsW. On a local area network (LAN), you can store the License Keys on any server PC that you like on the LAN. When WinCC is started at one of the engineering computers, one free License Key on the server is assigned; when you leave WinCC, the key is released again. This means that the WinCC configuration software can be installed on several computers

and you can start it as often as you have License Keys on the server PC. This type of licensing is known as **Floating Licenses** and is only available for WinCC engineering stations.

Other new functions

- With immediate effect, Microsoft Windows XP SP2 will be supported as a platform for WinCC systems.
- Accessing the Quality Code of a process variable is now also possible without scripts within the WinCC dynamic dialogue.
- You can use a Preview function to check reports in Runtime operation before printing them.
- In the case of multilingual WinCC projects, you can set a default language (e.g. English) globally for the project. If the translation of texts in a different runtime language that is set in the project is missing at particular locations, the system displays the default text.
- For consistent representation of the time and date on a project-wide basis, which complies with FDA requirements, you can use a time representation in accordance with ISO standard 8601.
- Conversion of an existing WinCC V5 project has been made even easier in WinCC V6.0 and you can now carry out conversions in just one step.

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New WinCC Options

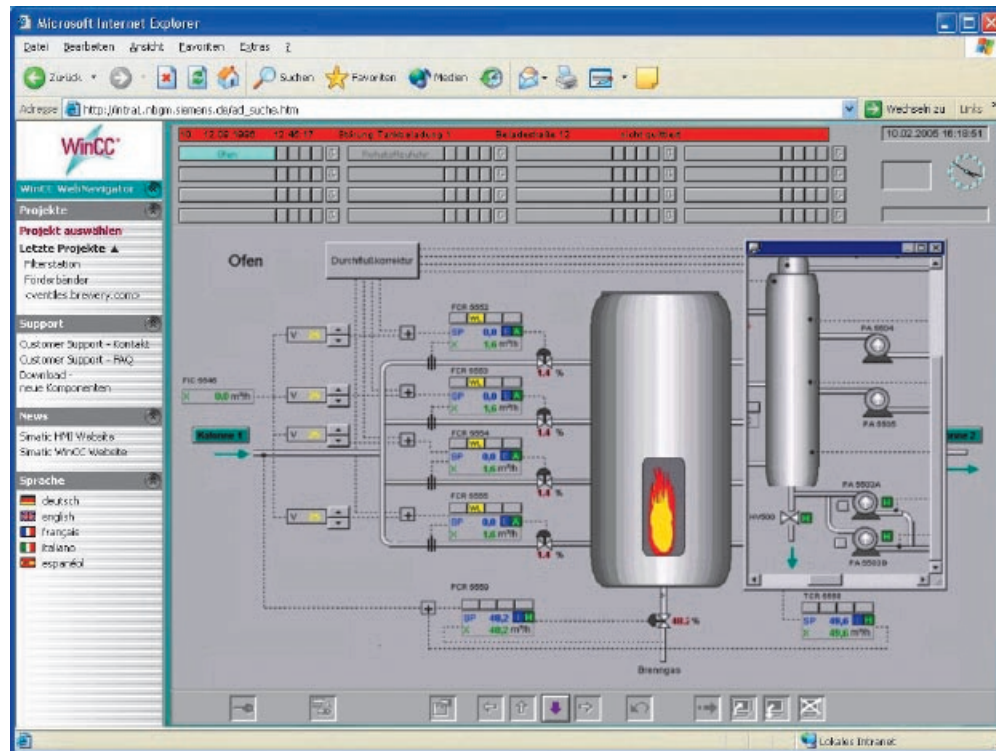
WinCC/Web Navigator V6.1

Basic Process Control is one of the basic features of SIMATIC WinCC and offers additional objects and configuration tools to allow you to easily implement typical **instrumentation and control technology requirements**. This means that you can use a wide range of instrumentation and control technology functions in process operation, e.g.

- Group displays to “OR” disturbances (alarm, warning, error) in lower-level disturbances and to directly jump to the relevant process picture
- Division of the screen into overview, working and key areas
- Navigating via a screen hierarchy
- Screen layout and memory and calling on a user-specific basis
- Message window with a new, old and past Seite, lists of operating and instrumentation and control technology and chronicle and audible signal device connection

Using the new version of the WinCC/ Web Navigator, you can also use these types of representation and operator input options for the instrumentation and control technology on the Web Navigator client via your browser.

Apart from this, the system now supports **operator messages** on the web client, i.e. you can see the operator inputs in the operating log regardless of whether they were made at a WinCC client or a WinCC Web client.



Representation of instrumentation and control technology (Basic Process Control) using the WinCC/Web Navigator

WinCC/IndustrialDataBridge V6.1

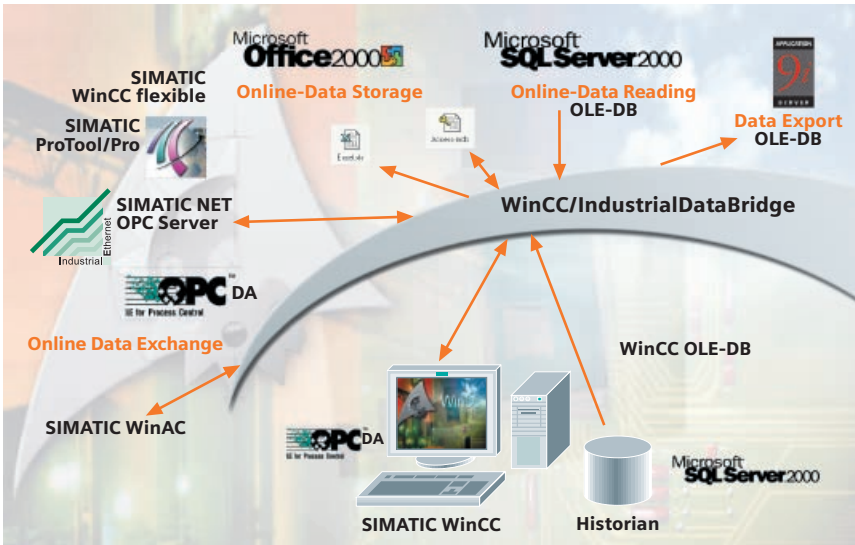
Using WinCC/IndustrialDataBridge, you can now easily implement **data exchange with user archives** (WinCC/ User Archives) in addition to exchanging current values and historical data from the process value and message archives. Recipes that are stored in an external database, for example, and which you maintain there can now

be written on a coordinated basis to WinCC. In the same way, it is possible to write data from the user archive to a target (e.g. a database, Microsoft Excel, a file). As usual, you can easily configure data transfer without needing any programming.

When accessing WinCC archive data (process value archives and message

SIMATIC WinCC V6.0 SP3

New WinCC Options



access to user archives in addition to access to process value and message archives.

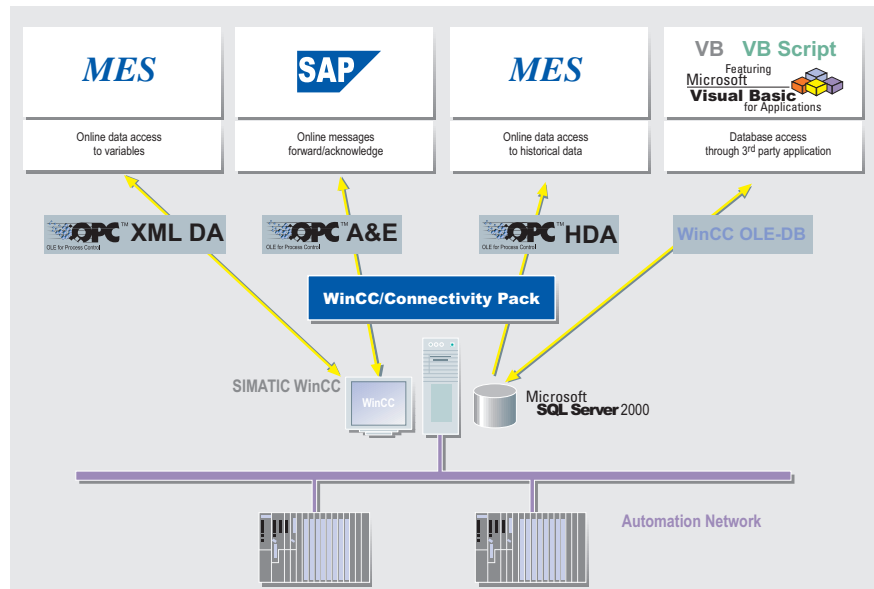
If you want to evaluate the WinCC process value and message archives using external tools, you can insert statistical functions via the WinCC OLE-DB provider. You can determine for acquired measured values over a parameterizable time range the minimum, maximum, total, average, standard deviation and variance and pass them on to the evaluation tool. For evaluating messages, the server makes available the quantity, duration and acknowledgement time. With remote accesses to the database, this significantly reduces the network overhead and loading of the processor

WinCC/IndustrialDataBridge – Linking to databases and IT systems

archives) you can now operate with **local time** – by contrast with UTC (Universal Time Coordinated) time. When configuring data transfer users can specify the timezone in which the system is to supply the data. This means that users no longer have to convert UTC time to local time.

WinCC/Connectivity Pack V6.1

Access options for external applications to current and historical WinCC values via the WinCC OLE-DB provider will be extended on an ongoing basis. This means that you only need one call to read out several archives at the same time; in the new version, it is now possible to have **read and write**



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New WinCC Options

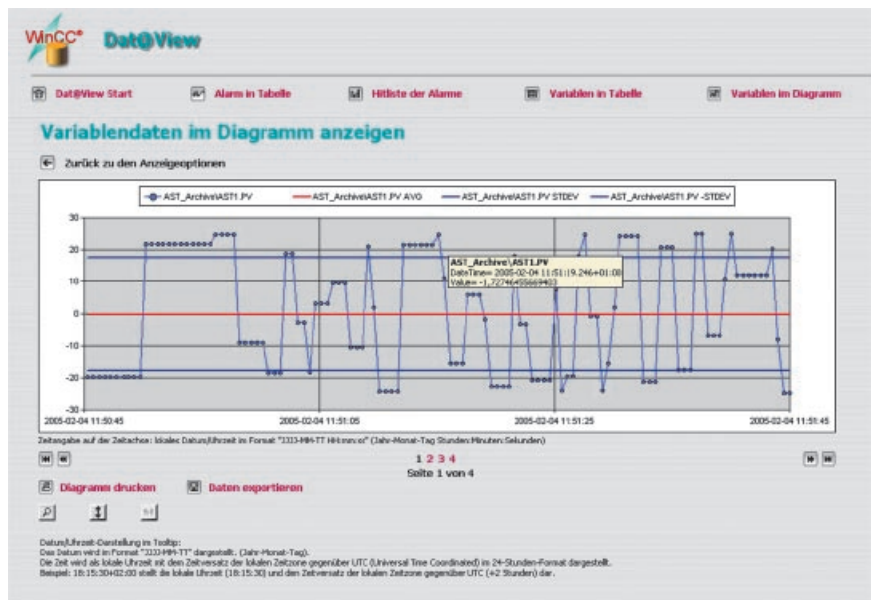
on the client, since statistical calculations are carried out on the server.

It is now possible to read the data of several archive variables with one access. In this connection, you can have the system deliver the results with a common timestamp and interpolated.

Apart from this, the WinCC/Connectivity Pack still contains OPC servers for access to current and historical data from any computers you like OPC A&E (alarm events), OPC HDA (Historical Data Access) and OPC XML DA (Data Access).

WinCC/Dat@Monitor V6.1

Extended analysis functions for process value and message archives are now also available in the **Dat@View** component of WinCC/Da@Monitor. Dat@View is an Internet Explorer-



Dat@View with Trend Diagram: Process value, average, standard deviation, variance

ID	Abstraktion	Text	Häufigkeit	kumulierte Dauer +/-	g Dauer +/-	kumulierte Dauer +/-	g Dauer +/-
8			27	5020	152,14	5061	351,65
9	23	Motor defect	2	14	14	0	0
7	28		1	0	0	0	0
6	22		1	0	0	0	0
5	27		1	0	0	0	0
4	21		1	0	0	0	0
3	25		1	15	15	0	0
2	26		1	6	6	0	0
1	24		1	6	6	0	0

Alle Zeitangaben in Sekunden

Liste drucken

Erklärung der Spaltenüberschriften:
 Häufigkeit: Summe Meldungshäufigkeit
 kumulierte Dauer +/-: kumulierte Dauer von Meldung gekommen bis Meldung gegangen
 g Dauer +/-: Durchschnittliche Dauer von Meldung gekommen bis Meldung gegangen
 kumulierte Dauer +/-: kumulierte Dauer von Meldung gekommen bis Meldung auftritt
 g Dauer +/-: Durchschnittliche Dauer von Meldung gekommen bis Meldung auftritt.

based display tool for displaying and analyzing historical data from the process data archive or the long-term archive. In this connection, the system can output messages in tables and process values in tables or curves.

In the case of acquired process values, you can determine and display for a specified time range the **minimum, maximum, average, standard deviation**; this is additionally possible, compared to the WinCC basic function, for the **variance** and the **varying average**. Printouts are of course also possible.

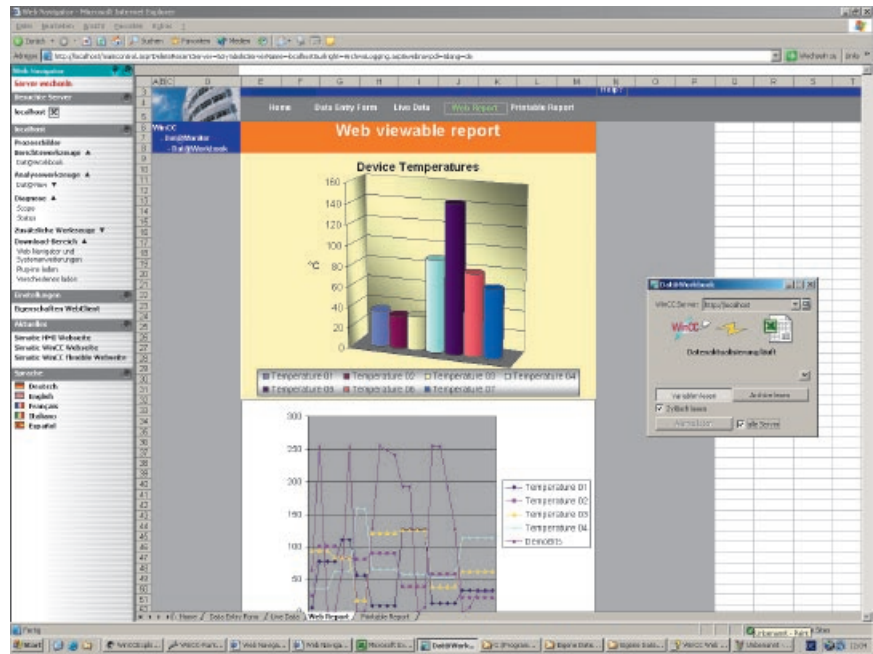
Dat@View with alarm list (statistics)

SIMATIC WinCC V6.0 SP3

New WinCC Options

The **message hit list** indicates the average and total times that specific messages have been pending for (accumulated) and, in a similar way, the average and total **acknowledgement time**. In this connection, you can of course filter by the relevant events, alarm locations and time intervals.

Multi-server support has been implemented in the **Dat@Workbook**, the logging tool that integrates archive data and current process values from WinCC in a Microsoft Excel worksheet and that makes possible evaluations and graphic representations using Excel functions. This means that the data that is displayed in the work sheet can also come from different lower level Web servers at different sites within the company; this makes it possible, for example, to compare factories in a worksheet/diagram with regard to production data (throughput, quality or energy consumption).



Dat@Workbook with evaluations across several servers

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