MERNI INFORMACIONI SISTEMI

Profesor dr Miroslav Lutovac

mlutovac@viser.edu.rs

Studija slučaja MIS

- Signalling & Control
- licenses of Ministry of civil, traffic & infrastructure, Republic of Serbia
- P141E4 - Prjekti upravljanja, **automatika**, **merenje** i **regulacija** za javne železničke infrastrukture sa priključcima
- I141E3 - Izvođenje telekomunikacionih mreža i sistema za javne železničke infrastrukture sa priključcima

Design, development, production, certification, delivery and installation

development, production, installation, testing, maintenance of electronic devices with system for diagnostic with appropriate software

izvor: http://www.sig-con.com

Proizvodi

- Ekonomični kompjuterski putni prelaz tipa LCLC-DL2000
- Dugo elktronsko frekventno šinsko kolo tipa LFTC-DL2000,
- Kratko elektronsko frekventno šinsko kolo tipa SFTC-DL2000
- Sistem za dijagnostifikovanje redovnih događaja, smetnji i kvarova za ekonomični kompjuterski putni prelaz LCLC-DL2000

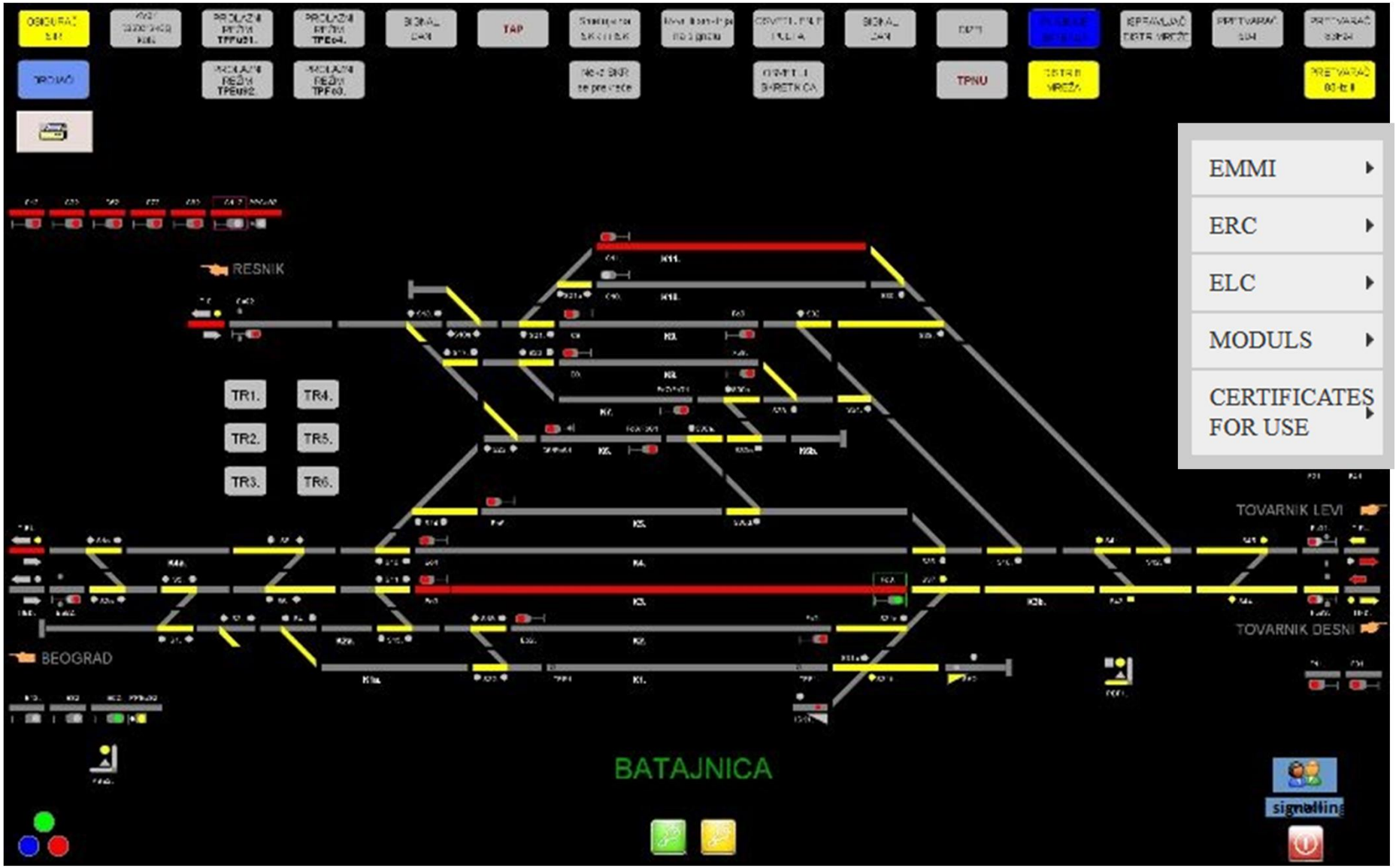
Proizvodi

ISO9001:2008

Quality Management System
Certificate of Approval
Ovim se potvrđuje da je Sistem menadžmenta kvalitetom:
SIGNALLING & CONTROL DOO
Branka Krsmanovića 20, 11000 Beograd
Srbija
ocenjen i da ispunjava zahteve:
ISO 9001:2008
Sertifikat je važeći za sledeći delokrug rada:
Razvoj, sastavljanje, instalacija, testiranje i održavanje signalno-sigurnosnih i elektronskih uređaja sa sistemom za dijagnostiku sa pratećim softverom
Datum izdavanja sertifikata: 03. februar 2015.
Sertifikat važi do: 02. februar 2018.
DAS sertifikacija od: 03. februar 2012.
Broj sertifikata: DAS18710862/1/Q
Overava:

- EI – Elektronska postavnica, elektronski stanični signalno-sigurnosni uređaj
- EMMI – Elektronski nadzorno-upravljački sistem za elektrorelejne stanične signalno-sigurnosne uređaje
- EAC – Brojač osovina sa detekcijom kontinuiteta šina
- ELC - Electronski putni prelaz
- EŠK – Elektronski Šinski Kontakt
- EMUMZ – Elektronski mobilni uređaj međusignalne zavisnosti
- EGS – Elektronski sistem grejanja skretnica
- Elektronski moduli, indikacioni panoi, blinkeri, elektronski strujni detektori, tajmeri, termostati, relejni moduli, interfejsni moduli, prenaponski moduli, GSM moduli

Signalling & Control



Electronic MMI System

- EMMI – Elektronski elektronski sistem koji omogućava interaktivnu komunikaciju između čoveka (operatera) i MMI (Man Machine Interface) sistem predstavlja sistema kojim se upravlja i čiji se nadzor vrši
- EMMI sistem je prvenstveno namenjen za upravljanje i nadzor železničkih, staničnih signalno-sigurnosnih uređaja (Siemens, Westinghouse)
- EMMI se takođe može koristiti i za upravljanje i nadzor drugih uređaja sličnog tipa, u drugim industrijskim oblastima
- EMMI sistem se sastoji iz dve glavne celine: Operaterska konzola i Interfejsni uređaj

Operaterska konzola

- u potpunosti zamenjuje konvencionalni komandno-indikacioni pult, uz dodatne funkcije za podršku registrovanja događaja, servisiranja i dijagnostike
- Operaterska konzola (OK) se smešta u prostoriju operatera i služi operateru za izdavanje komandi uređaju, kao i za prikaz stanja uređaja u realnom vremenu
- OK pored vizuelnih indikacija na ekranu daje i predviđene zvučne signale operateru
- OK memoriše na hard disku sve komande i indikacije (redovne događaje, smetnje i kvarove) po redosledu dešavanja; stanja brojača se takođe ažuriraju i zapisuju; svi zapisi su na raspolaganju za pretragu, analizu i štampanje od strane ovlašćenog osoblja

PC computer is equipped with standard PROFIBUS PC card

Figure 1: Operater's part of EMMI system.

Operaterska konzola

- Standardni operativni sistem za rad personalnog računara – Microsoft Windovs
- Standardni sistemski SCADA softver za prihvat komandi, generisanje indikacija i ostvarivanje komunikacije sa Interfejsnim uređajem – Siemens WinCC.
- Aplikativni opšti softver za
  - generisanje grafičkih simbola za prikaz na ekranu (biblioteka simbola),
  - povezivanje simbola sa ulazno-izlaznim podacima iz interfejsnog uređaja
  - ostvarivanje komandno-indikacionih funkcija.
- Interface System - Siemens WinCC

Operaterska konzola

- Aplikativni opšti softver za
  - memorisanje redovnih događaja (komande i promene stanja elemenata), smetnji i kvarova,
  - sa stalnim prikazom na ekranu za održavanje,
  - uz omogućavanje da autorizovano osoblje vrši pretrage, štampanje i snimanje selektovanih događaja na prenosni medijum (USB flash disk, sa pristupom PC-u samo pomoću lozinke)
- Kompletna datoteka zapisanih događaja na hard disku PC-a je takođe na raspolaganju autorizovanom osoblju

Operaterska konzola

- Aplikativni softver za generisanje izgleda ekrana za jednu konkretnu aplikaciju (kolosečna situacija jedne železničke stanice). U okviru funkcija koje su na raspolaganju u WinCC SCADA softveru, vrši se dodela imena simbolima i njihov raspored na ekranu u cilju konfigurisanja odgovarajuće slike.

SIMATIC WinCC

- Supervisory control and data acquisition (SCADA) and human-machine interface (HMI) system from Siemens
- SCADA systems are used to monitor and control physical processes involved in industry and infrastructure on a large scale and over long distances
- SIMATIC WinCC can be used in combination with Siemens controllers
- WinCC is for the Microsoft Windows operating system
- It uses Microsoft SQL Server for logging and comes with a VBScript and ANSI C application programming interface
- In 2010, WinCC and PCS 7 were the first known SCADA systems to be specifically targeted by malware. The Stuxnet worm can spy on and even reprogram infected systems

SIMATIC WinCC

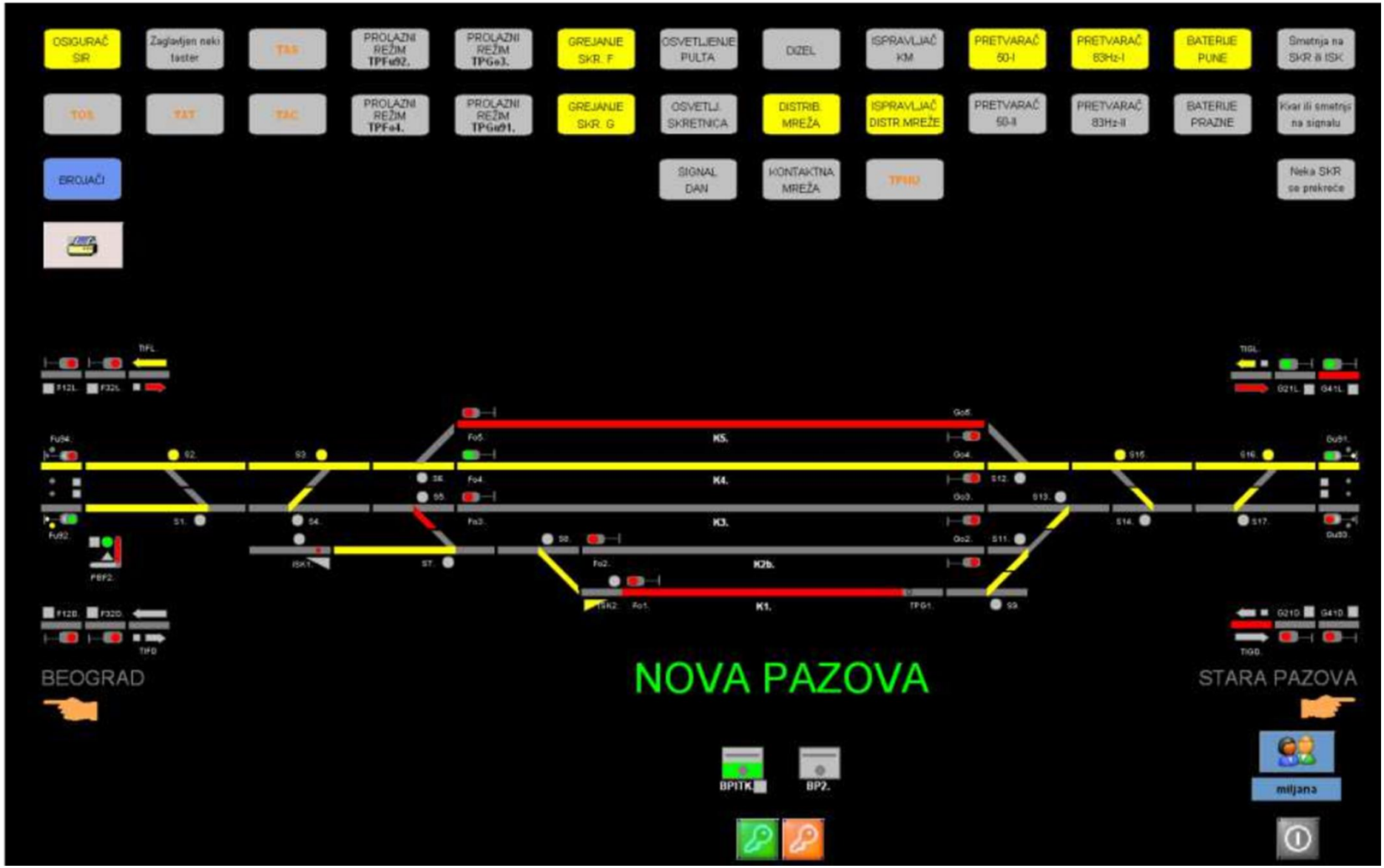
- Supervisory control and data acquisition (SCADA) and human-machine interface (HMI) system from Siemens
- Developer, Siemens
- Initial release, 1996
- Stable release, V7.4 / April 2016
- Operating system, Microsoft Windows
- Type, SCADA
- Website, SIMATIC WinCC

http://w3.siemens.com/mcms/human-machine-interface/en/visualization-software/scada

Operaterska konzola

- projektuje se prema zahtevima korisnika
- Opšti uslov je da korisnik definiše proceduru i način upravljanja, listu simbola koji se prikazuju na ekranu, i zahteve i način memorisanja događaja
- Na osnovu navedenih zahteva se razvija opšti aplikativni softver (u okviru funkcija koje su na raspolaganju u WinCC SCADA softveru) koji se istestira i prihvati od strane korisnika za prvu aplikaciju i kao takav, po pravilu, važi za sve ostale aplikacije na teritoriji tog korisnika
- Omogućen visok stepen standardizacije, značajno je smanjen obim radova na projektovanju i testiranju svih narednih aplikacija

Example of the track layout on the monitor of the EMMI system



Operaterska konzola

- Za svaku narednu aplikaciju korisnik je dužan da definiše samo izgled aplikacije za prikaz na ekranu
- Projektovanje se svodi na izradu ekranskog prikaza prema zadatoj situaciji i konfigurisanje ulaza i izlaza Interfejsnog uređaja
- Testiranjem se potvrđuje tačnost ekranskog prikaza i korespondencija ulaza i izlaza Interfejsnog uređaja sa prikazom na ekranu
- Omogućena je brza i efikasna realizacija uređaja za svaku konkretnu aplikaciju
- Drugi monitor služi za prikaz registrovanih događaja, njihovo pretraživanje i štampanje. Podeljen je u 4 kvadranta (komande, smetnje, kavarovi i redovni događaji)

Interfejsni uređaj

- služi da poveže upravljani sistem (signalno-sigurnosne uređaje stanice) sa operaterom
- Interfejsni uređaj prikuplja informacije o stanju upravljanog sistema i prosleđuje ih Operaterskoj konzoli
- Interfejsni uređaj prihvata komande od strane Operaterske konzole i posredstvom minijaturnih interfejs relea prosleđuje te komande upravljanom sistemu

Interfejsni uređaj

- Procesorski uređaj tipa Simatic S7-300 (Siemens) sa PROFIBUS komunikacionim interfejsom
- Digitalni ulazno – izlazni moduli tipa Simatic S7-300
- Minijaturna relea za ostvarivanje komandnog interfejsa.
- Rastavljive kleme za prihvat indikacija stanja
- Napojni uređaj sa baterijom
- Orman za smeštaj opreme za Interfejsni uređaj
- Hardver Interfejsnog uređaja se sastoji iz standardnih komponenti, čije su tehničke karakteristike usaglašene sa evropskim standardima
- Sve komponente su komercijalno dobavljive na domaćem tržištu, olakšana nabavka rezervnih delova i održavanje

Interfejsni uređaj

- Izrada Interfejsnog uređaja se sastoji u rasporedu i montaži standardnih komponenti u orman Interfejs uređaja, kao i u njihovom povezivanju (ožičenju) u skladu sa Montažnim projektom koji se izrađuje za svaku pojedinačnu aplikaciju
- Montažni projekat je standardizovan, izrađuje se za istu arhitekturu uređaja i za tipizirane elemente, čiji se broj i raspored menja u zavisnosti od kolosečne konfiguracije konkretne aplikacije
- Softver interfejsnog uređaja je baziran na standardnom softverskom paketu Simatic S7 (Siemens) koji je standardizovan za industrijsku primenu.

Softver Interfejsnog uređaja

- Sistemski softver SIMATIC S7 (Siemens).
- Sistemski softver za komunikaciju sa WinCC SCADA sistemom Operterske konzle
- Aplikativni opšti softver za prikupljanje ulaznih podataka od uređaja koji se nadzire, analizu primljenih signala, svrstavanje po tipovima elemenata i prosleđenje Operaterskoj konzoli u cilju prikaza na ekranu, davanja zvučnih signala i memorisanja
- Aplikativni opšti softver za prihvat komandi od strane Operaterske konzole, sortiranje i obradu prema tipu upravljanog elementa i aktiviranje odgovarajućih minijaturnih relea komandnog interfejsa u cilju upravljanja

Softver Interfejsnog uređaja

- …
- Aplikativni softver za konfigurisanje konkretne aplikacije koji podrazumeva određivanje broja elemenata i redosleda njihovog povezivanja na Interfejsni sistem od strane upravljanog uređaja, kao i način adresiranja u cilju njihovog prikaza na ekranu Operaterske konzole.
- Opšti aplikativni softver se istestira i prihvati od strane korisnika za prvu aplikaciju i kao takav, po pravilu, važi za sve ostale aplikacije na teritoriji tog korisnika. Ovaj softver se bazira tipiziranom rasporedu signala za svaku vrstu elementa i praktično omogućava da se svi signali istog tipa elementa na isti način prenose kroz interfejsni uređaj

Softver Interfejsnog uređaja

- …
- priključenjem elementa na Interfejsni uređaj jednoznačno se definiše i njegova veza sa odgovarajućim simbolom na ekranu Operaterske konzole. Testiranje EMMI za konkretnu aplikaciju se svodi na proveru redosleda povezivanja signala elemenata sa Interfejsnim uređajem, odnosno korespodenciju između elementa priključenog na Intrefejsni uređaj sa elementom na ekranu Operaterske konzole koji odgovara tom setu ulaza, odnosno izlaza
- Omogućen visok stepen standardizacije, značajno je smanjen obim radova na projektovanju i testiranju konkretnih aplikacija

Softver i interfejsni uređaj

- …
- Granicu između Interfejsnog uređaja i uređaja kojim se upravlja i nad kojim se vrši nadzor je postojeći završni razdelnik sa klemama upravljanog uređaja, koji služi za povezivanje upravljanog uređaja sa konvencionalnim komandno-indikacionim pultom
- Završni razdelnik sa klemama upravljanog sistema se odgovarajućim kablovima ili individualnim provodnicima povezuje sa rastavljivim klemama za prihvat indikacija i sa minijaturnim releima za ostvarivanje komandnog Interfejsnog uređaja EMMI
- Detaljan plan povezivanja definiše se u Montažnom projektu za svaku konkretnu primenu EMMI uređaja

EŠK - elektronski šinski kontakt

- EŠK – Elektronski Šinski Kontakt, predstavlja elektronski uređaj koji omogućava punktualnu detekciju šinskih vozila na delu pruge koji se kontroliše
- EŠK se sastoji se iz dva posebna elektronska funkcionalna modula

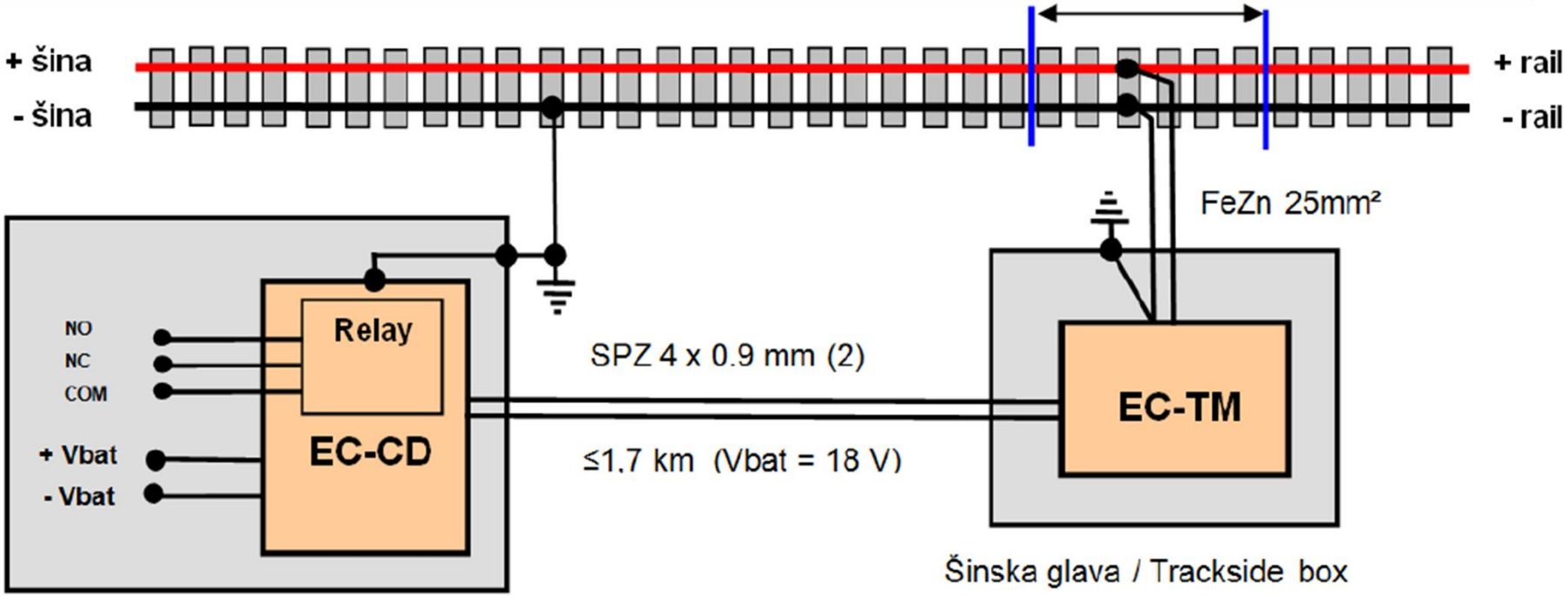
1. Šinski modul (ECTM), koji se smešta u šinsku glavu pored šina
2. Detektor (EC-CD), koji se smešta u kućicu unutrašnjeg uređaja

- Šinski modul se izrađuje u dva osnovna tipa koja se međusobno razlikuju po nominalnoj radnoj frekvenciji:
  Tip 1 – 40 kHz i Tip 2 – 58 kHz,
  ili 5 kHz do 100 kHz.

EŠK - elektronski šinski kontakt

- Prvenstveno je namenjen za zamenu MŠK – Magnetnog šinskog kontakta, koji se koristi u relejnim signalno-sigurnosnom sistemima, SpDrS-XX (Siemens)
- Koristiti se kao 80-to metarski kontakt, uključni kontakt za putne prelaze, isključni kontakt za putne prelaze, kao i za sve ostale primene kod kojih se zahteva punktualna detekcija železničkog vozila, odnosno detekcija na kratkom rastojanju (naprimer, tonsko kolo)

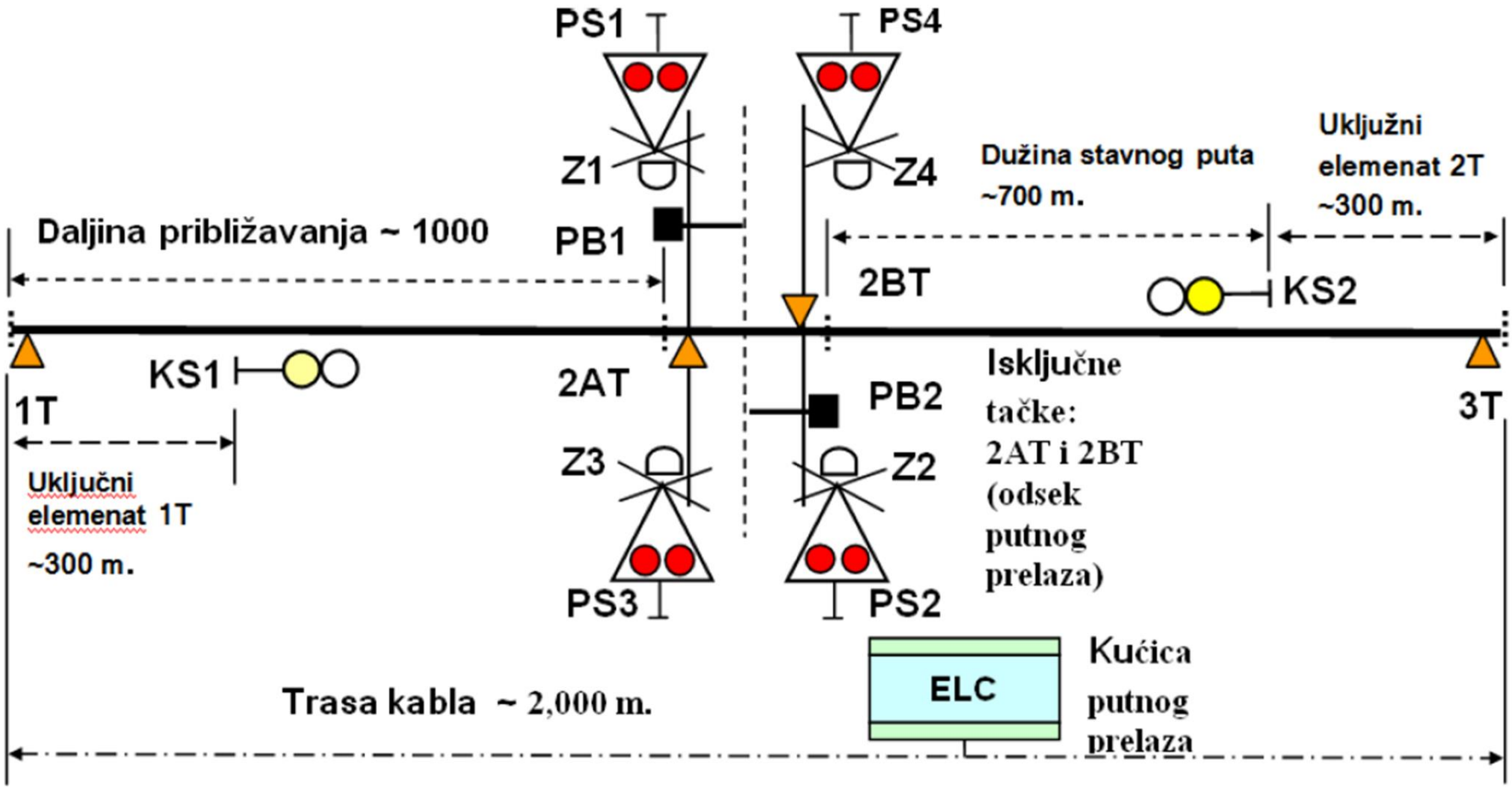
EŠK-a sa prikazom tipskog povezivanja i priključenja na šine



ELC – elektronski putni prelaz

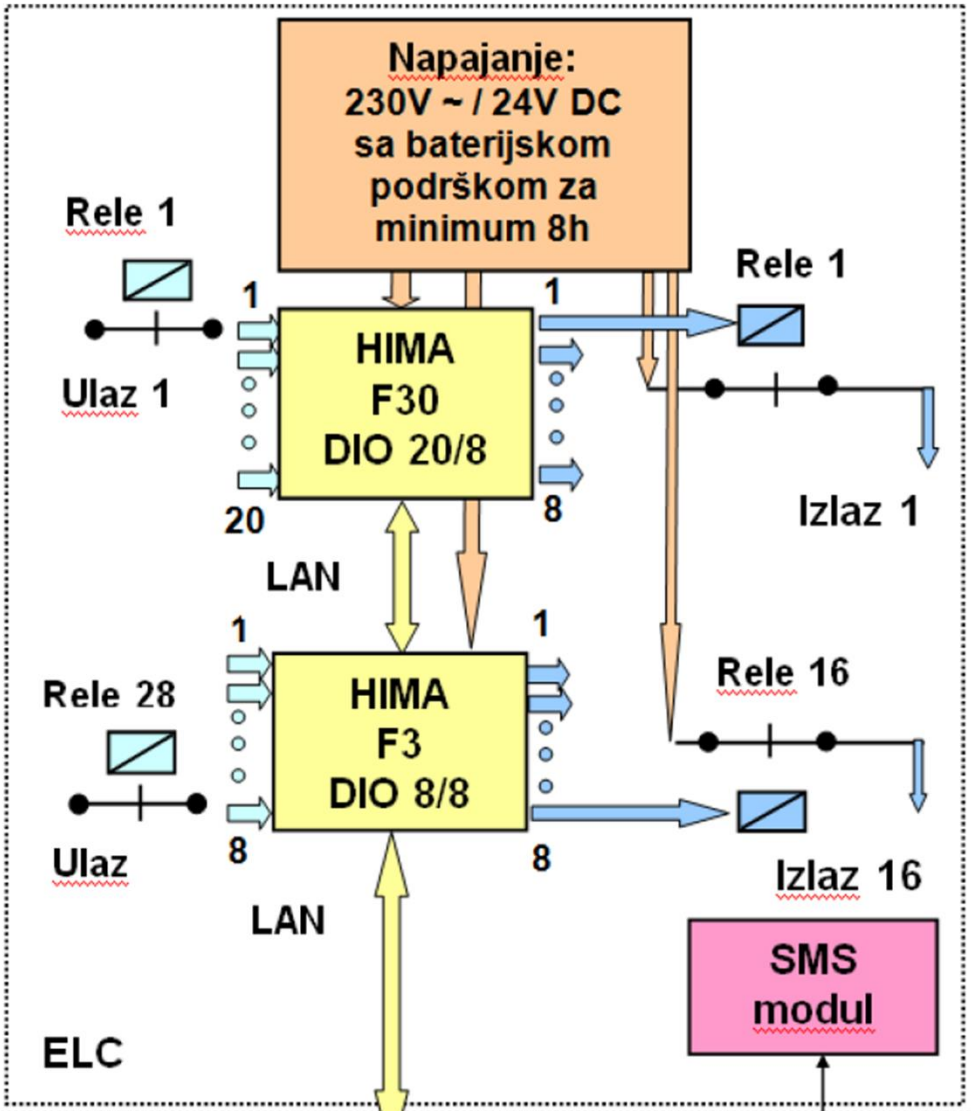
- ELC – Elektronski putni prelaz je računarski upravljački sistem najvećeg nivoa sigurnosti, koji je namenjen za obezbeđenje svih tipova putnih prelaza u niivou (na otvorenoj pruzi, pruzi sa automatskim pružnim blokom i u staničnom području)
- ELC je realizovan kao modularan i skalabilan sistem koji se može koristiti za različite kolosečne konfiguracije u različitim železničkim upravama
- ELC predstavlja ekonomičan sistem koji je veoma konkurentan kako računarskim tako i konvencionalnim relejnim sistemima, koja se koriste za obezbeđenje putnih prelaza

kolosečna konfiguracija putnog prelaza ELC



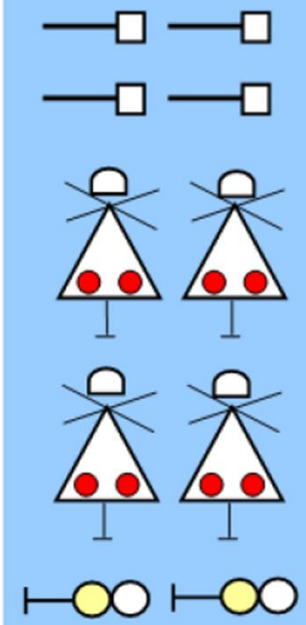
Relejni ULAZI:

- 1T, 2AT, 2BT, 3T
- Donji položaj polubranika
- Gornji položaj polubranika
- Polomljena motka
- Kontrola svetiljki
- Kontrola vlakana
- LOB
- Kontrola blinkera
- Isključenje kvara
- Isključenje smetnje



Relejni IZLAZI:

- Blinkovani signali
- Indikacije
- Interfejsi

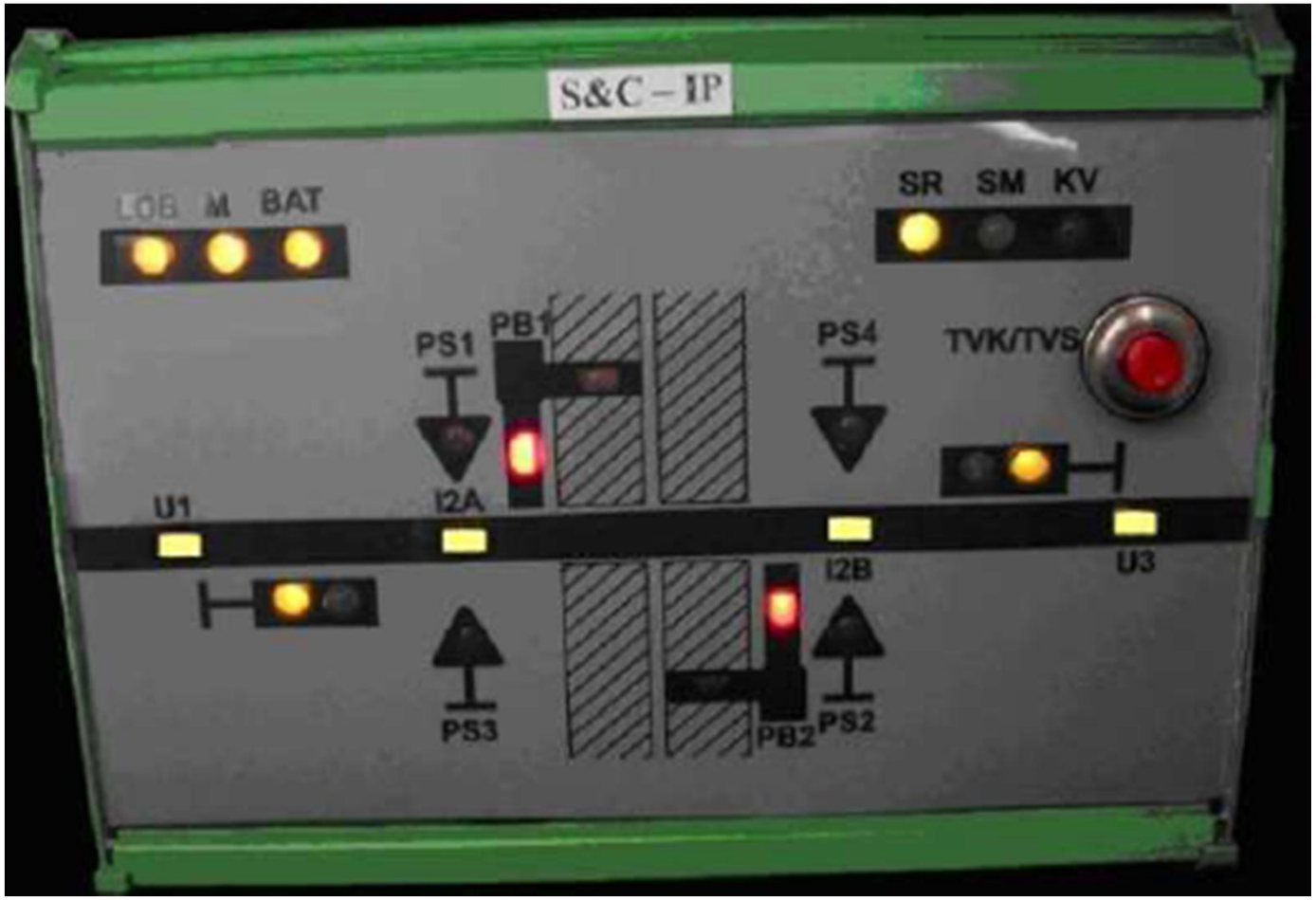


Dijagnostički sistem za ELC

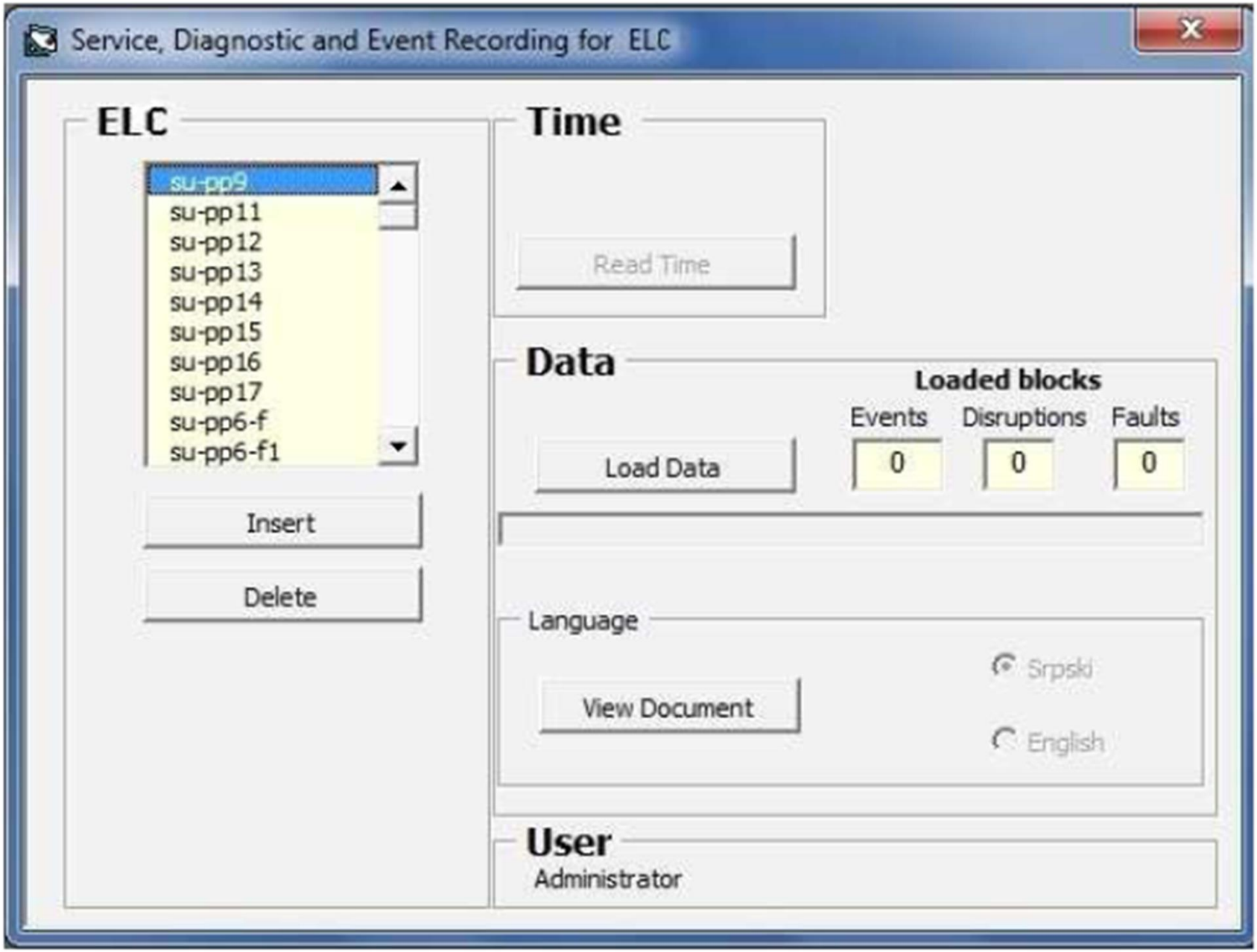
SD & ER PC računar

Mobilni telefoni: održavanje, otpravnik, dispečer

Pano indikacija (konvencionalan – tipski, ili na bazi PC-a - opciono) može se ugraditi lokalno i/ili na udaljenom mestu. Iindikacije se tipski obezbeđuju preko kontakata minijaturnih sigurnosnih relea.



glavni prozor SD&ER softvera za ELC



SCADA System SIMATIC WinCC, The scalable and open SCADA system for maximum plant transparency and productivity

SCADA System SIMATIC WinCC

SCADA System SIMATIC WinCC

Efficiency

As the key to greater productivity, SIMATIC SCADA systems combine efficient engineering with powerful archiving and maximum data security. They form a solid foundation for efficient operational management and intelligent production analyses.

> More about Efficiency in Engineering

> More about Efficiency in Runtime

Scalabilitiy

We offer stationary or mobile solutions to meet growing demands – with guaranteed security. To accomplish this, we draw upon more than 15 years of SCADA expertise in all industries. Whatever your requirements are, no matter how large or small – we have the right answer.

SCADA System SIMATIC WinCC

Innovation

With mobile SCADA solutions, you can learn more anywhere and at any time – even with existing tablet or smartphone hardware.

The use of multi-touch gestures in an industrial environment opens.

Openness

Special requests can be easily implemented thanks to the support of international standards as well as system-specific script and programming interfaces.

SCADA System SIMATIC WinCC

WinCC Specialists are at your service as qualified solution providers worldwide. These certified and centrally audited partners realize your individual SCADA project, also with distributed client-server architectures involving redundancy or with applications involving energy data management systems.

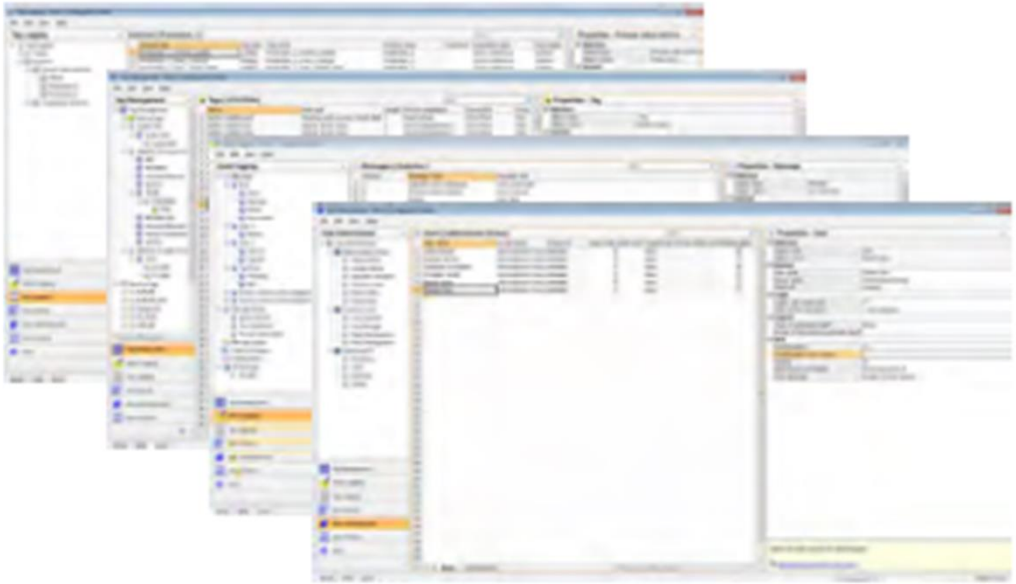
> More information on Partner & Support

Intelligent tools for efficient engineering

Due to the permanently increasing level of automation and the related complexity of the plants the cost – and time – pressure is increasing because of the international competition. One response to this pressure has to be efficient engineering on the SCADA layer.

SIMATIC WinCC supports short Time-to-Market when building new plants and achieves a minimum of down-time when doing plant modifications because of its efficient engineering tools.

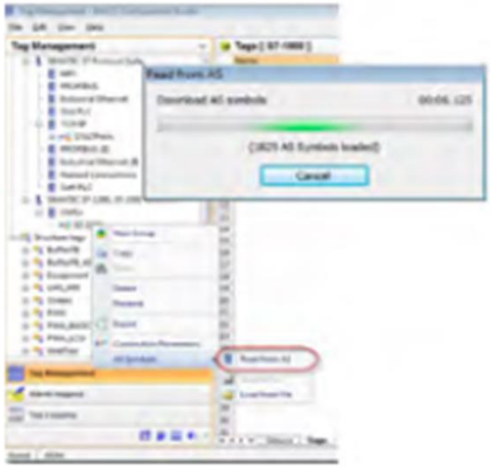
Efficient processing of mass data



By the integration of stand-alone editors for alarm logging, tag logging, text library, user administrator, user archive and the acoustic alarm into the Configuration Studio the mass data engineering got again much more efficient.

It is possible to open each single editor separately which makes it very easy to exchange data between these editors. Of course the usual operating functionality of Excel is still valid. When doing project work in a team it is of course possible for multiple project engineers to open the single editors in parallel.

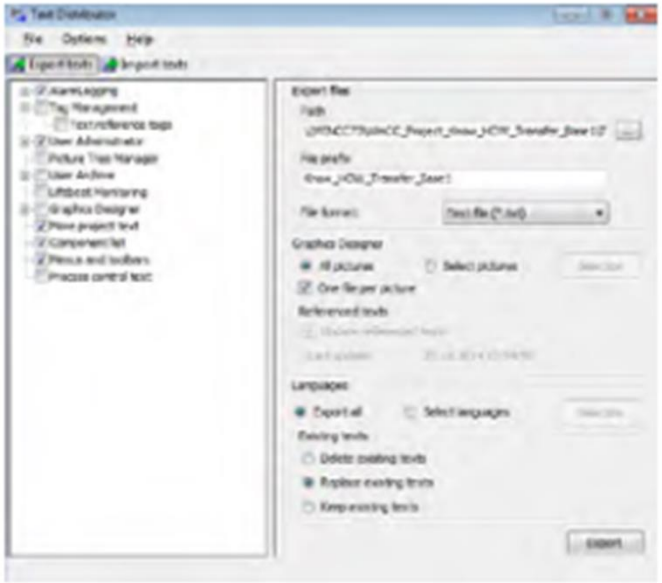
Tags and the optimized communication to the S7 PLCs



Resulting from the integration into the SIMATIC Manager of the S7-300/400 PLCs it is possible to take and align all variable connections as symbols and all AS messages automatically. In combination with the actual S7-1200 and S7-1500 PLCs the transfer of the AS Symbols out of a connected PLC into the WinCC project is much faster. This reduces the time for the parameterizing of the communication dramatically and that's why the risk of potential faults decreases. It is also possible to automatically take over the AS messages of a S7-1500 into WinCC.

Support of native drivers for PROFIBUS FMS and PROFIBUS DP, Allen Bradley, Modicon and Mitsubishi. With the help of the integrated OPC-client it is also possible to connect to any 3rd-party system.

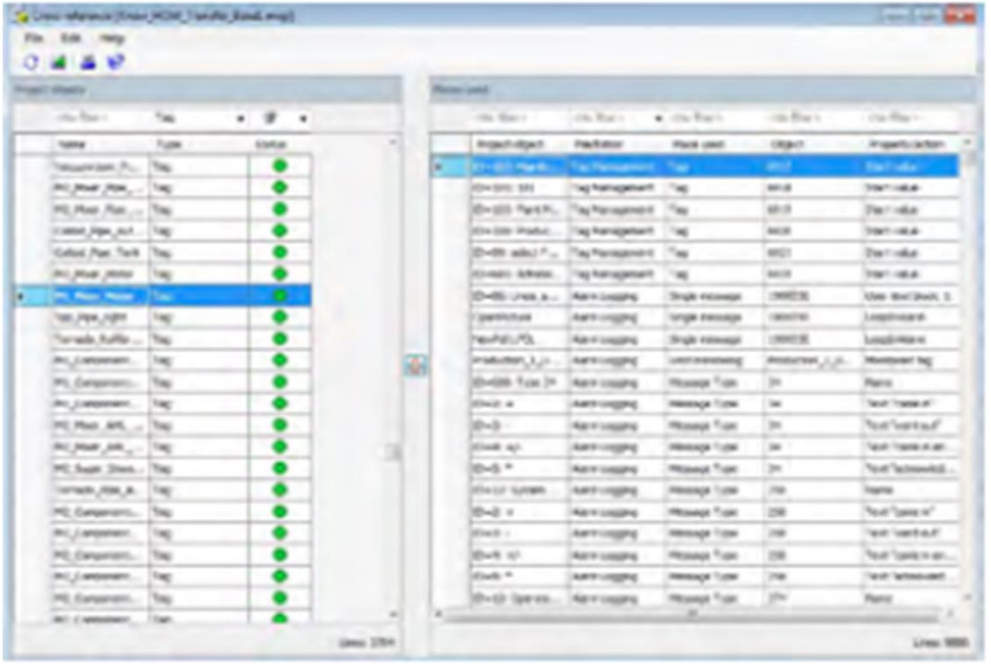
Ready for worldwide applications



The administration and implementation of the messages for the destination countries is clearly arranged and therefore efficient to manage. The use of UNICODE makes the implementation of global applications very easy. By the utilization of the TextLibrary it is possible to export all (or subsets of the) texts used in WinCC. Vice versa it is of course possible to import all these texts after they are translated to any language.

The appropriate operator language is independent regardless of the language of the installed operating system. Every operator can individually choose the language of the displayed texts. For example it is possible to display messages simultaneously using different languages when working in international teams.

Efficient diagnosis in the engineering using the cross-reference list



Resulting from the integration of the cross-reference editor it is on one hand possible to locate very fast the places where a special variable is used for example in case of troubleshooting. On the other hand it is possible to release non used variables to align the license costs optimal to the actual project.

SCADA System SIMATIC WinCC

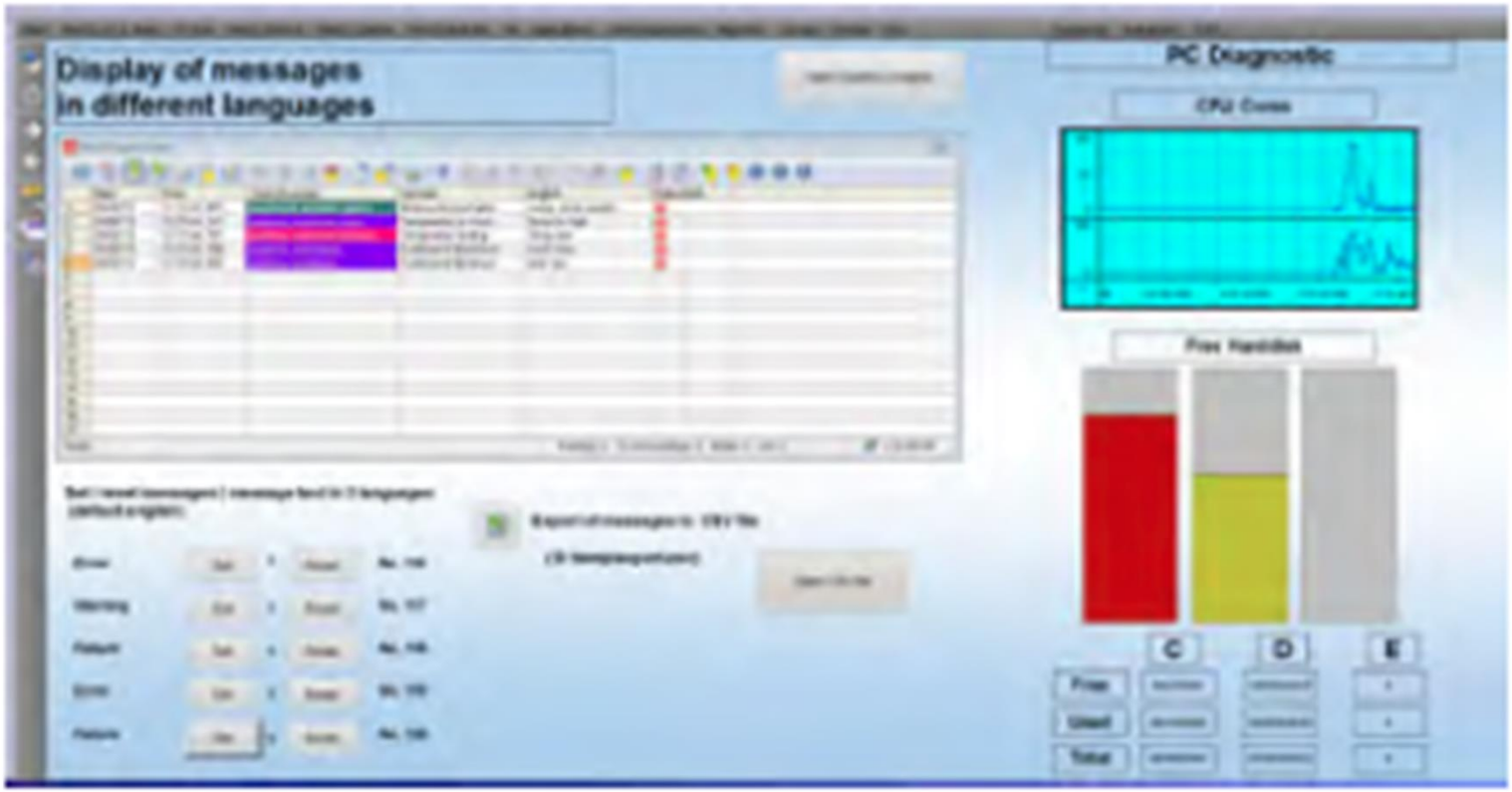
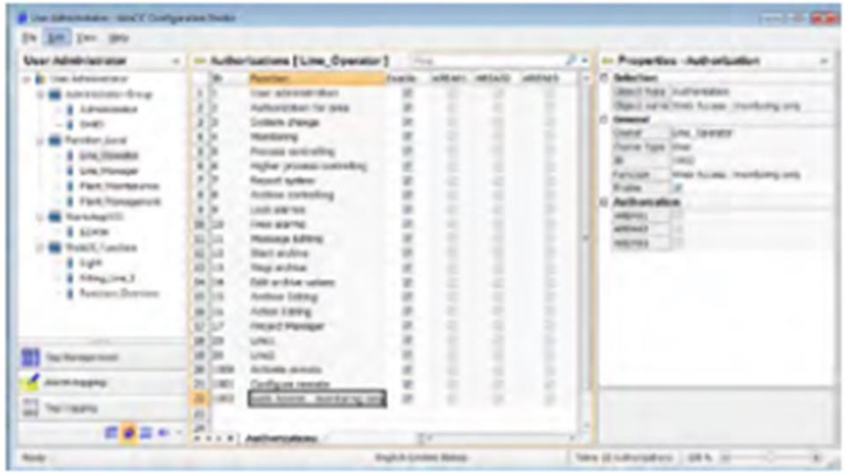
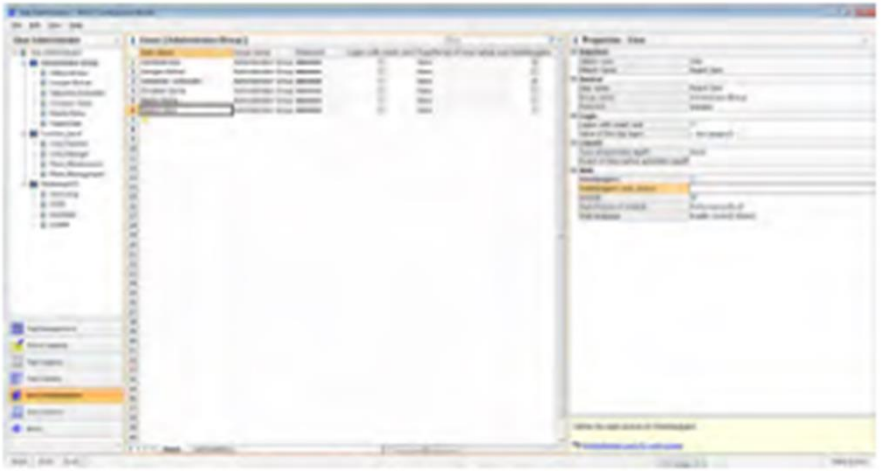


Fig.: Messages in different languages

Integrated user administration including SIMATIC Logon





Using the WinCC User Administration you consistently can assign and check the access rights of the users regardless if it is a local access or if the access is web based. For up to 128 user groups with up to 128 single users each the access rights for WinCC functions can be administered. In total it is possible to assign 999 different permissions.

The user management with SIMATIC Logon which is a part of the basic system is integrated into the security system as well as into the user administration of Windows. Therefore it also covers the extended FDA safety requirements.

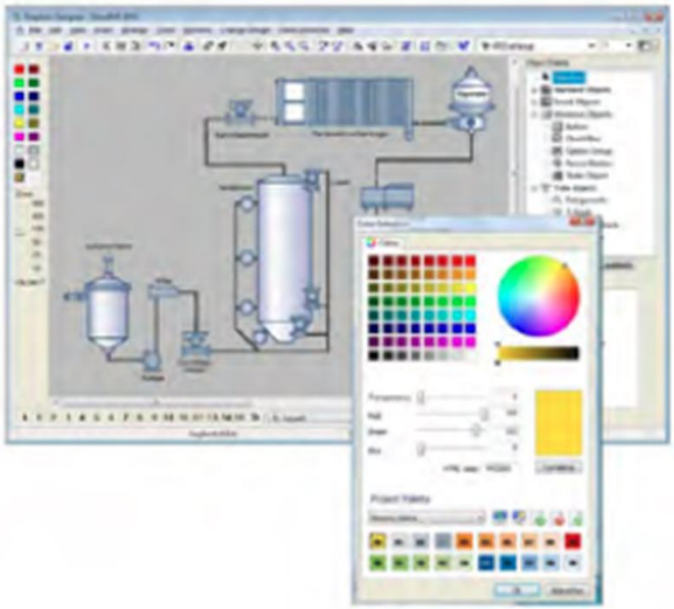
SIMATIC Logon supports a plant wide user management and protects against unauthorized data manipulations.

Using a configuration tool there are several setting options possible:

- Language- and environment settings (Domain / Workgroup)
- Login device: Keyboard/ Chip card Reader / other devices

That's why it is possible for users to login and to logout using their native language via keyboard. But it is also possible to login using a chip card where name, domain and password is saved in encrypted form.

Efficient graphics system



The modern graphics system of WinCC supports the work of a project engineer as well by the use of standardized preconfigured picture components as when creating user definable picture components and faceplates. The use of these components enables the project developer to create his own at any time reusable company specific project standards which results in a much shorter Time-to- Market for the project.

Global settings which can be done in the graphics system enable the project engineers to implement once defined company standards in a WinCC project and to apply these timesaving to all picture objects which have the same attributes. It is also possible to export these settings and to import them again to any other WinCC project.

On one hand this possibility supports the in-house standardizing in an efficient way and on the other hand it provides the opportunity that several project engineers can work on huge applications simultaneously in accordance with the company standards. When creating images it is of course possible to do Direct2D (soft shadows) and to integrate SVG – files.

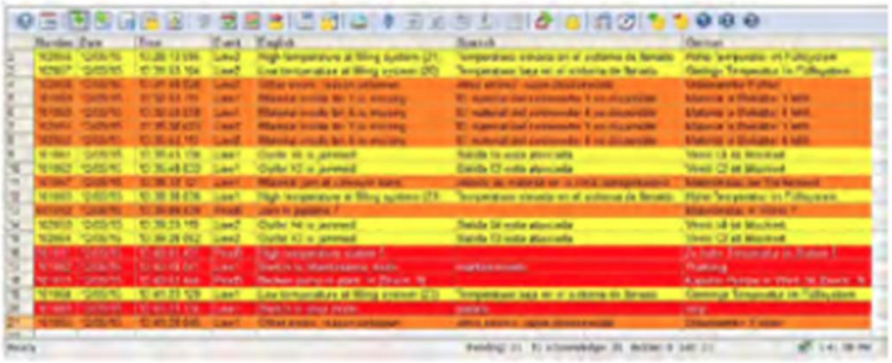
Instead of using discrete colors the color palette is working with color indexes. This enables the user to realize customer-specific designs in a very simple way. If for example a customer wants to change the color from red to orange he only has to assign the color orange to the index for the color red. While changing this, the color of all red objects having the same index changes to orange.

Efficient operations management – the WinCC Runtime functionality

Manufacturing processes are becoming more and more complex against a background of ever increasing quality requirements coupled with fast product changes and frequent modifications. To ensure the highest possible productivity at the same time, it has to be possible to make prompt, target-oriented decisions regarding process optimization at all levels of a company. This requires an integrated flow of information across all operating levels and locations.

SIMATIC WinCC provides you with high transparency and the basis for process optimization. The intelligent use of information improves the processes in the company for a fast return on investment. This reduces costs, avoids waste, improves the utilization of production facilities and ultimately guarantees better efficiency and cost effectiveness for the company.

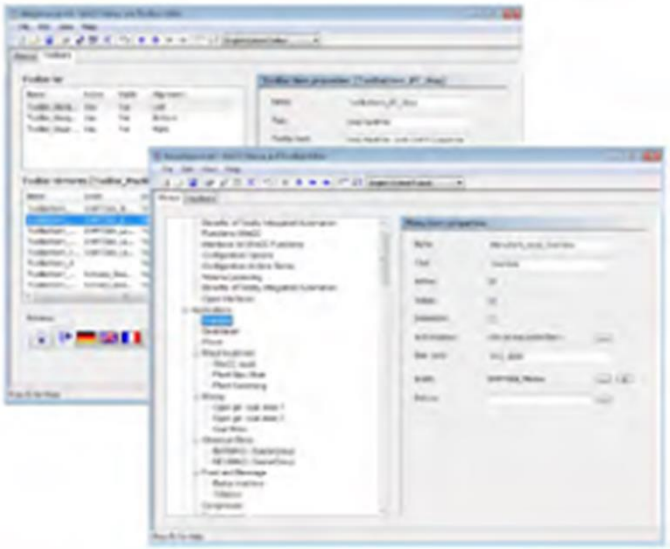
Ready for worldwide use



WinCC allows you to implement display languages in a simple and cost-effective manner. Thanks to UNICODE support, the display language can be changed at any time during operation. This is independent of the language set in the operating system. This means that it is possible to display multiple languages parallel to each other, such as message texts in European and Asian languages.

This makes commissioning considerably easier in international teams.

Integrated Monitoring Client



The WinCC/WebUX option is supplied with the WinCC system and differentiates between Monitoring and Operate clients. With the installation of the basic system as WinCC/WebUX server, ONE Monitor client is available at no additional cost.

This allows you to display your plant information using smartphones, tablets, PCs and other mobile devices that support a HTML 5 capable browser. No installation is required on the client side in order, for example, to display important product data for quality assurance or key production figures for the management.

Additional Monitoring and Operate clients for remote operation can be added at any time by means of appropriate licensing.

Applying modular design makes it simple to create and to centrally manage custom specific faceplates. Changes are automatically applied to all points where the faceplate is utilized. For example efficient operation is possible by the use of application specific menus and toolbars. It is possible as usual in Windows to either fix them or to leave them movable.
The project engineers are able to adapt the Menus and Toolbars to their individual needs by using the integrated 'Menus and Toolbars Editor'. This makes configuring even more efficient.

Libraries and wizards accelerate make the setup of projects easier. Therefore they reduce the error rate dramatically.

High-performance data archiving

Historical process information is stored in WinCC process value archives. Process values and messages are archived in the integrated, high-performance MS SQL server database, and memory requirements are optimized through powerful, loss-free compression functions.

You can configure 512 archive tags in the WinCC basic system. In the final configuration, this archiving can be extended to up to 80,000 variables per server by using power packs. The frequency of the archiving (cyclic, event-driven) can be configured for each value and, if required, additional compression can be configured with the swinging door algorithm.

In addition to automatic archiving, with the corresponding authorization, it is possible to insert values manually into the archive or to change archive values.

This is required for laboratory values, for example, in some industries. For reasons of traceability, such values are marked as "manually changed" and the process documented by an operation message.

To reduce the amount of data for long-term archiving, data can be further compressed. For this purpose, the maximum, minimum or (weighted) mean, the total or the difference are calculated for configurable time periods (such as day, month, year) and stored in compressed archives.

In addition to the archiving on a WinCC server, central, optionally redundant long-term archiving can also be implemented using the SIMATIC Process Historian option.

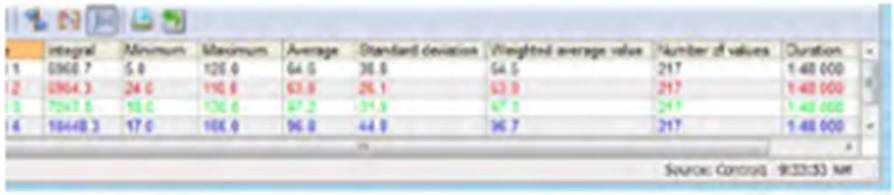
Efficient analysis of process values (Trends)

Efficient controls are integrated into WinCC process pictures for the display of current or historical data. Process values can be displayed as a table or analyzed using a trend display.

The display is either predefined or can be adjusted individually by the operator, if authorized. Numerous means of representation guarantee the best possible overview.

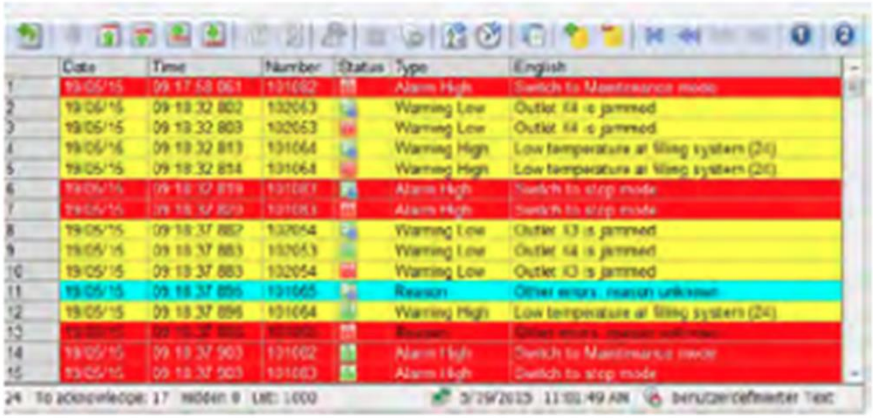
The freely configurable toolbar functions also provide the option of integrating project-specific functions.

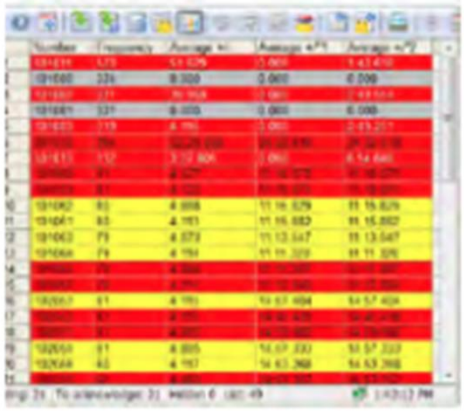
f(x) trends, e.g. pressure/temperature, can also be displayed in addition to the time- and value-based representation.



In combination with the Ruler Controls, there is also the option of performing statistical calculations online without the need for programming. The relevant statistics – maximum and minimum value, average value, (weighted) mean, integral and total – are displayed without delay for a time range selected in the Trend Control.

Efficient analysis of messages





The messages are displayed on the screen via the freely configurable WinCC Alarm Control. Here, the display of the message information can be adapted precisely to the requirements of the operator. The settings made can be saved in user-specific or global templates.

WinCC Alarm Control for the display of current/historical messages based on the contents of the individual message blocks can be filtered, selected and sorted, for example chronologically, by priority or by fault location, in the display. The contents can then be exported directly as CSV file or printed out as report. A freely definable toolbar function also offers a maximum degree of flexibility. For examples, project-specific functions can be integrated. To maintain an overview when there is a large numbers of incoming messages, unimportant operating messages can be suppressed from the screen display via an alarm hiding function. The hidden messages are then archived in the background.

Numerous integrated statistics functions allow a comprehensive analysis of process states. The message hit list shows how long certain messages were pending on average and in total (message duration) and similarly the average and the total acknowledgment time. Of course, the messages can be filtered here by relevant events, message locations and time intervals. This indicates quickly where critical points and bottlenecks in the production are located. To sort the messages in the message display for an evaluation, you can simply select the column heading and the required sorting criterion (for example, "Frequency, descending").

Efficient Web-based reporting

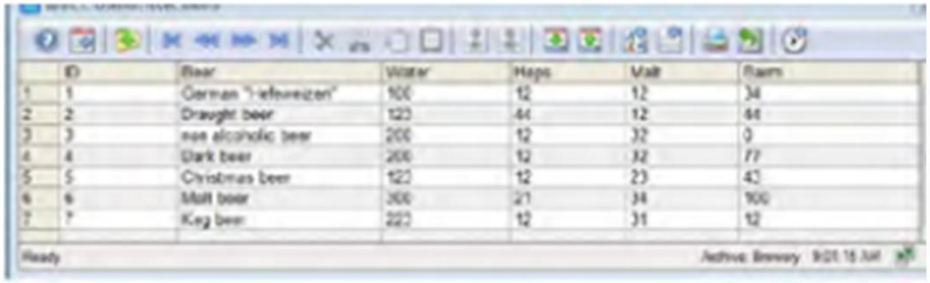
The SIMATIC Information Server can be used to create target-group-oriented reports and evaluations using historical WinCC and Process Historian data on the basis of Microsoft Reporting Services.

The reports created are available as Web-based dashboards or on tablets and can be automatically forwarded as emails. Through add-ins, transparent data access is also possible with MS Word, MS Excel or MS PowerPoint.

Efficient analyses of production processes

Weak points in production processes can be located and potential for optimization identified using the WinCC/Performance Monitor. Plant-specific key performance indicators (KPIs), such as overall equipment efficiency (OEE), are calculated and analyzed directly in the WinCC system. Conclusions about efficiency can be derived by comparing the time states of machinery or equipment in the Gantt chart. Key performance indicators such as day, shift or product can be compared directly with each other using Performance Control. Additional associations, such as quality per supplier, can be shown by linking context values. Target-group-oriented analysis reports can also be created Web-based with the SIMATIC Information Server.

Efficient management of data records (recipes)



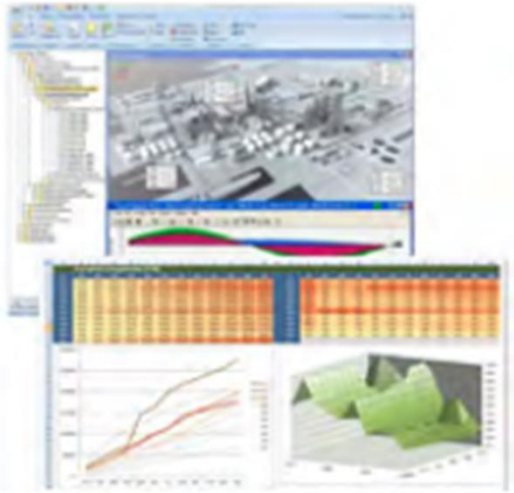
With WinCC/User Archives, related data, such as machine parameter assignments or production data, is grouped together in user archives. Such archives are characterized by a fixed data structure that is predefined during the configuration.

The individual parameters can be specified by the operator in runtime or directly exchanged with the automation partners (for example, a SIMATIC S7 controller). The data records can be further processed with other tools (such as MS Excel) via the import/export function.

Traceability in production processes

WinCC/Audit is used to provide end-to-end traceability of operator activities in operation and to record project changes during the engineering phase by means of project versioning and audit trails. All change data is recorded in a tamper-proof database - the so-called Audit Trail – and displayed using the Audit Viewer. The use of WinCC/Audit helps machine manufacturers and plant operators to simultaneously reduce the expenditure for fulfilling the requirements according to 21 CFF Part 11 and EU 178/2002.

Efficient energy data management



Increasing energy costs worldwide are becoming a big challenge for companies – and thus also a key factor in a company's success and in safeguarding jobs.
Rising energy prices and an increased public awareness of environmental issues mean that effective energy management is contributing more and more to the success of companies and thus to safeguarding the continued existence of companies.
Improved energy controlling and the reduction of power costs are among the main challenges faced by companies. Industrial companies continue to battle against a lack of transparency in their infrastructure processes, against changing cost centers, heterogeneous system environments and a costly power reporting.

Calendar- and event-based functionality

The two calendar options expand WinCC with calendar-based functionality. Joint calendar control is hereby used to plan times or validity periods.

Time-linked actions can be triggered with the WinCC/ Calendar Scheduler.

The WinCC/EventNotifier sends notifications depending on the occurrence of certain events in the WinCC message system.

Efficient process diagnostics

WinCC/ProAgent allows targeted process diagnostics for machinery and plants. Through the integration in the world of SIMATIC process diagnostics, ProAgent offers an integrated solution based on STEP 7, engineering tools and S7 controllers.

From single-user system to web-based solution for all technologies and industries

Scalability

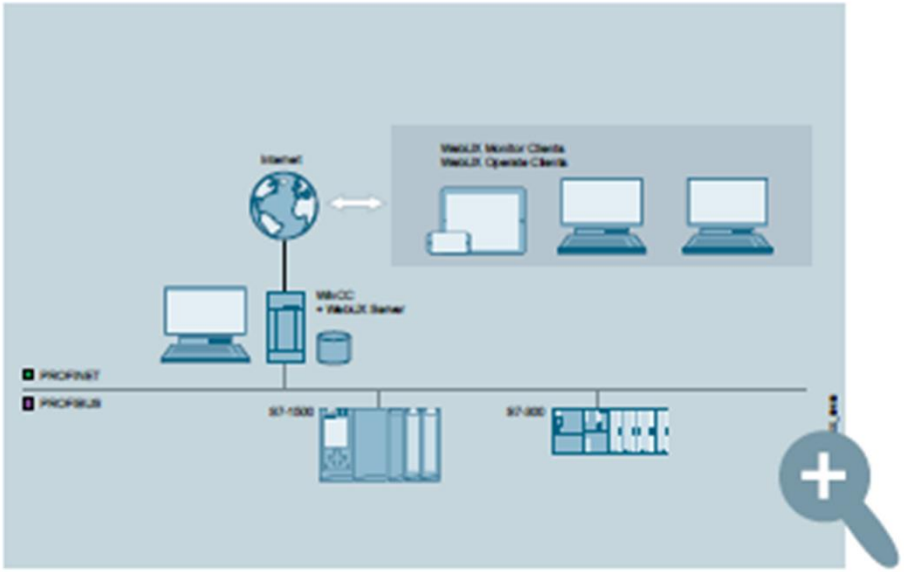
To be able to meet growing requirements, the visualization must be expandable at any time without causing technology incompatibilities or requiring completely new configurations.

Investment protection is a top priority.

SIMATIC WinCC provides the required integrated scalability, from the small single-user solution to the client/server solution and operator stations on the web. Redundancy solutions for highest availability and security can be built up as well.

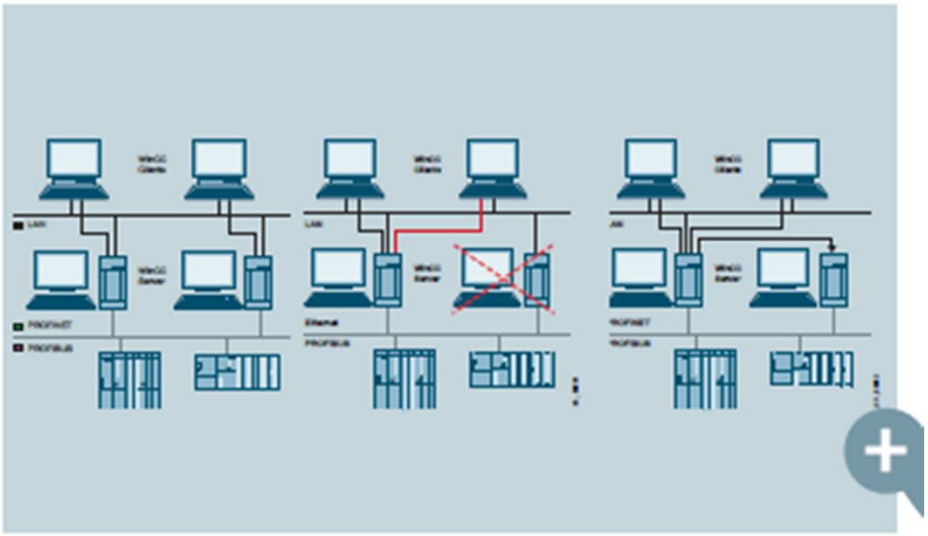
In addition to scalable configurations, WinCC options and AddOns offer customer-fit extensions for technological and industry specific solutions.

Client-server solutions



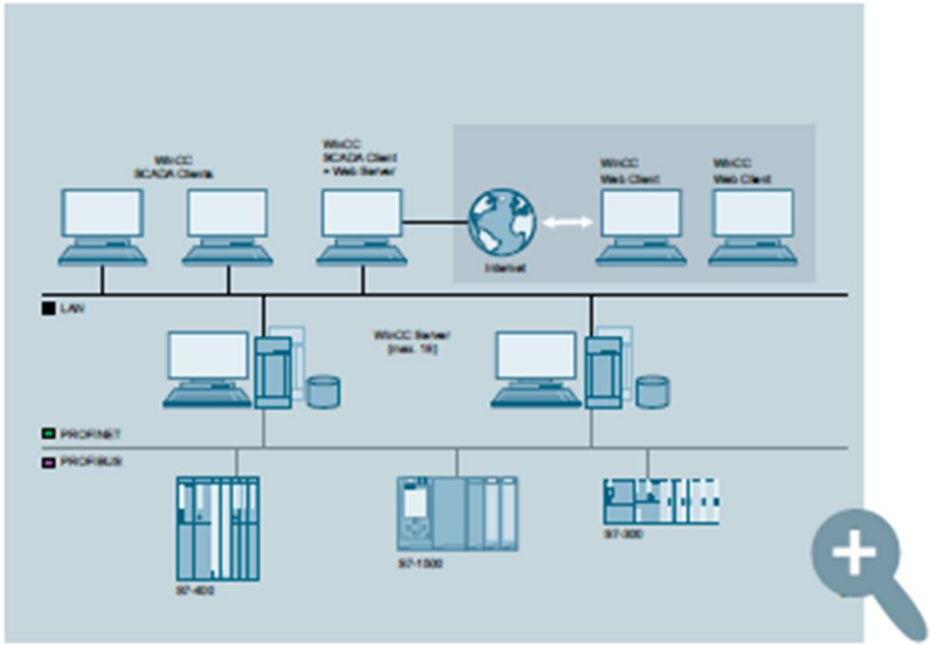
Depending on requirements, a WinCC single-user system can be expanded into a high-performance client/server system. In this way, several coordinated operator control and monitoring stations can be operated together with networked automation systems.

Redundant server solutions

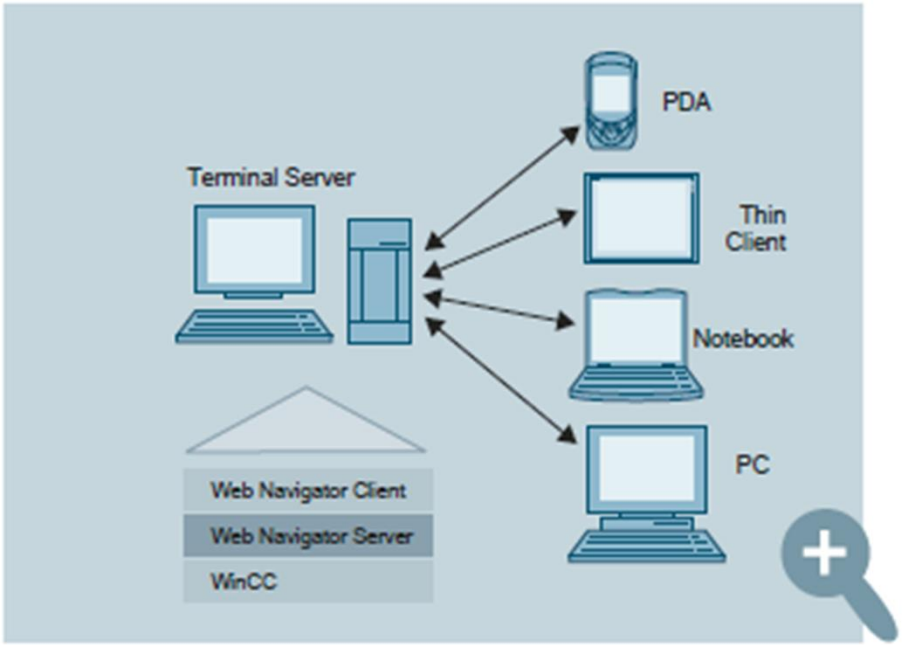


The WinCC/Redundancy option gives the user the opportunity to operate two linked WinCC server PCs in parallel, in order to monitor each other. On the failure of one of the servers, the second server assumes control of the entire system. When the failed server resumes operation, the contents of all message and process value archives are copied back to the restored server. The automatic switch to the redundancy partner within the framework of WinCC/Redundancy is not only carried out in the case of a failed server, but also in the case of a faulty process communication.

Web solutions



WinCC/WebUX offers flexible operator control and monitoring of plant processes via the Internet or an intranet, especially using mobile devices (tablet PCs or smartphones). All devices with HTML5-capable browser are supported.



WinCC/Web Navigator allows integrated operator control and monitoring of plants via the Internet or intranet without having to make changes to the WinCC project. Thin client solutions support the use of PCs and even rugged on-site devices and mobile PDAs.

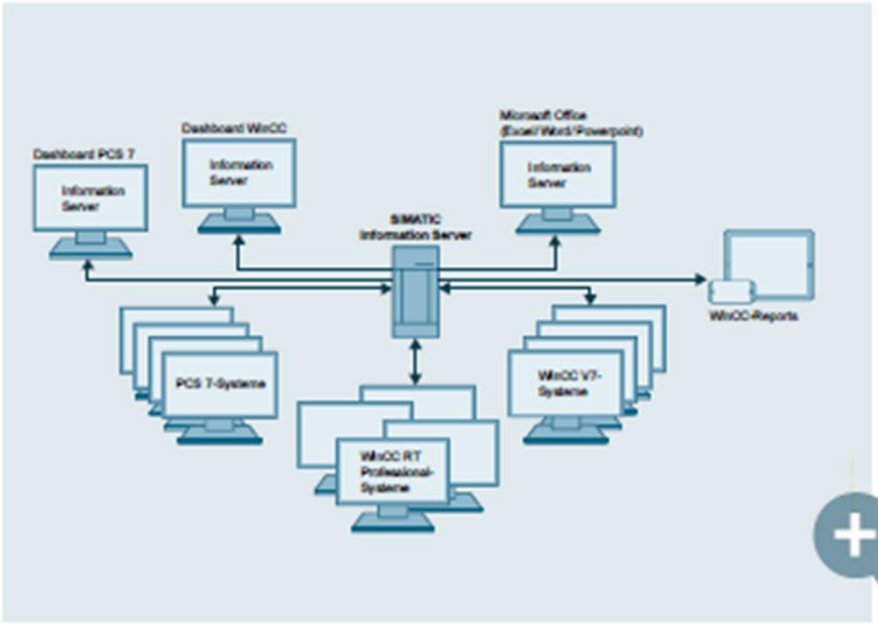
Web-based reporting

SIMATIC Information Server supports the creation of target group-oriented reports and analyses of historical WinCC data on the basis of Microsoft Reporting Services.

The reports created are always available on Web-based user interfaces and can be automatically distributed by email.

Transparent data access is allso provided by MS Word, MS Excel and MS Powerpoint.

Central archive server solution



SIMATIC Information Server supports the creation of target group-oriented reports and analyses of historical WinCC data on the basis of Microsoft Reporting Services. The reports created are always available on Web-based user interfaces and can be automatically distributed by email.

Transparent data access is also provided by MS Word, MS Excel and MS Powerpoint.

SIMATIC Process Historian provides high-performance long-term archiving functionality for perfect integration into the SCADA System WinCC: Process data and messages can be written to central archives in real-time mode, without additional engineering efforts.

The data in a central long term archive can be provided by several WinCC systems. You can use standard WinCC functions to analyze them or employ the SIMATIC Information Server for further processing.

SIMATIC Process Historian replaces the previous WinCC/ CentralArchiveServer option.

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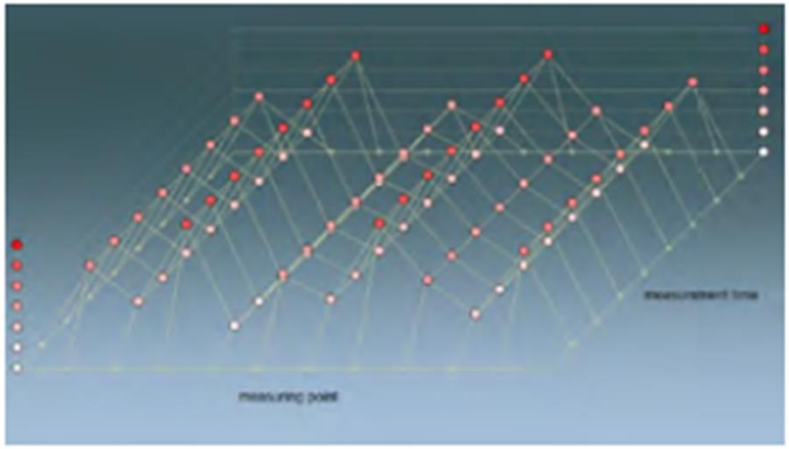
Individual adjustments



Extensions of the runtime system

Using WinCC it is possible to realize connections and dynamic sequences without programming only by the use of standard dialogues. To realize more complex functions it is possible at any time to write scripts using VB or ANSI-C. Examples for such scripts are the conversion of values or the automatic start of reports or of individual messages.

When programming VB scripts you are supported by the use of a proprietary, comfortable editor with debugging support.

When using scripts you have full access to the properties of all WinCC graphical objects and to the controls as well as to the object model of WinCC and the applications of other manufacturers.

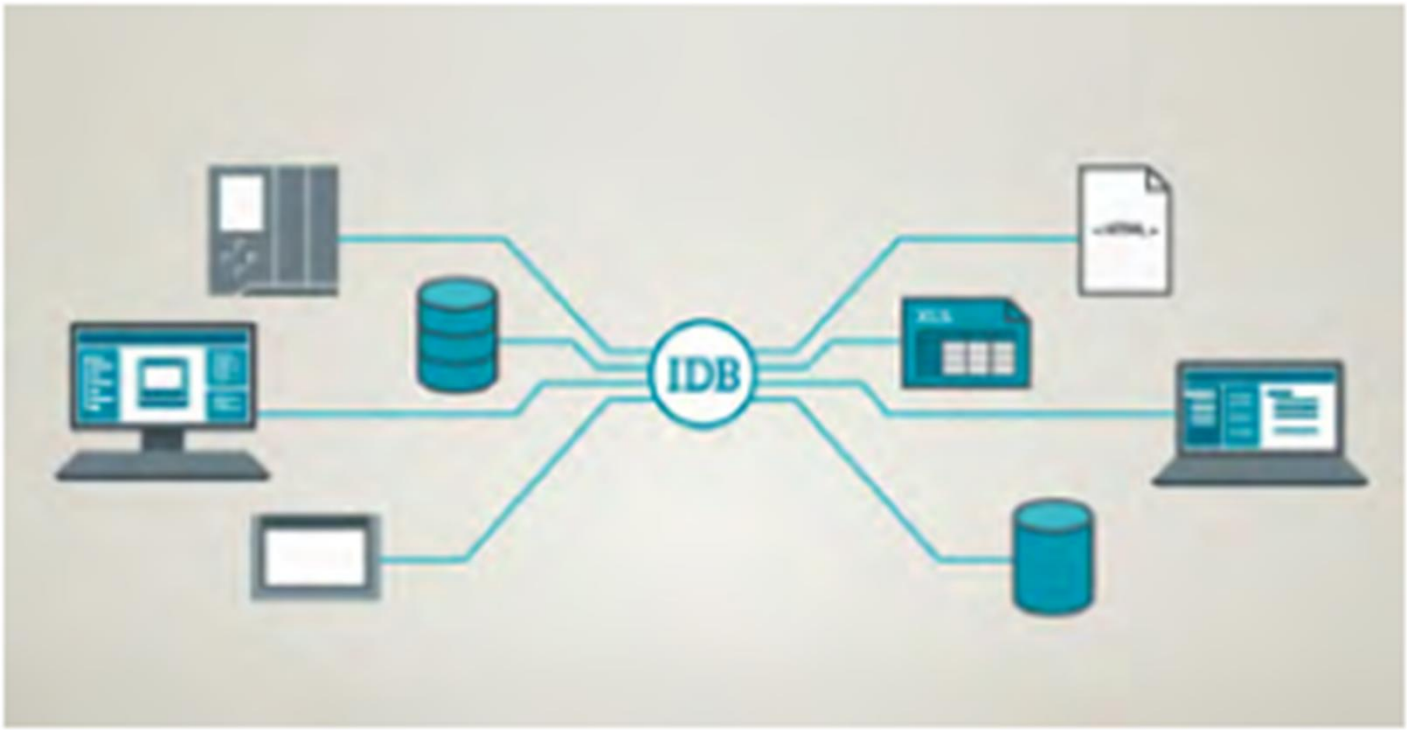
Using standards for easy integration

SIMATIC WinCC all times stands for a high level of openness and integration capability because it is consequently based on standard technologies and software tools.
Starting with its first version SIMATIC WinCC relies on the market leader in the operating system area. It doesn't matter if you use Microsoft Windows 2008/2012 Server, Windows 7 or Windows 8.1 you can track updates in the operating system. At last for you that offers additionally investment security.
The powerful SQL Server 2008 R2 SP1 (32 Bit) is integrated within the WinCC basis system. Using open interfaces helps you to automatize the engineering as well as the runtime and the access to archive data.

Enhancements of the engineering system

Furthermore the comfortable configuration tool Visual Basic for Applications (VBA) is integrated in the WinCC Graphics Designer. This is very helpful for writing custom specific enhancements including debugging. By using this functionality engineers and users can make full use of their Visual Basic-knowledge. VBA can be used to realize own standards, to handle recurring tasks, to create menu entries or configuration dialogues. This saves time and money.

Bidirectional information flow from shop-floor to top-floor



↗ Video “WinCC/IndustrialDataBridge”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Cookie Line - Overview

Profesor dr Miroslav Lutovac
mlutovac@viser.edu.rs