

Welcome

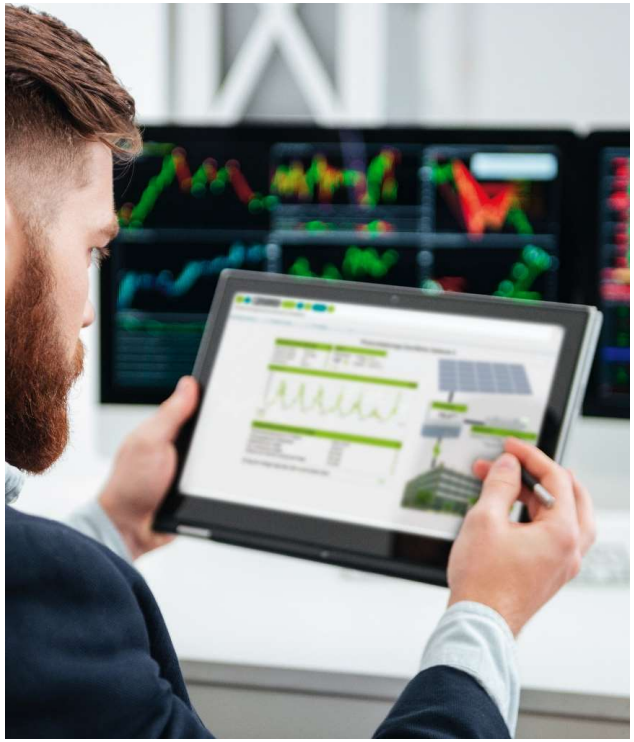
VISU+

SCADA Visualization

Antonio Gordillo
07 / JUL / 2021

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- What is SCADA ?
- Example of SCADA
- VISU+ SCADA functionallity
- Examples of VISU+ SCADA



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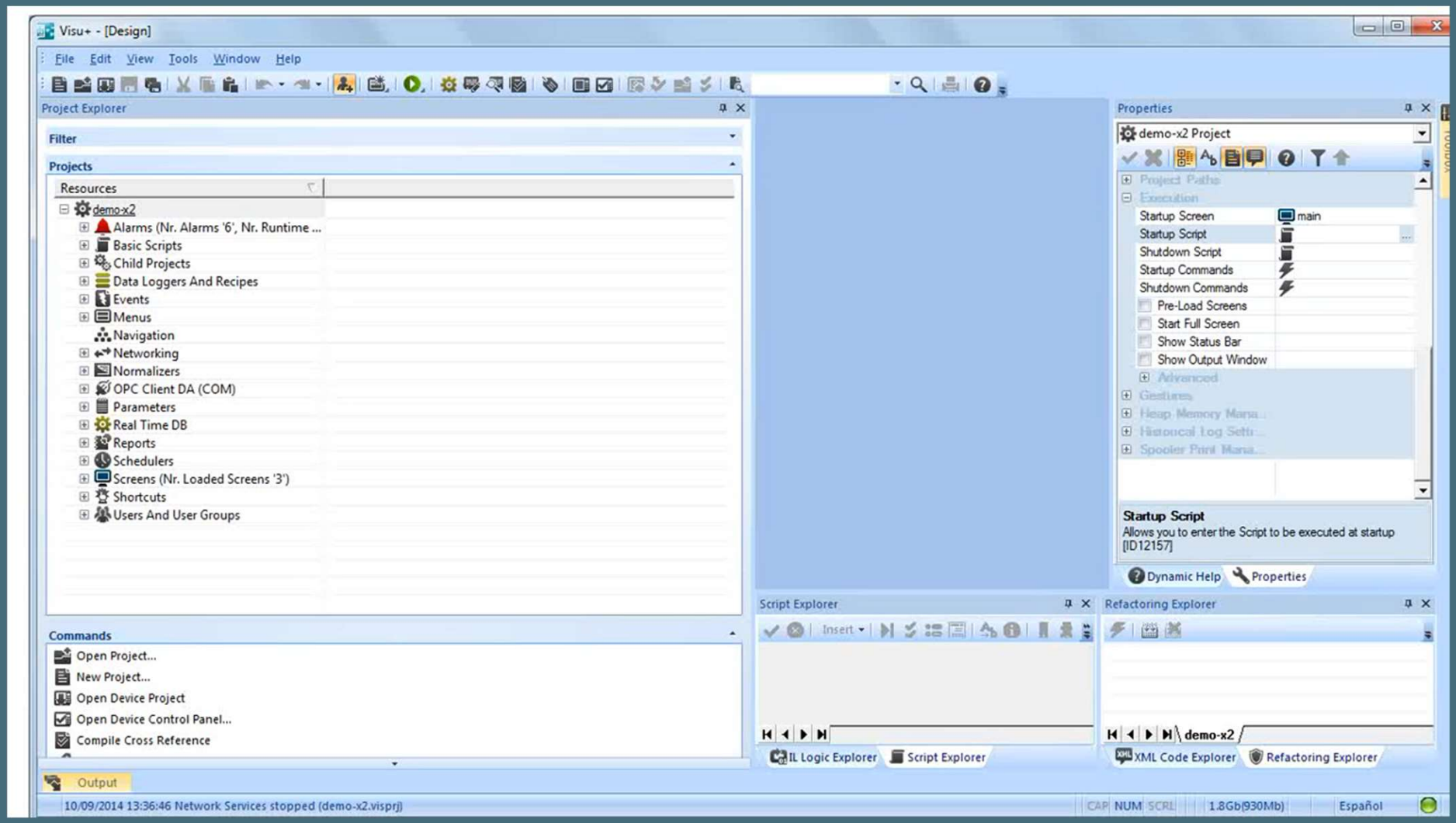
Qué es un sistema SCADA ? Control Supervisorio y Adquisición de Datos

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What is a SCADA ? Supervisory Control and Data Adquisition

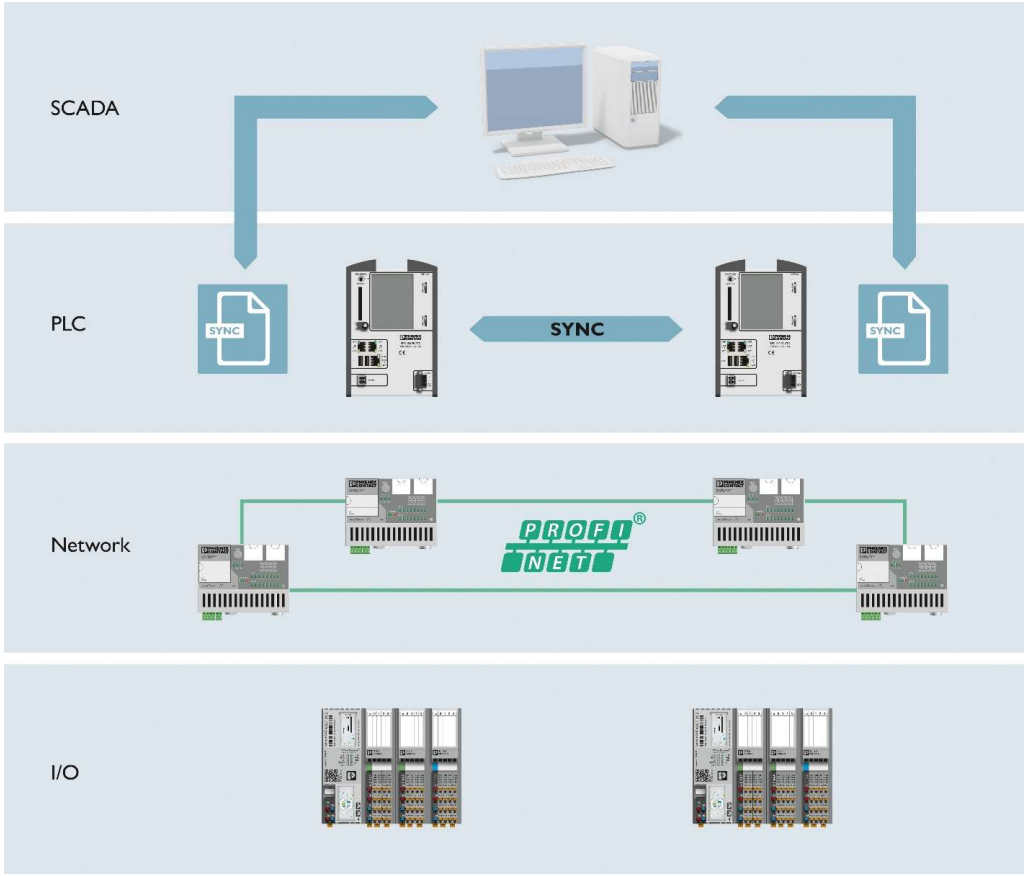
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VISU+ SCADA Functionallity

Phoenix Contact

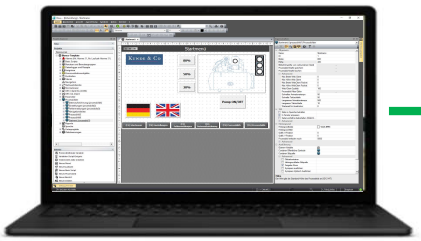
SCADA



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VISU+ Connectivity

Engineering tool



PC use:

- Creation of visualization projects
- PC for remote monitoring (via HTML5 client Browser)

Ethernet

Remote App





WEC7 / WinCE 6





Windows 10



Phoenix Contact
PLCnext, ILC, etc.

PLC
3rd Party

Siemens (TIA), Beckhoff, CODESYS, Wago, Rockwell, etc.

Device

Modbus TCP, IEC 61850, etc.

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VISU+ Development licenses

Engineering tool versions



Art.-Nr. 2988544 (VISU+ SCADA)



- Templates for WEC7 / WinCE 6 and X86 runtimes
- Complete SCADA / HMI functions
- 2h trial or full function engineering tool
- Over 80 communication drivers
- Remote monitoring via HTML5 on web browser

Art.-Nr. 2402774 (VISU+ Express)



- Templates for WEC7 / WinCE 6 and X86 Express runtimes
- **Features reduced to HMI functionality**
- Remote monitoring via HTML5 on web browser
- **Free of charge**

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VISU+ | Visualization software

VISU+ offers full SCADA* functionality

- Fully featured possibilities for operation, monitoring, alarm management, data logging and trending.
- Fully scalable process images for the use of the same design on different hardware targets and screen sizes
- Connectivity to PLCs and devices with OPC and two native communication drivers (MD = 16 drivers)
- Native drivers to all relevant PLCs in the Industrial environment like Siemens S7, or via Modbus-TCP and Modbus-RTU
- Multi-lingual engineering tool and HMI projects (incl. Support for Unicode and online language change)
- Access control with user management system
- Automatic data logging and recipe handling
- Scripting via VBA and IL

* SCADA (Supervisory Control and Data Acquisition)

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VISU+ | Visualization software

VISU+ USP

- Connectivity - over 80 different communication drivers available
  - Phoenix Contact, Siemens TIA, Beckhoff, Wago, CODESYS, Modbus TCP, EtherNet/IP, IEC 60870, IEC 61850, SNMP, MQTT, etc.
    - incl. variable and symbol import
    - Multi-Driver allows connecting to multiple devices from even different vendors (MD= 16 Drivers)
    - OPC UA Client and OPC UA Server
- Scalability from simple HMI to fully featured PC based SCADA applications with the same engineering tool
- Remote monitoring
  - PC Browser Client with HTML5 technology
  - Android and iPhone App

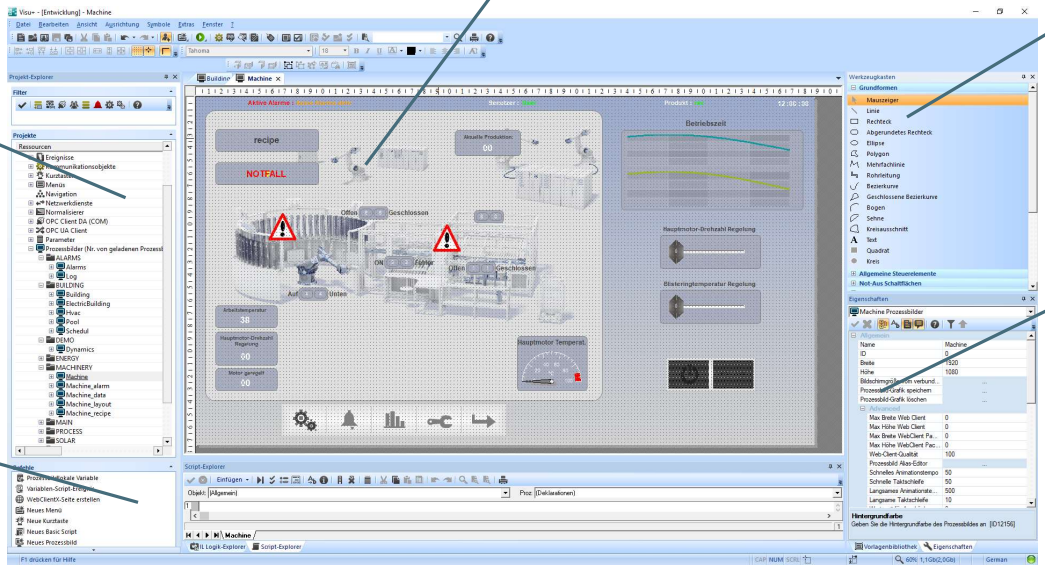
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VISU+ | Overview

Project explorer
Quick and easy access to all project ressources

Graphical editor for visualization screens

Symbol library
Multiple objects for various applications and industries



Properties explorer
Large configuration possibilities forobjects and ressources

XML editor
Access of to the XML object structure

Efficient work with a modern engineering tool

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VISU+ | Visualization software

VISU+ Specials

- Databases – SQL and mySQL
  - Incl. database connections to Database in Docker Images
- Reporting
  - Alarm Reporting, Embedded Print protocols and Protocol designer
- Networking
  - Transfer very easy variables in whole VISU+ Network (Device 2 Device)
- Sub-Projects (Father/Child)
  - For example for large projects
- Redundancy
  - Controller Backup
  - PC Redunancy

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VISU+ | SCADA Software for HMI & PC

Visualization hardware with Windows Embedded Compact 7, Win CE 6 operating system

Hardware with a standard Windows operating system



- Preinstalled runtime license (VISU+ 2 RT – HMI)

Touch Panel



Basic Touch panel



- Runtime configuration options in PC configurator
- Separately sold runtime (VISU+ 2 RT - SCADA)

BL2 series



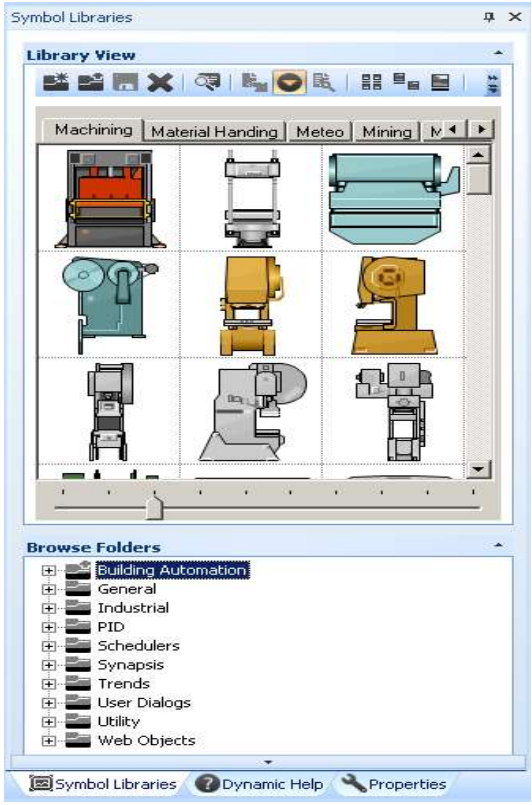
VMT

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VISU+ | Symbol library

Many objects

- Graphical library with objects that can be edited in appearance and functionality
  - Objects have 16 different animations
- SVG (Scalable Vector Graphics) based visualization pages
  - Support for WMF, EMF, BMP, GIF, TIF, JPG and PNG graphical elements
  - Symbols can be edited with VBA scripting
  - User can create their own graphical symbols



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Visu+ Typical fields of application

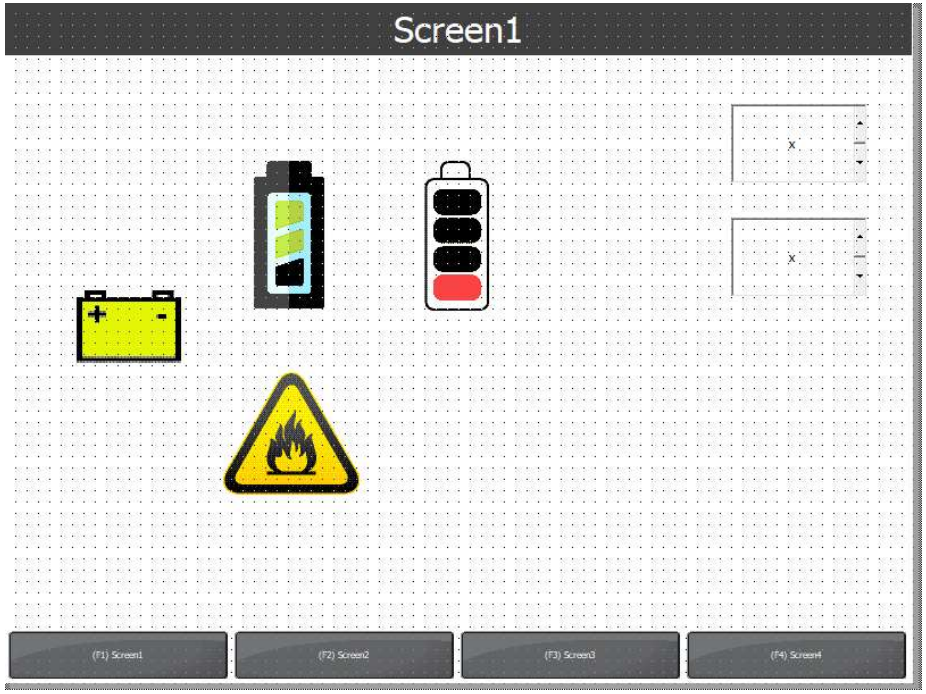
Graphs & Symbols

Preface

- The presentation shows you how to implement symbols from graphics in WMF format.

Technology used

- Visu+ *Express* 2.53, English
- Screen resolution 800 x 480



Screen with a few already imported WMF files and two EditBox Displays.

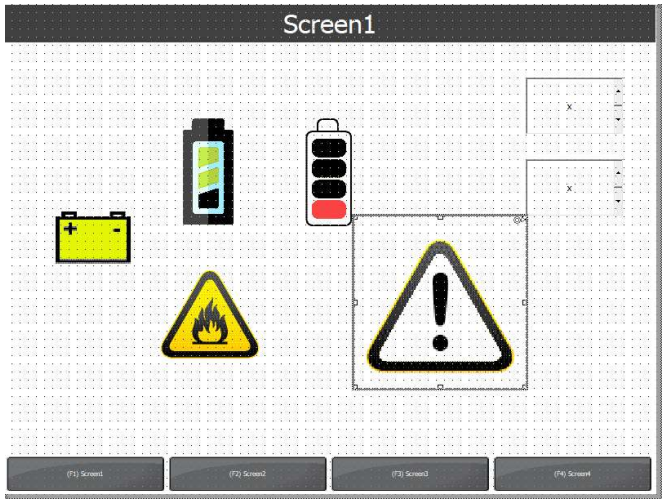
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Visu+ Graphs & Symbols

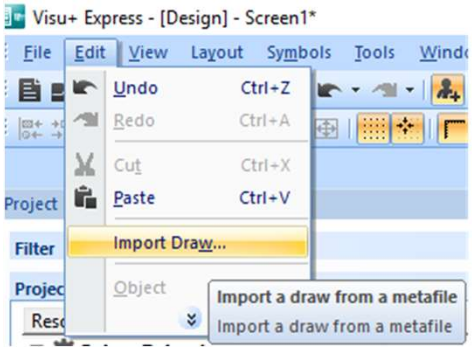
Step-by-step – Engineering

Import of additional graphics:

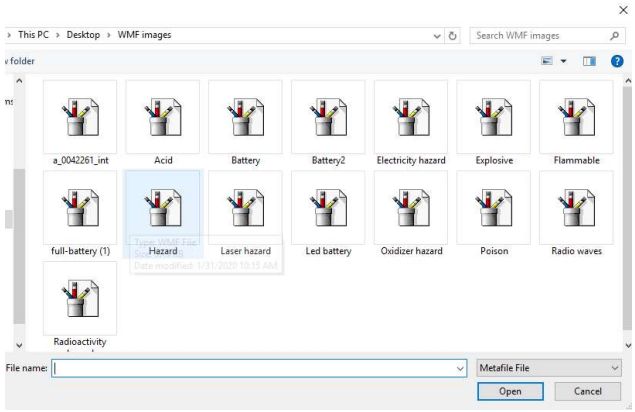
1. Edit → Import Draw
2. Choose EWF graphic (only single graph at a time)
3. Adjust size in percent



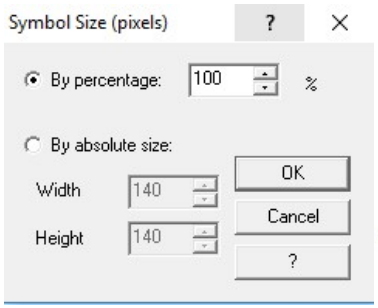
1



2



3



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Visu+ Graphs & Symbols

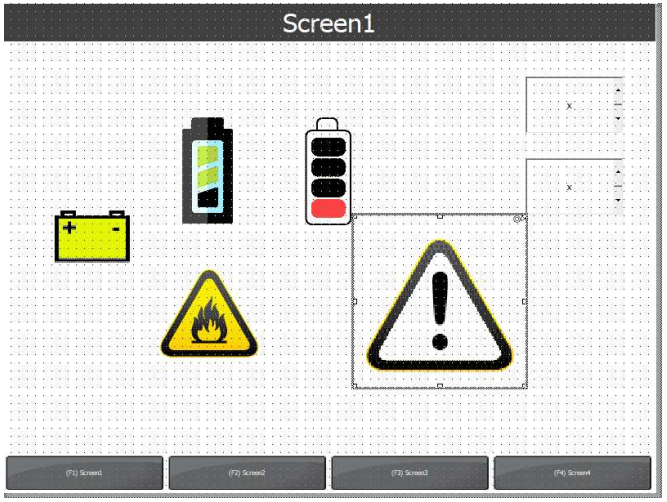
Step-by-step – Engineering

1

Edit graphics:

- You can un-group graphics and therefore split them into their elements
- You can change / adjust individual colors
- You can also work with graphical effects if the background is transparent
  - Bar graph / progress meter
  - Dynamics, visibility, etc.

2



3

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Visu+ Graphs & Symbols

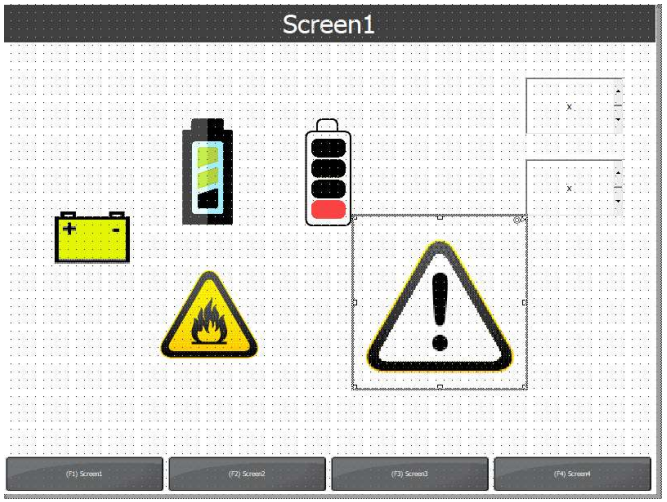
Step-by-step – Engineering

1

Add graphics to image library:

- imported graphics can get …..and be reused in other projects from the symbol library.

Importierte Grafiken können dynamisiert werden und dann für weitere Projekte in die Symbol Library verschoben werden.



2

- imported graphics can get …..and be reused in other projects from the symbol library.
- Hierzu das Symbol markieren und dann mit rechter Maus zu Add to Library verschieben!

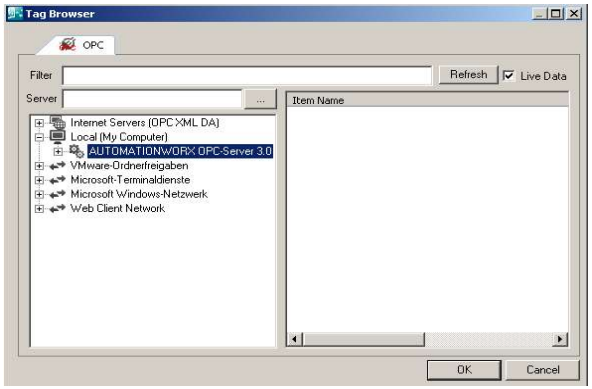
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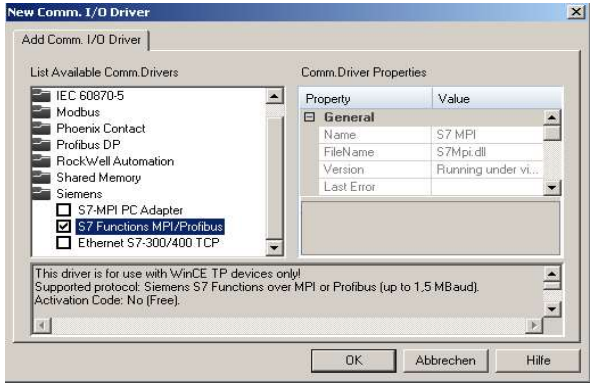
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VISU+ | PLC connectivity

Various possibilities to connect

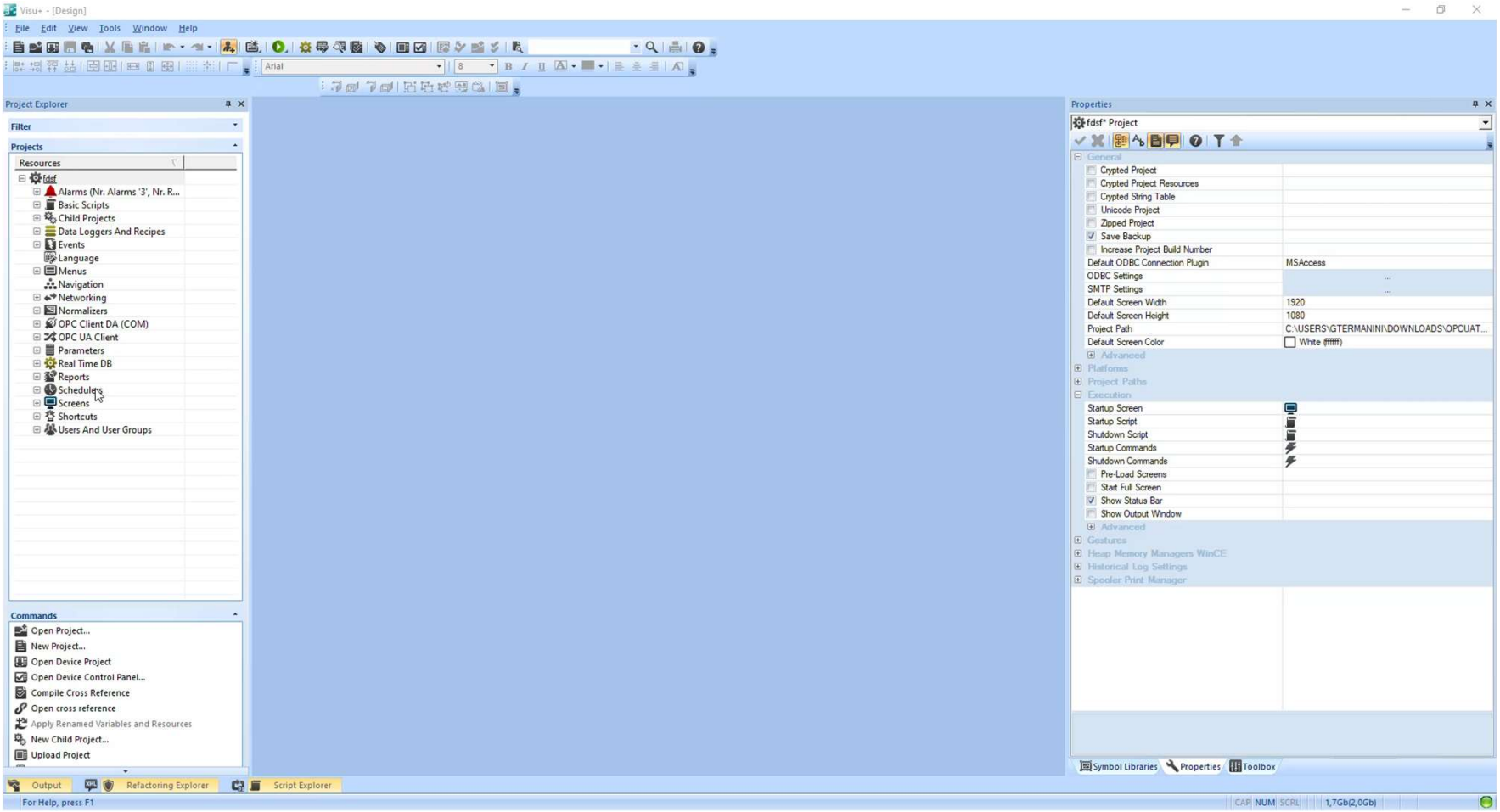
- OPC DA/UA
  - OPC DA or UA Client / Server
- Native communication driver
  - Siemens S7 TIA (TCP and MPI)
  - Allen Bradley (EthernetIP)
  - Profibus
  - ModBus TCP and RTU
  - CANopen
  - Phoenix Contact PLCs
  - Wago
  - CODESYS V2 / V3 (Gateway)
  - Beckhoff ADS
  - IEC 60870, IEC 61850, SNMP, MQTT





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VISU+ OPC UA Server



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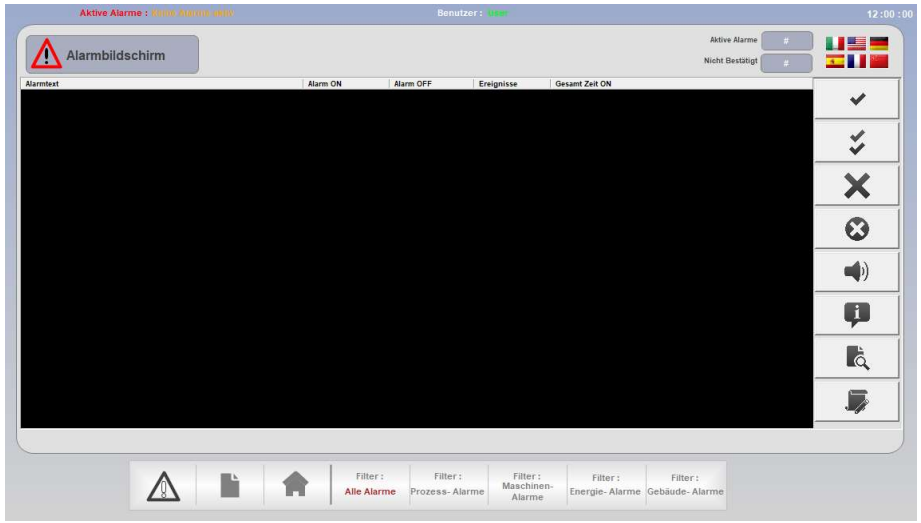
VISU+ | Functionalities

Alarm Management

- Integrated event and alarm management – also for Windows CE based HMIs
- Active and historical alarms
- Up to 1024 alarm priority levels
- Various filters for displaying alarms
- Event and alarm displatching simply configurable with VBA
- Display brightness and acoustic signalling possible at event or alarm – also possible on HMIs





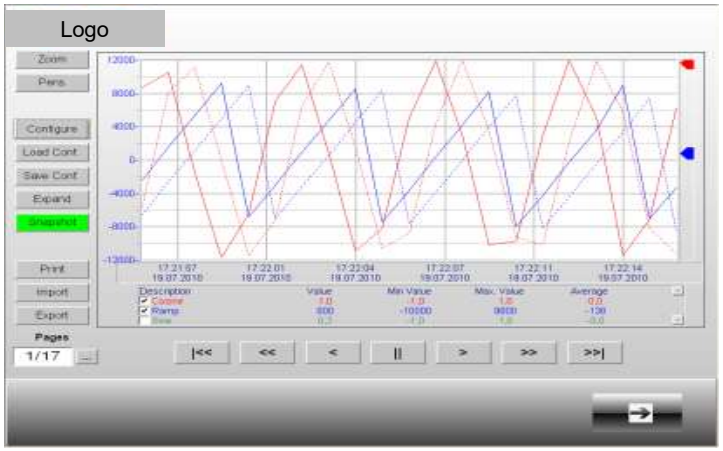


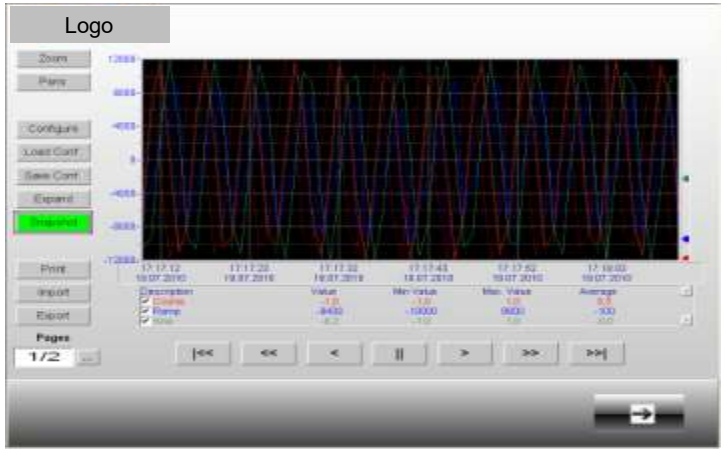
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VISU+ | Functionalities

Data logging and trending

- Process data capturing with object-oriented data loggers
- Historical trending and online trending
- **Individual trends can be turned on / off while running**
- Dynamic vector trends and historical trends with powerful sampling, visualization and analysis function availability. Data logger based historical trends that allow periodical analysis, zooming, average value displaying and logarithmic scaling that are customer configurable





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VISU+ | Functionalities

Multi-lingual projects

- Multi-lingual vizualization projects where the language can be chanmged while running
- UNICODE support for Asian characters
- String management with language table allows for up to 256 languages
- Dynamic configurability of the strings while in engineering or runtime mode

String ID	Dutch	English	French	German	Italiano
High Level Water - Warning!	Hoog niveau...	High Level ...	Eau Niveau ...	Obergrenze ...	Livello Acqu...
High Level	Hoog niveau	High Level	Niveau Haut	Höchststand	Livello Alto
Anemometer	Anemometer	Anemometer	Anémomètre	Anemometer	Anemometro
Wind Speed (m/s)	Windsnelhei...	Wind Speed...	Vitesse du ...	Windgeschw...	Vel. Vento (...
Wind Speed	Windsnelheid	Wind Speed	Vitesse du ...	Windgeschw...	Vel. Vento
Nr. Rejected Pieces	Aantal afge...	Nr. Rejecte...	Nbre Pièces...	Anzahl ausg...	Nr. Pezzi Scarti
Weight	Gewicht	Weight	Poids	Gewicht	Pesatura
Recipe	Recept	Recipe	Recette	Rezept	Ricetta
Speed	Snelheid	Speed	Vitesse	Geschwindig...	Velocità
Inverter	Invertor	Inverter	Onduleur	Umrichter	Inverter
Exit	Afsluiten	Exit	Sortir	Ausgang	Uscita
c0	Cyclus inactief	Cycle inactive	Cycle inactif	Zyklus inaktiv	Nessuna fas...
Filtro (F2)	Filter	Filter	Filtre	Filter	Filtro
Axis Speed	Axis snelheid	Axis Speed	Vitesse Axe	Achs-Gesch...	Velocità Assi
Rotor Speed	Rotor snelheid	Rotor Speed	Vitesse Rotor	Rotor Gesch...	Velocità Rot...
Rotor Temperature	Rotor tempe...	Rotor Temp...	Température...	Rotor Temp...	Temper. Rot...
Descrizione	Omschrijving	Description	Description	Beschreibung	Descrizione
_TLEGEND_DESC_	Omschrijving	Description	Description	Beschreibung	Descrizione
Language Selection	Taal selectie	Language S...	Sélection d...	Sprachauswahl	Selezione Li...
Access	Toegang	Access	Accès	Zugriff	Accesso
Set Laser	Set Laser	Set Laser	Paramètrag...	Setze Laser	Set Laser
Set Value	Voer waarde in	Set Value	Définir Valeur	Sollwert	Set Valore
Counter	Hoek	Counter	Compteur	Zähler	Contatore
Energy	Energie	Energy	Energie	Energie	Energia
Zoom (z)	Zoom	Zoom	Zoom	Zoom	Zoom
Coils Temperature	Coils temper...	Coils Tempe...	Températ. ...	Spulen Temp...	Temper. Av...
Total Working Time	Totale bedrij...	Total Worki...	Temps total...	Absolute La...	Tempo Tot. ...
EMERGENZA	Noodgeval	EMERGENCY	URGENCE	Notaus	EMERGENZA
OFF LINE	OFF LINE	OFF LINE	ARRET	Offline	OFF LINE
Off Line	Offline	Off Line	Arrêt	Offline	Off Line
Tempo ACK	ACK tijd	ACK Time	Heure ACQ.	Bestätigung ...	Tempo ACK

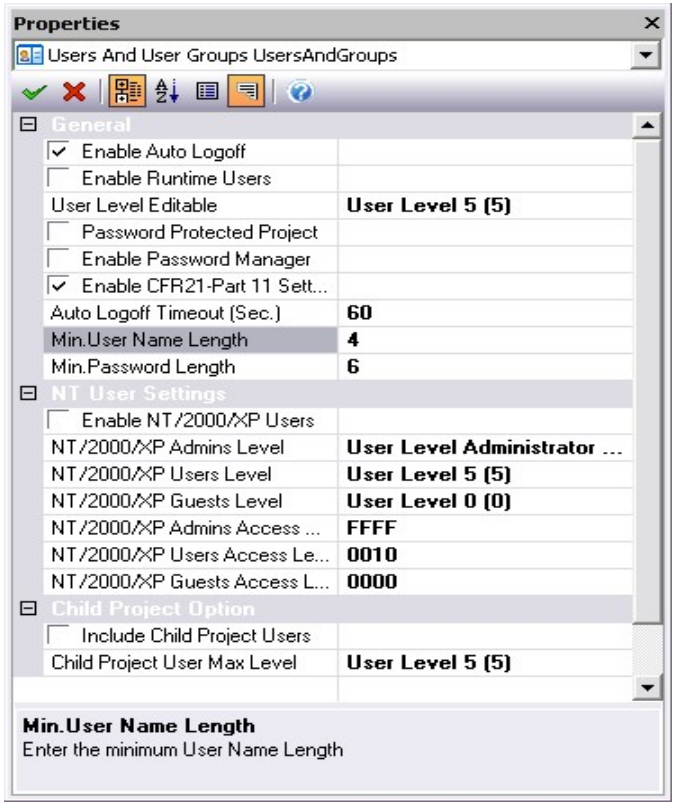
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VISU+ | Functionalities

FDA 21 CFR Part 11

VISU+ can be used for FDA CFR21 Part11 compliant projects

- Tracing and Audit Trail-Management allows capturing of all process data change, user logon and process values
- The Safety Management enables a powerful user and password management with up to 1024 user levels and 16 area levels
- The user profile includes all relevant data for a messaging system.



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VISU+ | Flexible runtime license model

VISU+ 2 **VISU+ Engineering License**
for creating an unlimited amount of visualization projects and applications

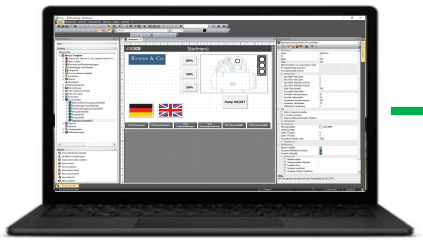


VISU+ 2 RT-D	**Standard Windows runtime license** Plus two additional communication drivers	
VISU+ 2 RT	**Standard Windows runtime license**	
VISU+ 2 CE	**Windows CE (WEC7, WinCE 6) runtime license** (pre-installed on HMI hardware) ▪ I/O Bytes 4096 ▪ Networking ▪ 2 WebClients	▪ I/O Bytes 64 - Unlimited ▪ Alarm Statistics (Option) ▪ Alarm Dispatcher (Option) ▪ Networking (Option) ▪ Redundancy (Option) ▪ 1-50 WebClients (Option)

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VISU+ Connectivity

Engineering tool



PC use:

- Creation of visualization projects
- PC for remote monitoring (via HTML5 client Browser)

Ethernet

Remote App

PHOENIX CONTACT VISU+ mobile

iOS



WEC7 / WinCE 6





Windows 10



Phoenix Contact
PLCnext, ILC, etc.

PLC
3rd Party

Siemens (TIA), Beckhoff, CODESYS, Wago, Rockwell, etc.

Device

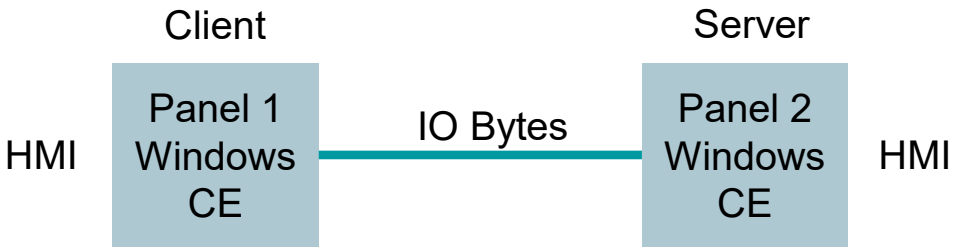
Modbus TCP, IEC 61850, etc.

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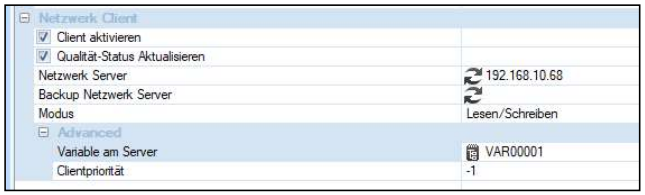
Networking

⚠ Networking is active traffic on the ethernet bus over special ports

- Very simple way to transfer variables (process values) from one device to another device
  - Mode: Read OR Write OR Read/Write
  - Network Server AND Backup Network Server



No networking license required



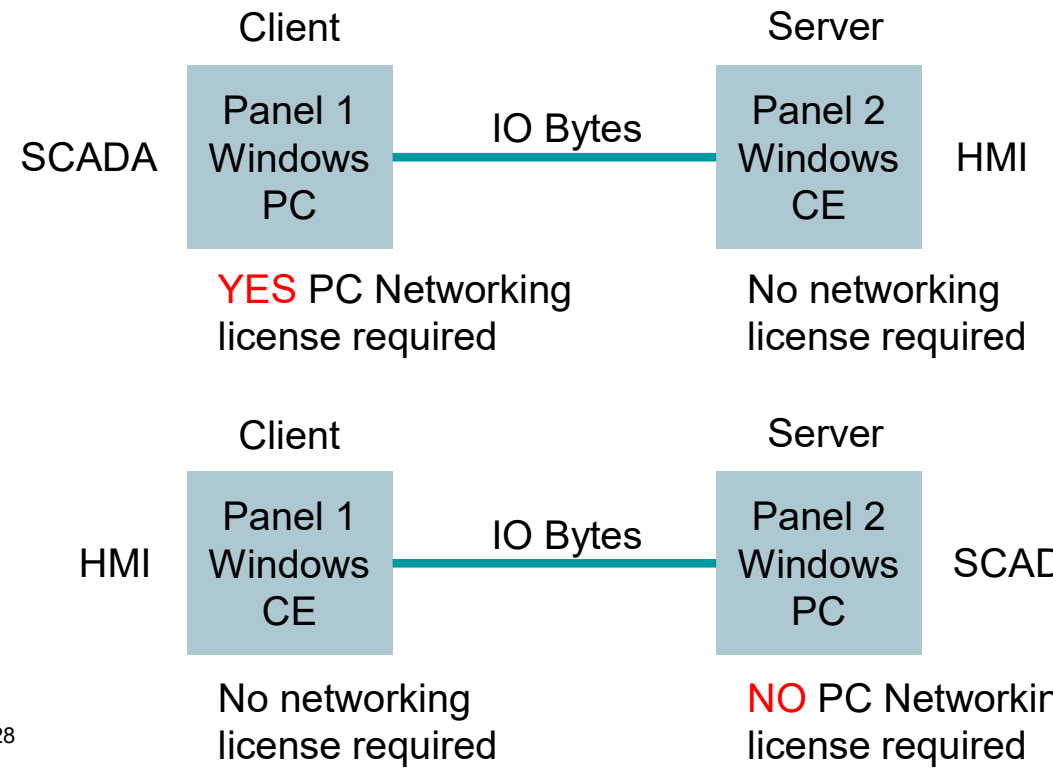
- Networking is a default option under Windows CE
- TP 3000 has 4096 IO Bytes

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VISU+ PM HMI

Networking

⚠ Networking is active traffic on the ethernet bus over special ports



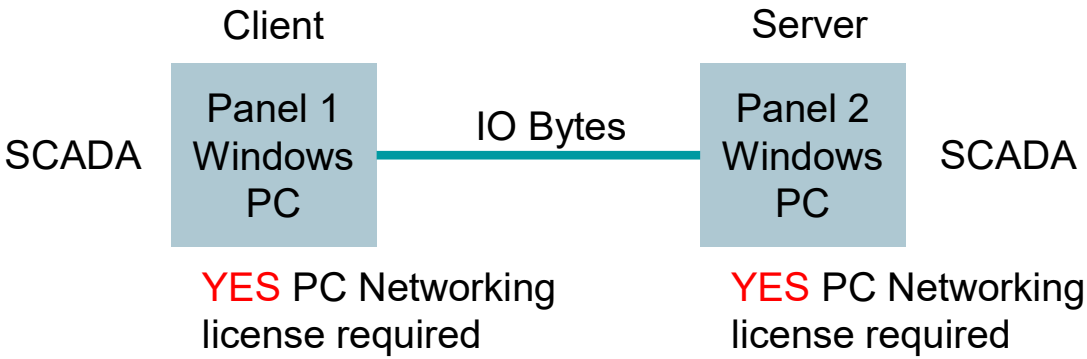
⚠ CE Panels are with reduced performance

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VISU+ PM HMI

Networking

⚠ Networking is active traffic on the ethernet bus over special ports



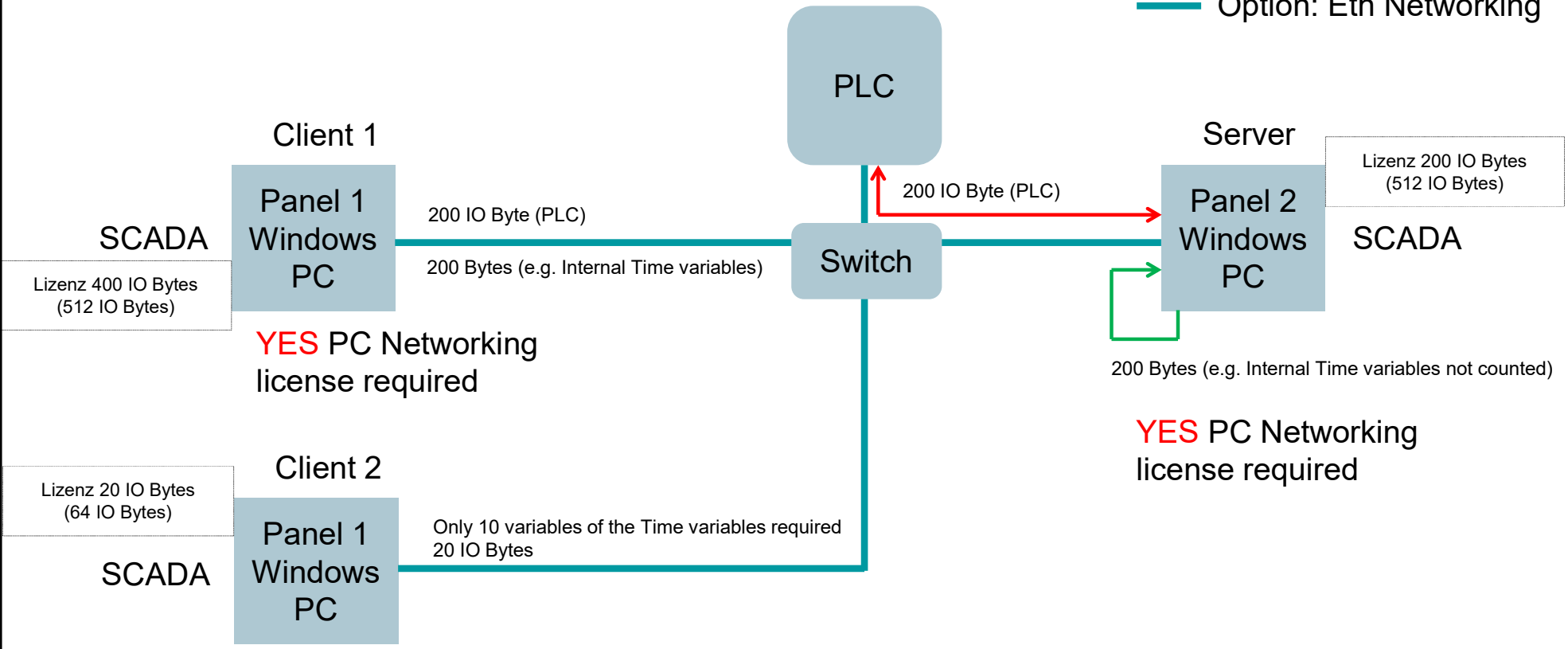
⚠ 04/2021 (VISU+ 2.54):
CMAT 1k/4k/8K and Stand-Alone will have networking as default option included

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Networking and IO Bytes- Example

Each variable has in this Example 2 Bytes

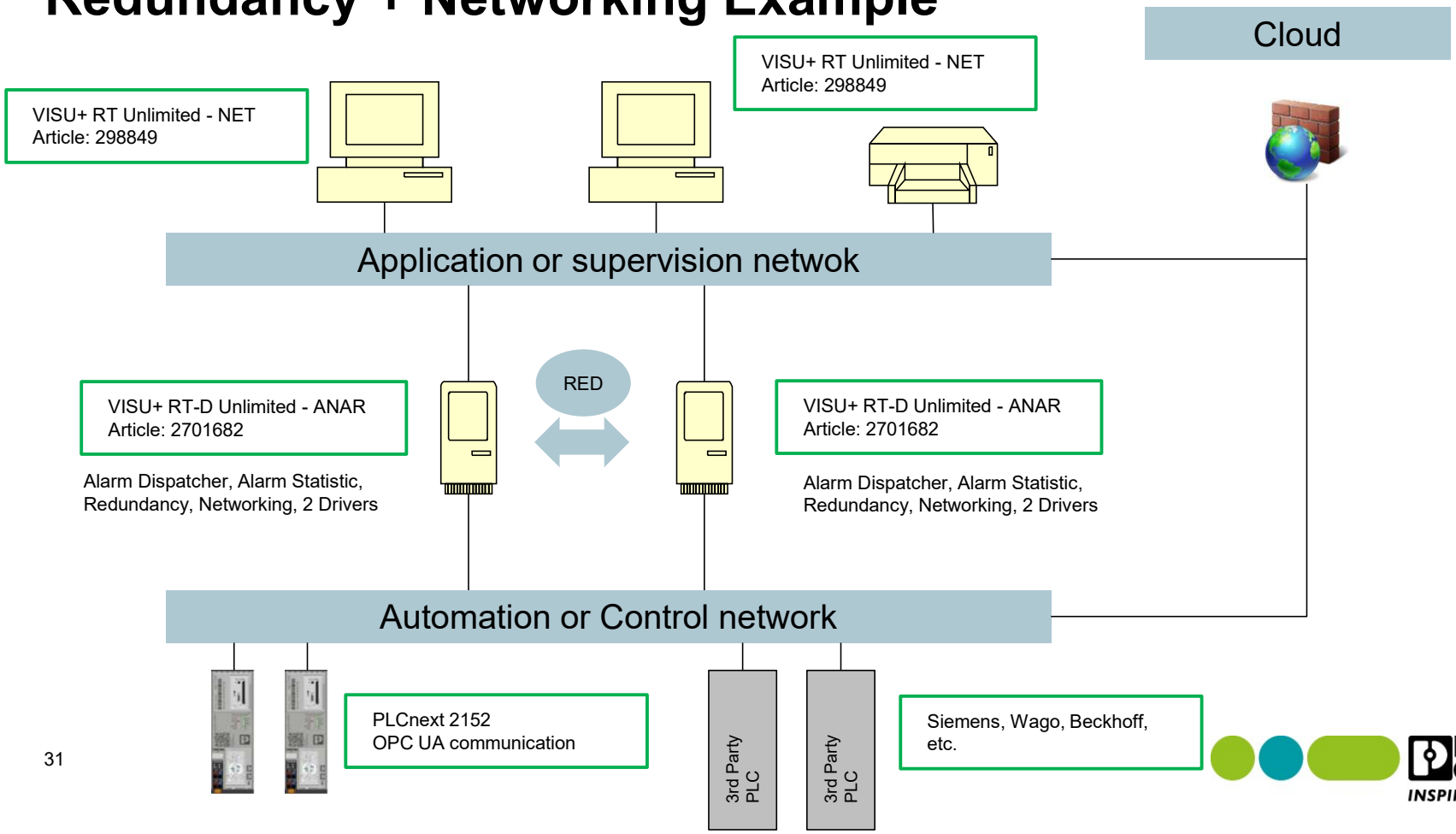
Option: Eth Networking



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VISU+ PM HMI

Redundancy + Networking Example



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Redundancy

⚠ Redundancy over Driver is different like Redundancy over OPC UA

- There are some different use cases
  - One Panel and two or more PLCs (Backup)
    - One PLC is interrupted. VISU+ connect to the other Backup PLC
  - Two Panels and one PLC OR only Two Panels

The PC redundancy management, whether with Master functionality or Slave functionality, is completely embedded in the VISU+ software and ensures secondary system intervention in complete automatic mode after primary system timeout set up in the systems configuration.

- **Communication Drivers management**
- **Data Logger management**
- **Recipe management**
- **Historical Log management**
- **Alarm management**
- **OPC Client (DA/UA) management**

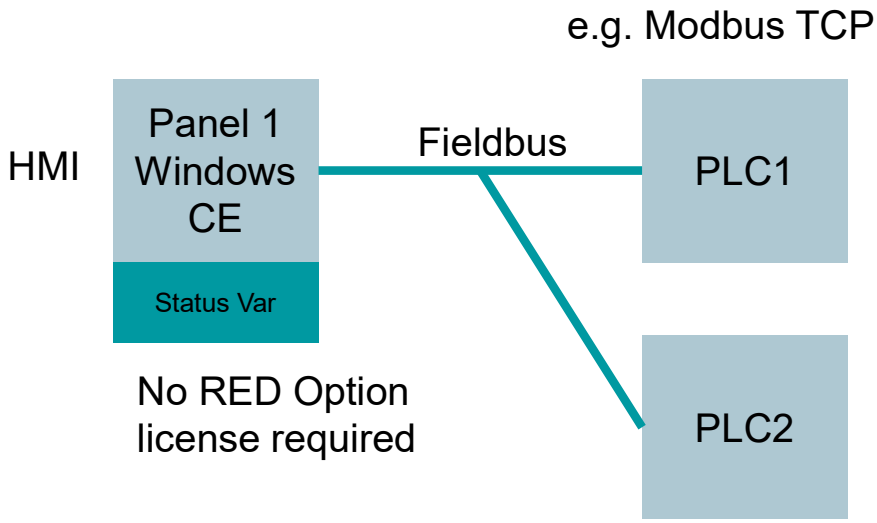
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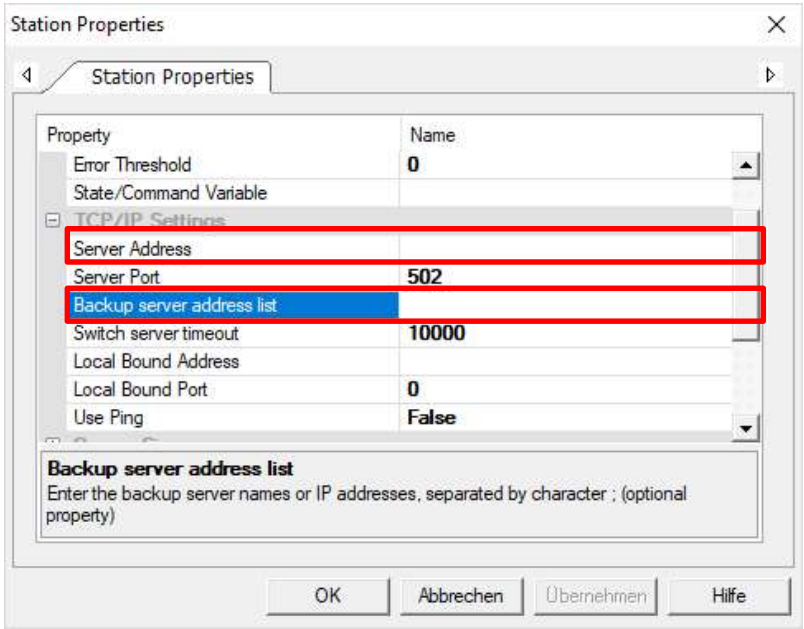
VISU+ PM HMI

Redundancy (Backup)

⚠ Redundancy over Driver is different like Redundancy over OPC UA

- There are some different use cases
  - **One Panel and two PLCs**
  - Two Panels and one PLC



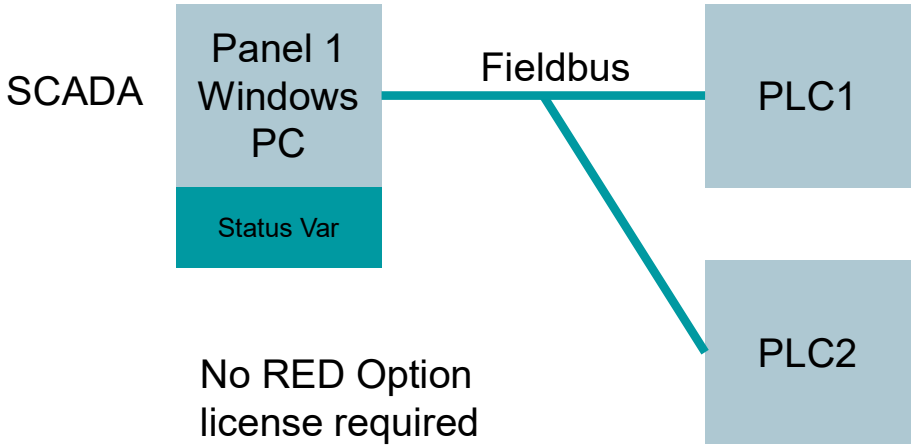


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INSPIRING INNOVATIONS

Redundancy (Backup)

⚠ Redundancy over Driver is different like Redundancy over OPC UA

- There are some different use cases
  - **One Panel and two PLCs**
  - Two Panels and one PLC



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INSPIRING INNOVATIONS

Redundancy (Backup)

⚠ Redundancy over Driver is different like Redundancy over OPC UA

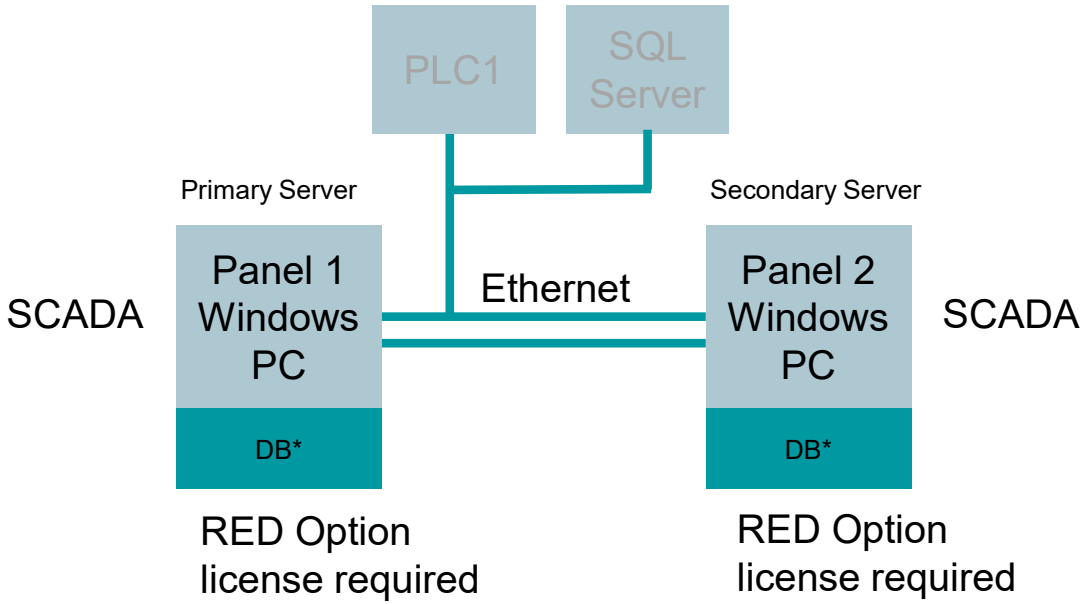
- This communication driver has the Backup feature
  - Modbus TCP - Server Address, Backup Server Address List
  - CODESYS – Server Address, Backup PLC Address
  - Siemens S7 300-400 - Server Address, Backup Server Address List
  - Rockwell EthernetIP - Server Address, Backup Server Address List
  - OPC UA Client – Endpoint Address, Backup Endpoint Address
  - Siemens S7 TIA – No
  - Beckhoff ADS - No

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INSPIRING INNOVATIONS

Redundancy (PC)

⚠ RED under CE is not available

- There are some different use cases
  - One Panel and two PLCs
  - **Two Panels and one or more PLC**



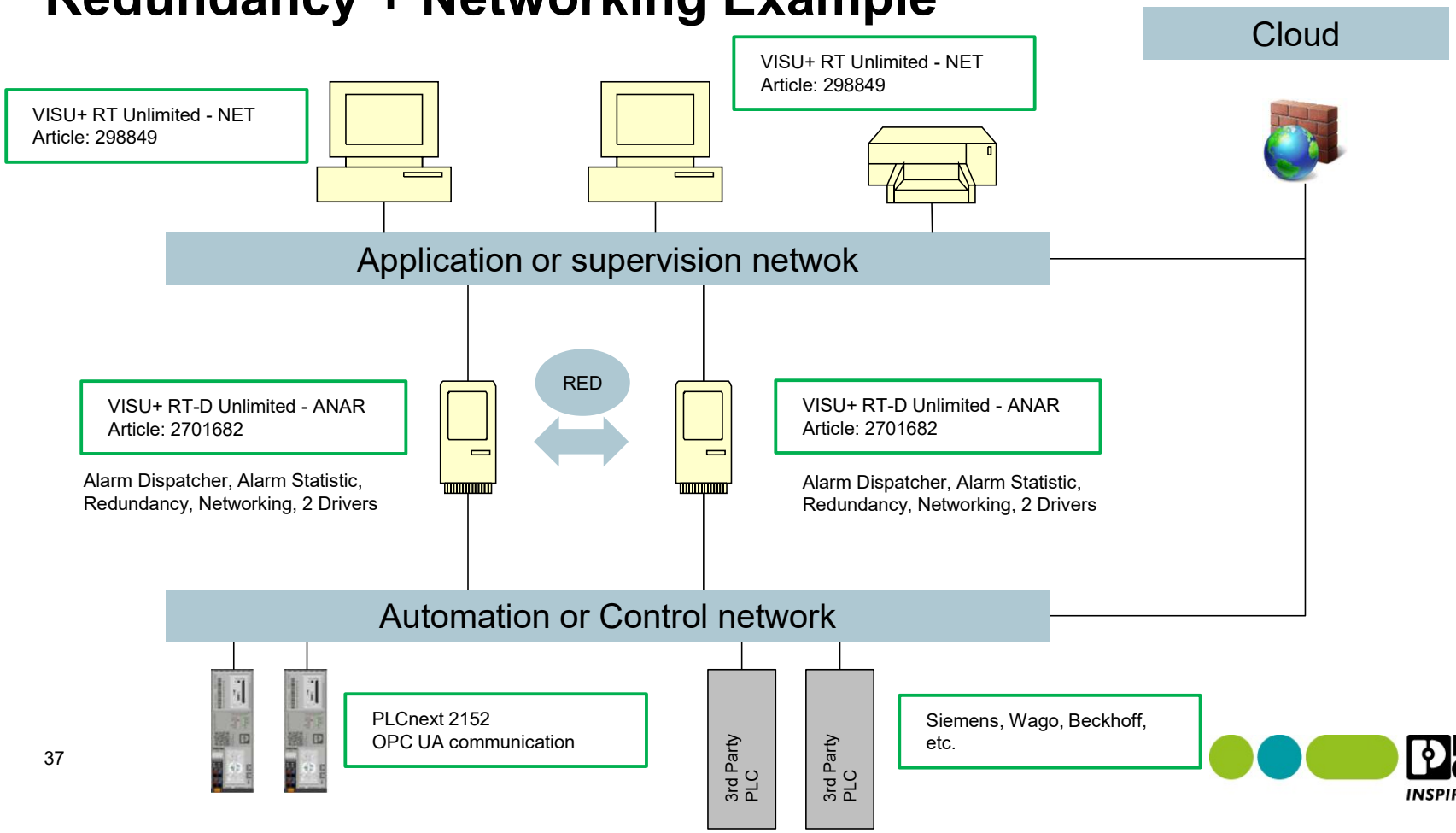
- **Communication Drivers management**
- **Data Logger management**
- **Recipe management**
- **Historical Log management**
- **Alarm management**
- **OPC Client (DA/UA) management**

* synchronized DB

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VISU+ PM HMI

Redundancy + Networking Example



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INSPIRING INNOVATIONS

VISU+ | Application areas



Wind energy



Photovoltaic



Energy and Distribution



Machinebuilding



Water | waste water



Traffic control

PHOENIX CONTACT
INSPIRING INNOVATIONS

VISU+ Energy Transmission and Distribution

VISU+ SCADA and HMI Software



VISU+ SCADA Software

- Comprehensive SCADA software and HMI software
- Communication drivers IEC 61850, IEC 60870 and others
- Control variables import interface
- Message system, historical data and trend logging
- User management
- Data recording
- Network variable exchange
- Graphics and symbols. Symbol library
- Protocols
- Remote maintenance (HTML5 browser)

+

Energy Transmission and Distribution



Energy Transmission and Distribution

- Universal SCADA tool with a wide range of applications

PHOENIX CONTACT
INSPIRING INNOVATIONS

VISU+ VMM

Energy and Distribution – Alarming (based on ISA S-18-Norm)

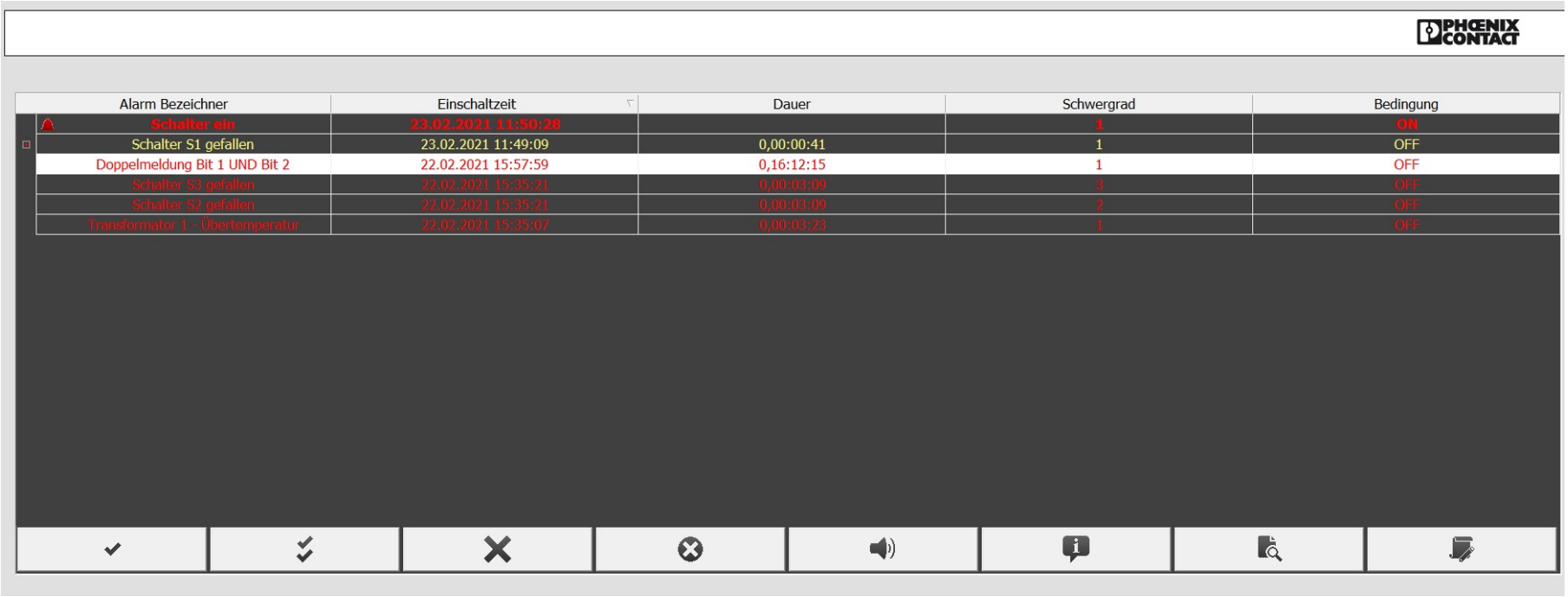
- Alarming System
  - Alarm window object and as an operation log
  - Setting of background and text color per alarm message tag
  - Bit messages (single message), e.g. switch.0 = OFF
  - Threshold (single message), e.g. transformer 1 overtemperature
  - 2bit messages (double message), e.g. switch.0 = OFF AND switch.1 = OFF
  - Flashing of alarm messages
  - Acknowledgement of alarms
  - Alarm severity
  - Message text (any language translatable, automatic loading of all texts in the project)
  - Message text with help instruction
  - Time stamp PC in ms, time stamp CE in sec
  - Historical alarms and alarm logs
  - Acoustic signal of new alarms
  - Alarm printing
  - Email and SMS

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INSPIRING INNOVATIONS

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Energy and Distribution – Alarming System

- Alarm Window Object

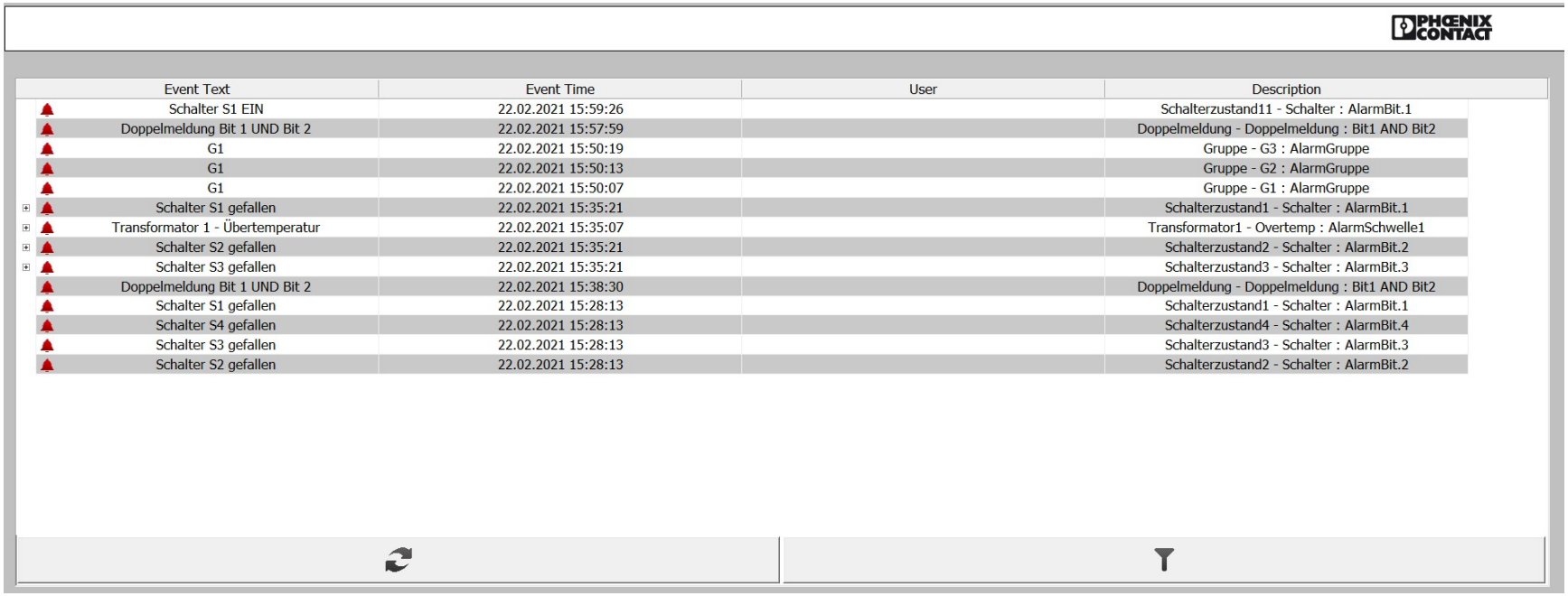


INSPIRING INNOVATIONS

VISU+ VMM

Energy and Distribution – Alarming

- Alarm (Log Outputs - Alarms OR Communication Errors OR System Messages OR All)
  - For historical alarms and system messages



Event Text	Event Time	User	Description
Schalter S1 EIN	22.02.2021 15:59:26		Schalterzustand11 - Schalter : AlarmBit.1
Doppelmeldung Bit 1 UND Bit 2	22.02.2021 15:57:59		Doppelmeldung - Doppelmeldung : Bit1 AND Bit2
G1	22.02.2021 15:50:19		Gruppe - G3 : AlarmGruppe
G1	22.02.2021 15:50:13		Gruppe - G2 : AlarmGruppe
G1	22.02.2021 15:50:07		Gruppe - G1 : AlarmGruppe
Schalter S1 gefallen	22.02.2021 15:35:21		Schalterzustand1 - Schalter : AlarmBit.1
Transformator 1 - Übertemperatur	22.02.2021 15:35:07		Transformator1 - Overtemp : AlarmSchwelle1
Schalter S2 gefallen	22.02.2021 15:35:21		Schalterzustand2 - Schalter : AlarmBit.2
Schalter S3 gefallen	22.02.2021 15:35:21		Schalterzustand3 - Schalter : AlarmBit.3
Doppelmeldung Bit 1 UND Bit 2	22.02.2021 15:38:30		Doppelmeldung - Doppelmeldung : Bit1 AND Bit2
Schalter S1 gefallen	22.02.2021 15:28:13		Schalterzustand1 - Schalter : AlarmBit.1
Schalter S4 gefallen	22.02.2021 15:28:13		Schalterzustand4 - Schalter : AlarmBit.4
Schalter S3 gefallen	22.02.2021 15:28:13		Schalterzustand3 - Schalter : AlarmBit.3
Schalter S2 gefallen	22.02.2021 15:28:13		Schalterzustand2 - Schalter : AlarmBit.2

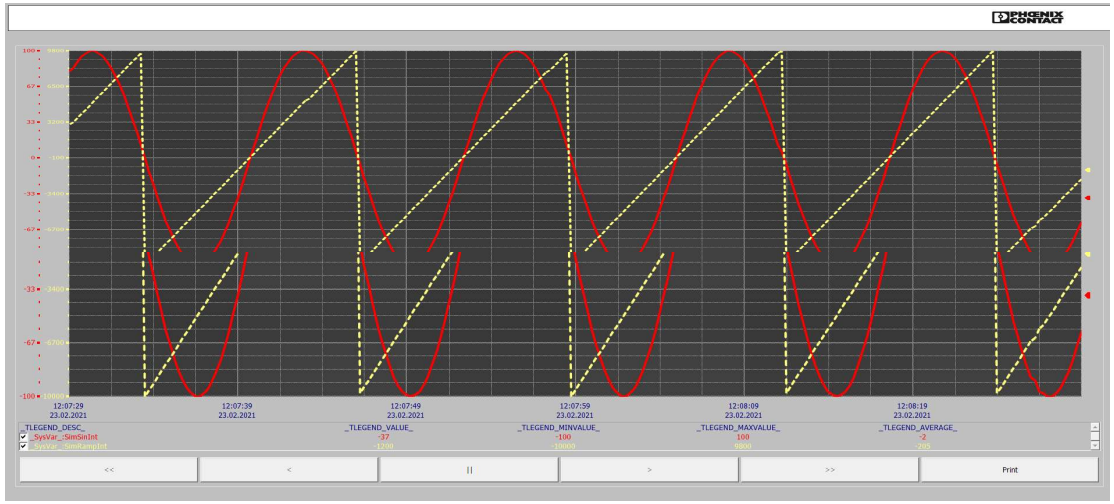
INSPIRING INNOVATIONS

VISU+ VMM

Energy and Distribution – Datalogger and Trending

- Each process variable can be monitored (online and via data logger)
- Database connection to all common databases (SQL, mySQL, Access)
  - Also via Docker container with database image (ODBC interface)
- Predefined trend display for displaying online measured values
- Data analysis
- Multiple pens (variables) in one trend
- Pens can be switched off at runtime
- Different line types and colors



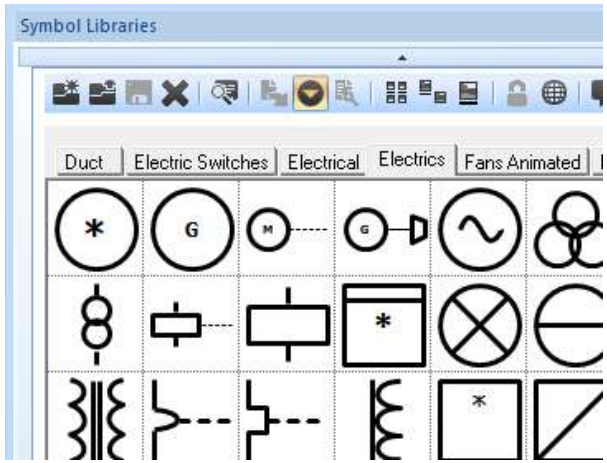


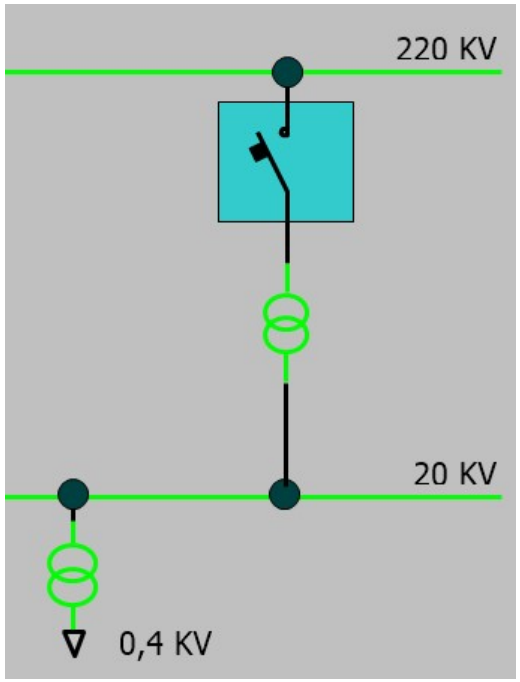
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VISU+ VMM

Energy and Distribution – Symbols and Color Animation

- Predefined graphical symbols
- Creation of your own graphic symbols
- Graphic elements (variables dynamization - line color change)

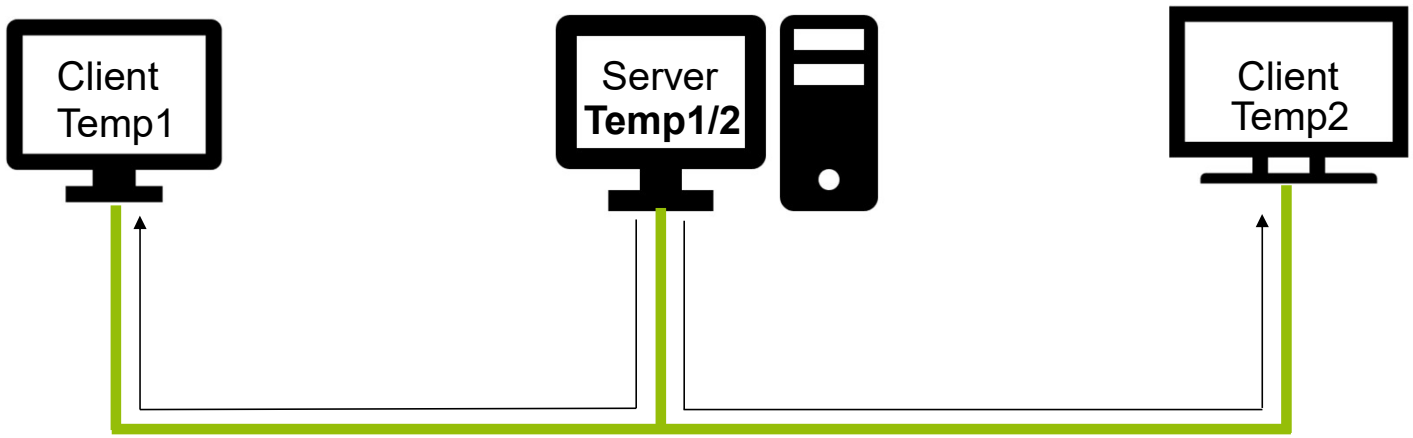




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Energy and Distribution – Networking Variables

- Easy process data exchange across different VISU+ devices (CE and PC) via integrated VISU+ Ethernet network protocol
- Any variable can be used quickly (server/client principle)



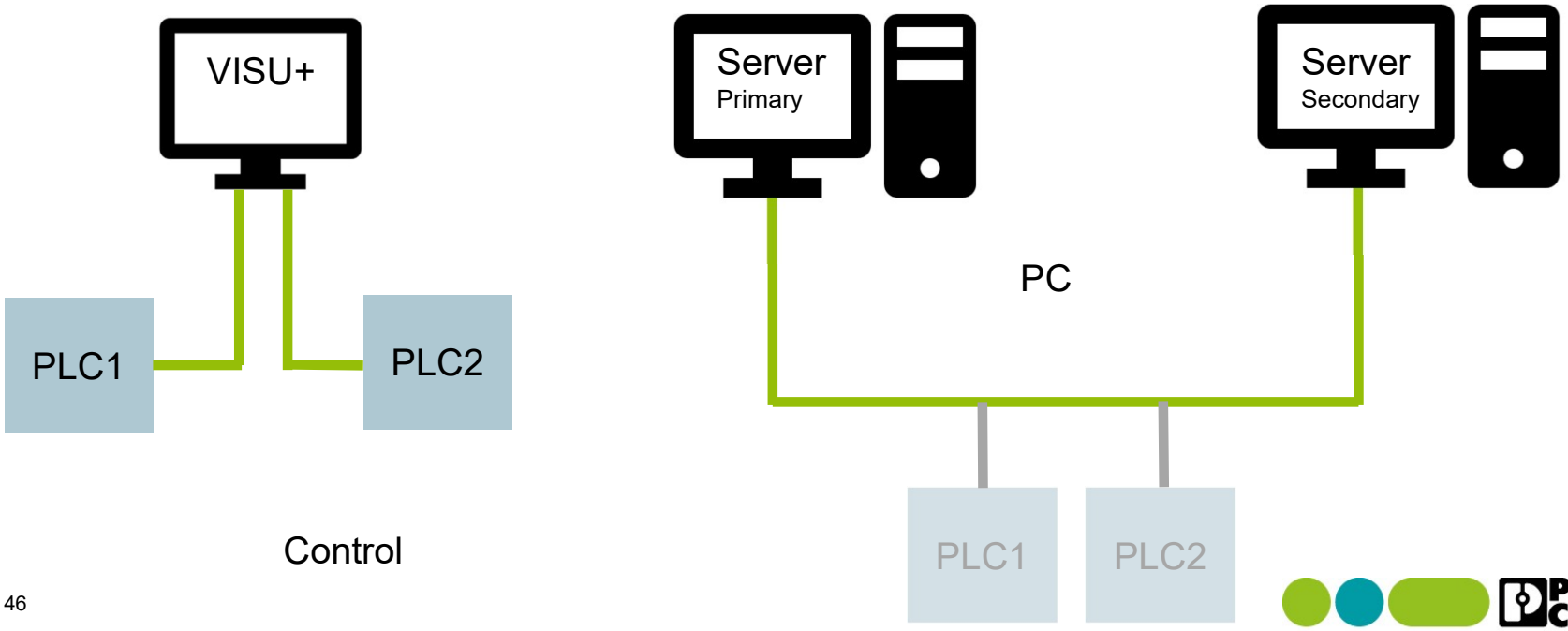
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INSPIRING INNOVATIONS

VISU+ VMM

Energy and Distribution – Redundancy

- Control redundancy (backup PLC)
- PC redundancy

- **Communication driver management**
- **Data logger management**
- **Recipes management**
- **Historical data management**
- **Alarm management**
- **OPC Client (DA/UA) Management**

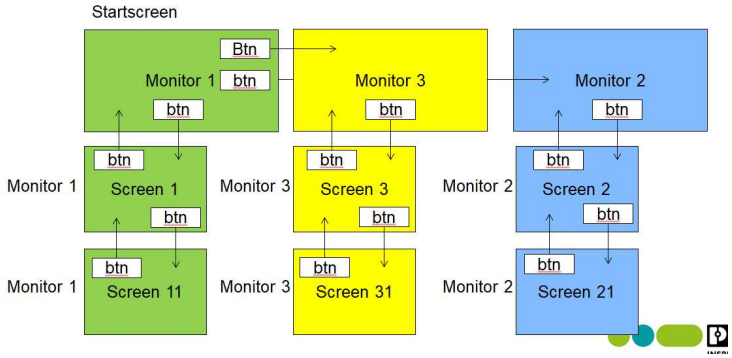


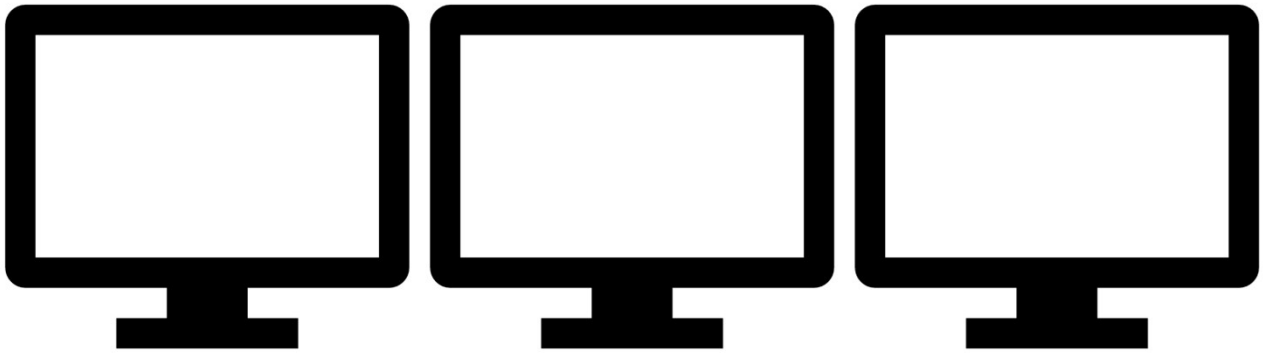
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Energy and Distribution – Multi-Monitor

- Display of the visualization over several monitors
- Single pages distributed across multiple monitors
- Embedded pages in one main page



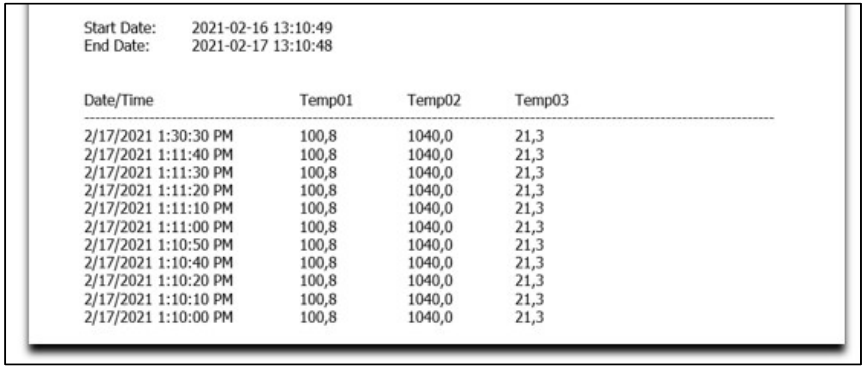


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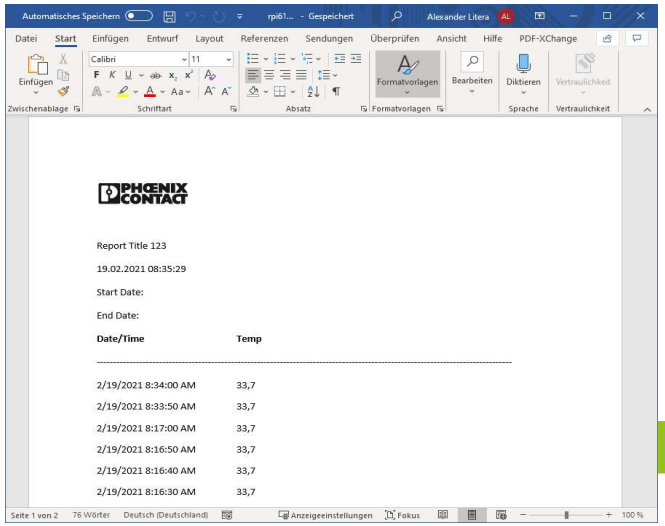
Energy and Distribution – Reports and Protocols

- Output process variables to logs (data logger)
- Simple text report (text reports as TXT or RTF format with customer logo)
- Embedded logs (use VISU+ graphical on-board tools)
- Alarm evaluation (alarm statistics)
- Report Designer (extensive evaluation options, trend/bar displays and other diagrams)
- Dispatch by email
- On request also Crystal Report



Start Date: 2021-02-16 13:10:49
End Date: 2021-02-17 13:10:48

Date/Time	Temp01	Temp02	Temp03
2/17/2021 1:30:30 PM	100,8	1040,0	21,3
2/17/2021 1:11:40 PM	100,8	1040,0	21,3
2/17/2021 1:11:30 PM	100,8	1040,0	21,3
2/17/2021 1:11:20 PM	100,8	1040,0	21,3
2/17/2021 1:11:10 PM	100,8	1040,0	21,3
2/17/2021 1:11:00 PM	100,8	1040,0	21,3
2/17/2021 1:10:50 PM	100,8	1040,0	21,3
2/17/2021 1:10:40 PM	100,8	1040,0	21,3
2/17/2021 1:10:20 PM	100,8	1040,0	21,3
2/17/2021 1:10:10 PM	100,8	1040,0	21,3
2/17/2021 1:10:00 PM	100,8	1040,0	21,3



Report Title 123
19.02.2021 08:35:29
Start Date:
End Date:

Date/Time	Temp
2/19/2021 8:34:00 AM	33,7
2/19/2021 8:33:50 AM	33,7
2/19/2021 8:17:00 AM	33,7
2/19/2021 8:16:50 AM	33,7
2/19/2021 8:16:40 AM	33,7
2/19/2021 8:16:30 AM	33,7

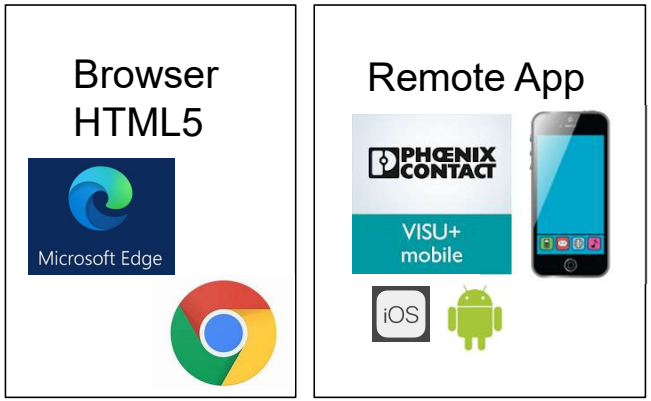
VISU+ VMM

Energy and Distribution – Remote





- Remote maintenance via webclient
  - 1,2,3,4,5,10,20,30,50 web client sessions (depending on PC license option)
  - With CE max. 2
- Parameterization of the network configuration in the configuration tool (ports, etc.)
- Access via HTML5 capable browser
- Access via Java Remote Viewer (requires pre-installed Java Runtime)
- Access via Smartphone (Android and Iphone App)



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Energy and Distribution – Notification

- Email and SMS
- User administration
- Individual and group sending of emails

- In case of alarm
- On change of value of a variable (event / action)

- Log dispatchter





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VISU+ VMM

Energy and Distribution – Further extensive SCADA functions

- User management
- Integrated F1 help (German, English, French, Italian)
- IL Logic (IL)
- Cross reference list
- Use of alias and parameter files
- Languages and translation lists
- Scheduler
- Variables - events and command chains
- Gesture control
- Client-server with subprojects
- FDA

- Phoenix Contact Homepage
  - Quick start, application notes on communication drivers, etc.

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Energy and Distribution – Visual Basic Script





- On CE devices
- On PC devices (incl. VB.NET)

- Referencing of assemblies
- Extensive API Basic Interface
- Debug capabilities in the engineering tool
- Manipulation of any variable and structure variables
- Access to databases
- Debugging and printouts (debug output)
- Access to various objects
    - e.g. Report Designer for text translation

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INSPIRING INNOVATIONS

Visu+ communication with NSE Protection Relais (IEC61850)

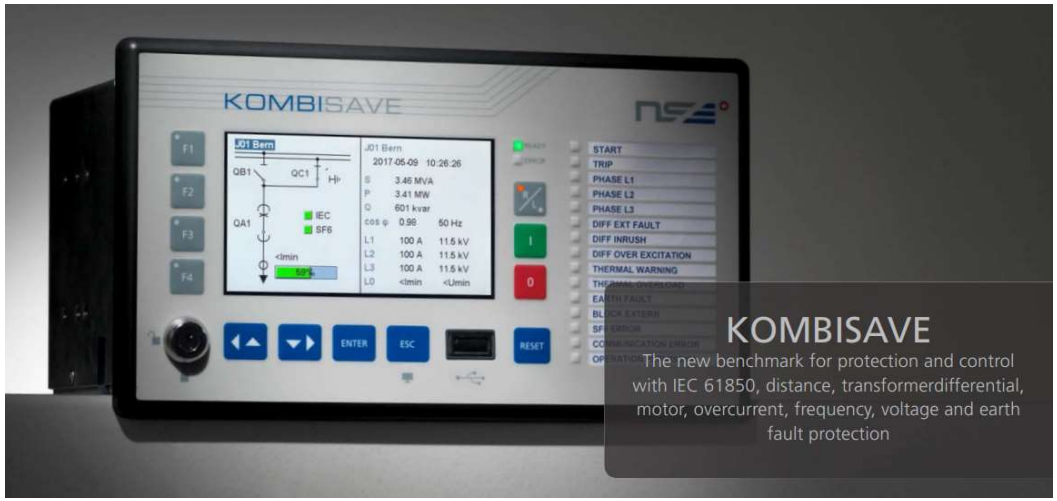
VISU+ SCADA and HMI Software



VISU+ IEC 61850 Communication driver and
simplify access to IEC 61850 Protection Relay variables.

- Symbol Library with Electric Switches
- Alarming, Data Logger and Trending
- Access to Databases (SQL Server)
- Report Designer (visual reports with statistical and graphical chart)
- HTML5 Remote Client

KOMBISAVE+ Combined protection and bay control unit



KOMBISAVE+ is a numerical protection relay and control unit for use in medium voltage distribution networks and industry. Its highly consolidated function range, subdivided into protection and control functions, offers considerable economic advantages for users' operations.
The familiar reliable technology from the DIGISAVE range is also implemented in KOMBISAVE+. Naturally, KOMBISAVE+ also uses the same kind of optimized and therefore essentially self-explaining menu guidance that our customers appreciate. This means that operators will not usually need to refer to manuals or have any particular expertise.

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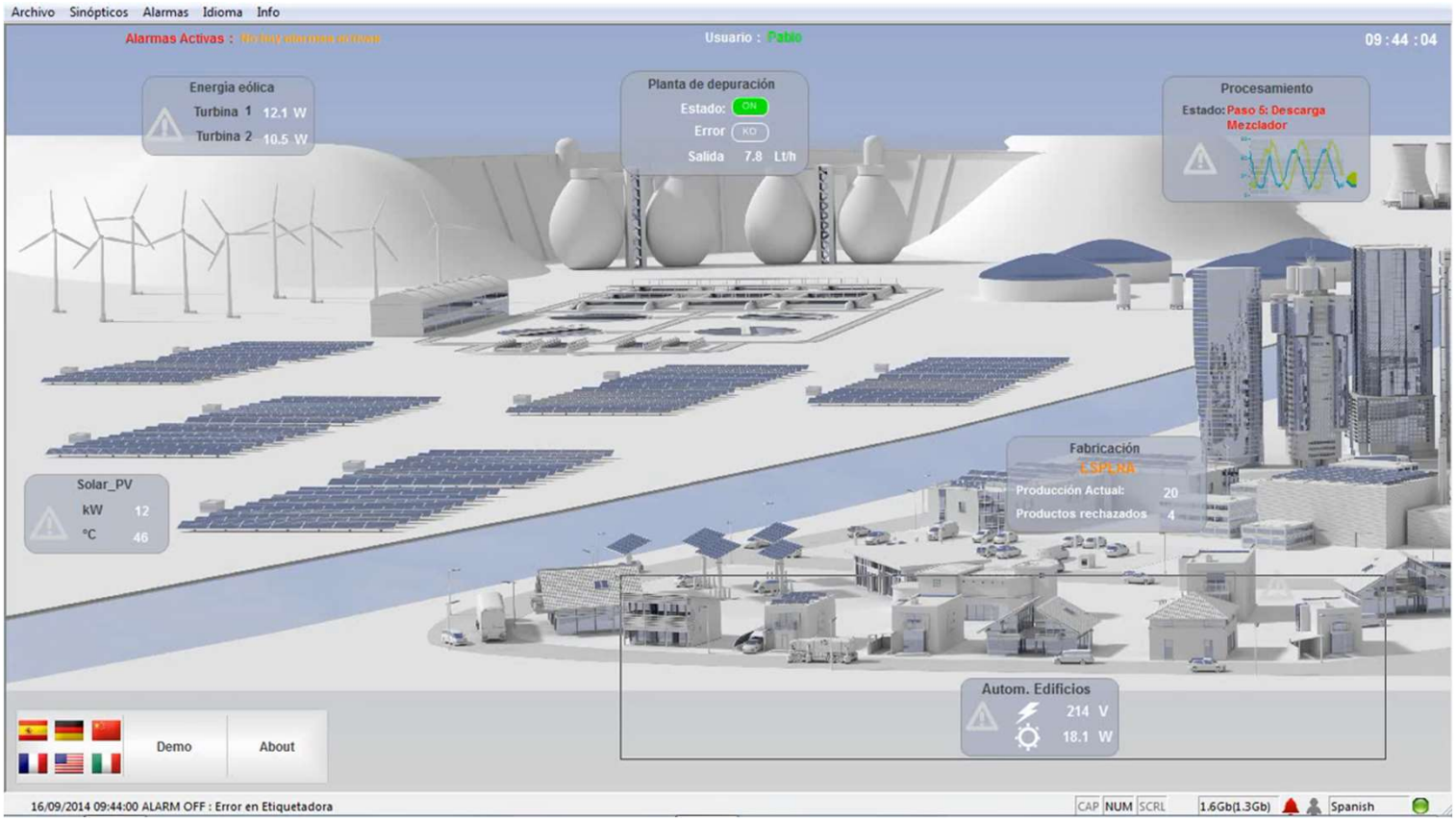
SCADA / PROGEA VISU+

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Ejemplo de Aplicación Water and Waste Water

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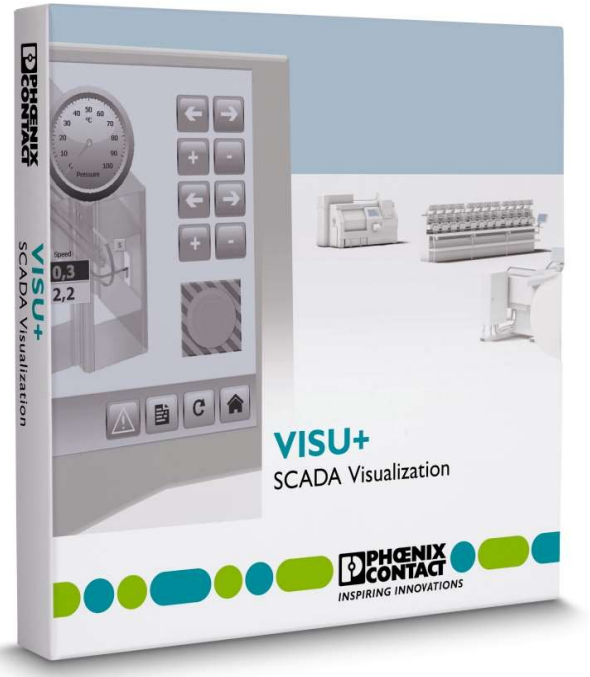


VISU+

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SCADA Visualization



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