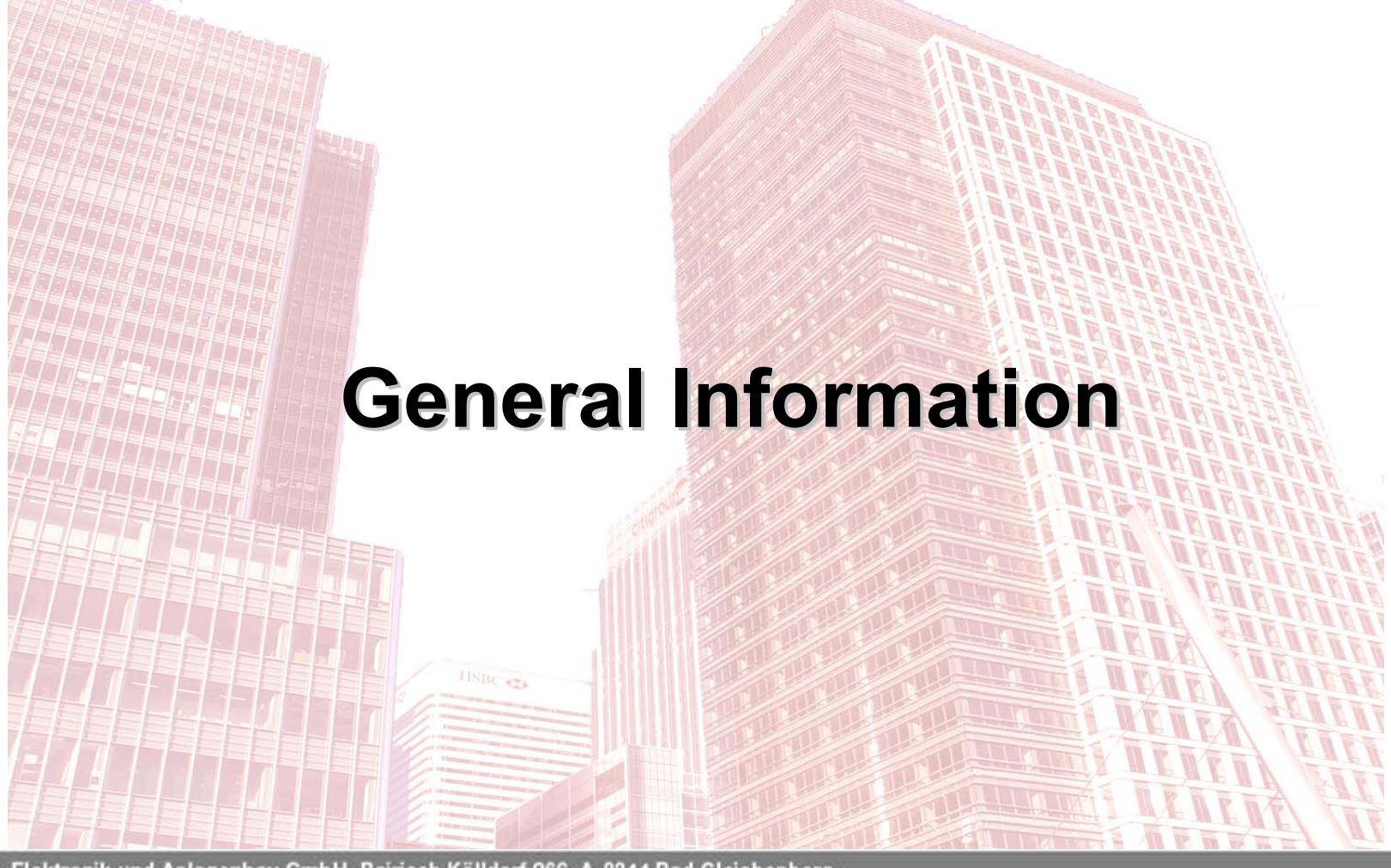
World of

Building automation

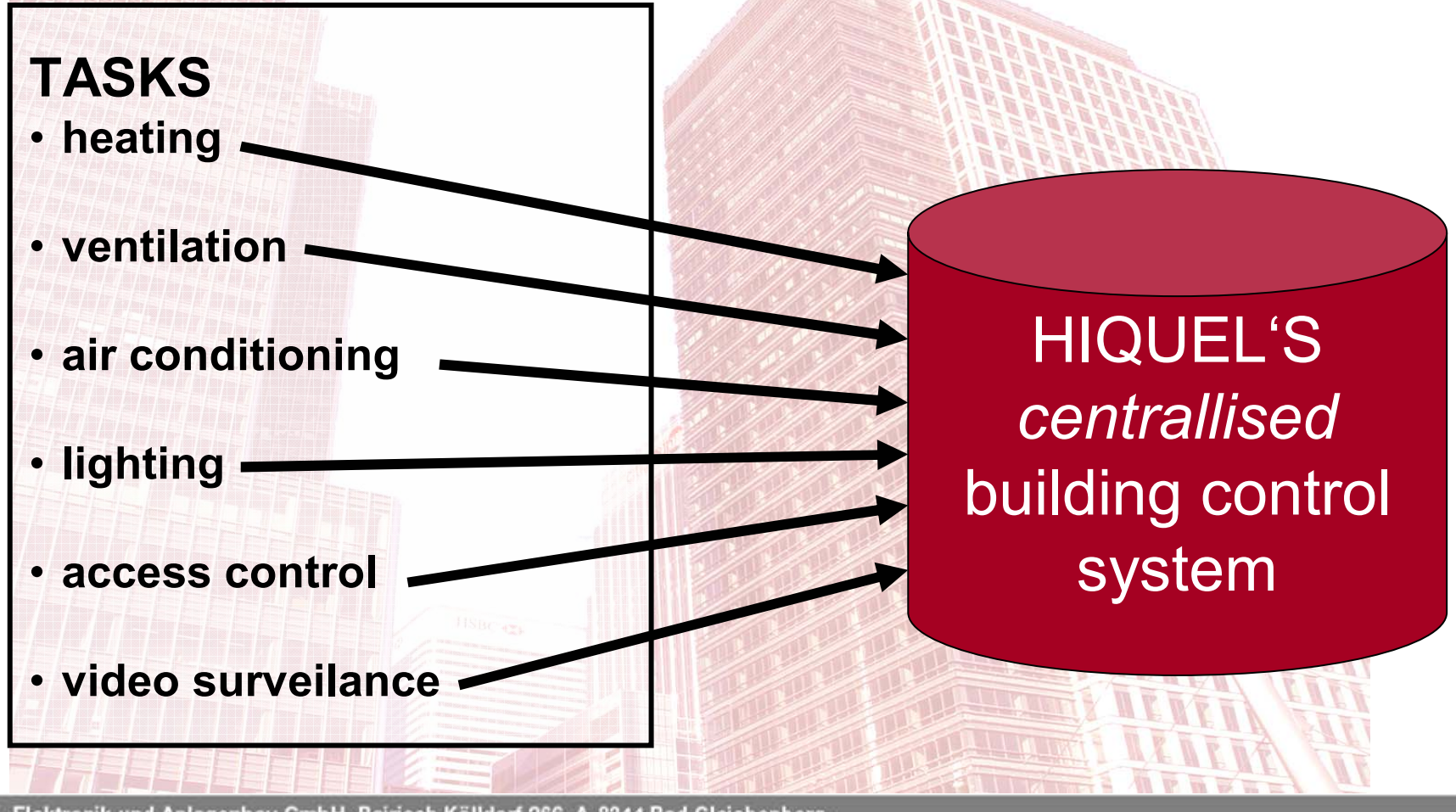
HIQUEL®
HIGH QUALITY ELECTRONICS

HIQUEL Elektronik und Anlagenbau GmbH, Bairisch Kölldorf 266, A-8344 Bad Gleichenberg,
Tel.: +43 (0) 3159/3001, Fax: +43 (0) 3159/3001-4, e-mail: hiquel@hiquel.com, www.hiquel.com



General Information

modern building automation with SLS-500



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Heating, Ventilation, Air Conditioning

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modern building automation with SLS-500

HEATING

Typical requirements:

- latest automated control techniques
- ease of use
- easy installation
- cost effective networking
- open protocol for third-party systems
- integration of weather station data
- integration of data from energy efficiency monitoring systems

SLS-500 Solutions

- Selection of base modules with special features for automated control techniques
- central visualisation, handling, parameterisation and programming
- distributed handling via room control devices, PCs, touch-panels or mobile input units
- modules for 35mm din-rail mounting
- connection to cost effective industry standard network protocols: RS485, CAN or TCP/IP
- interface modules for third-party systems : M-BUS, EIB, …

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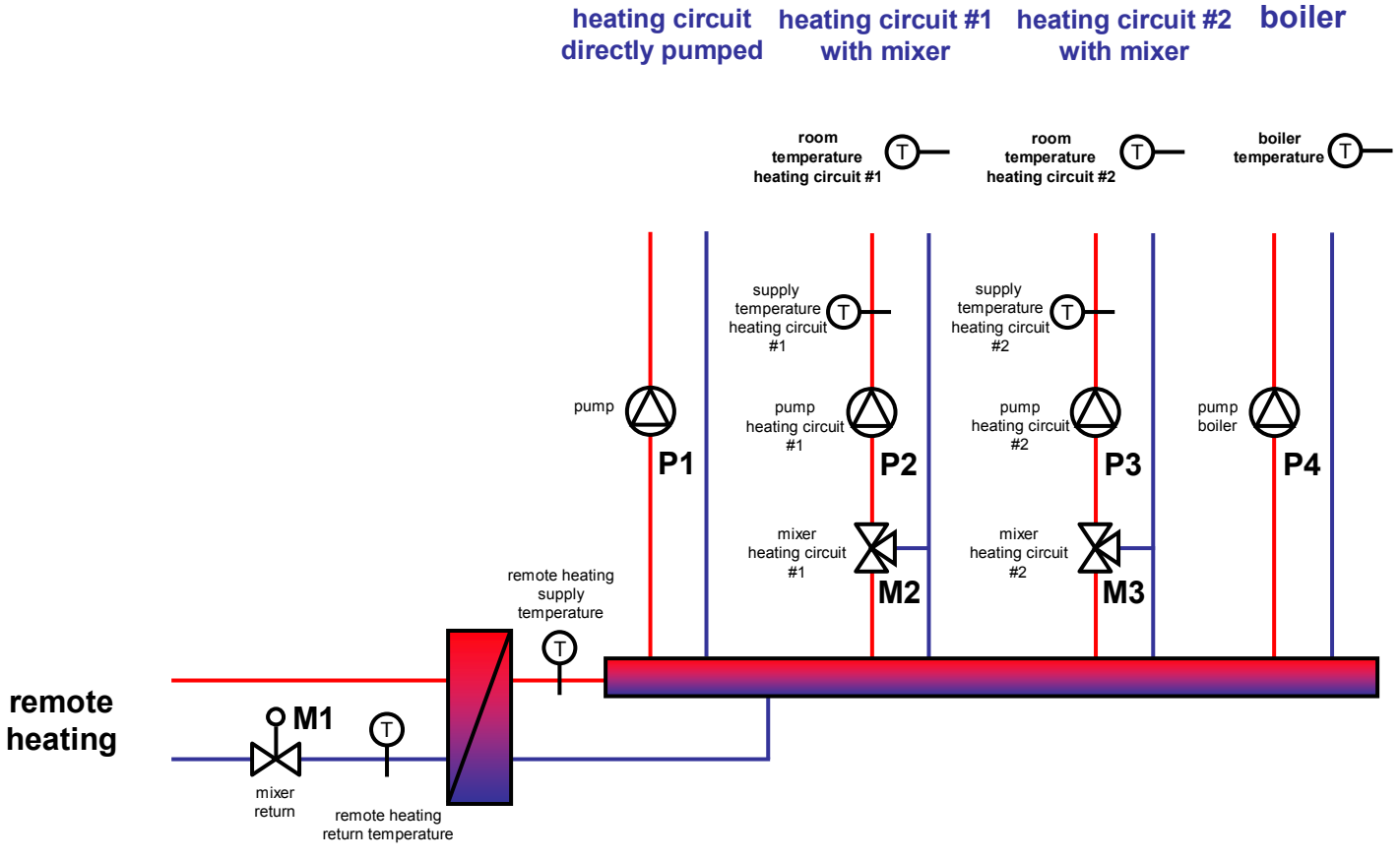
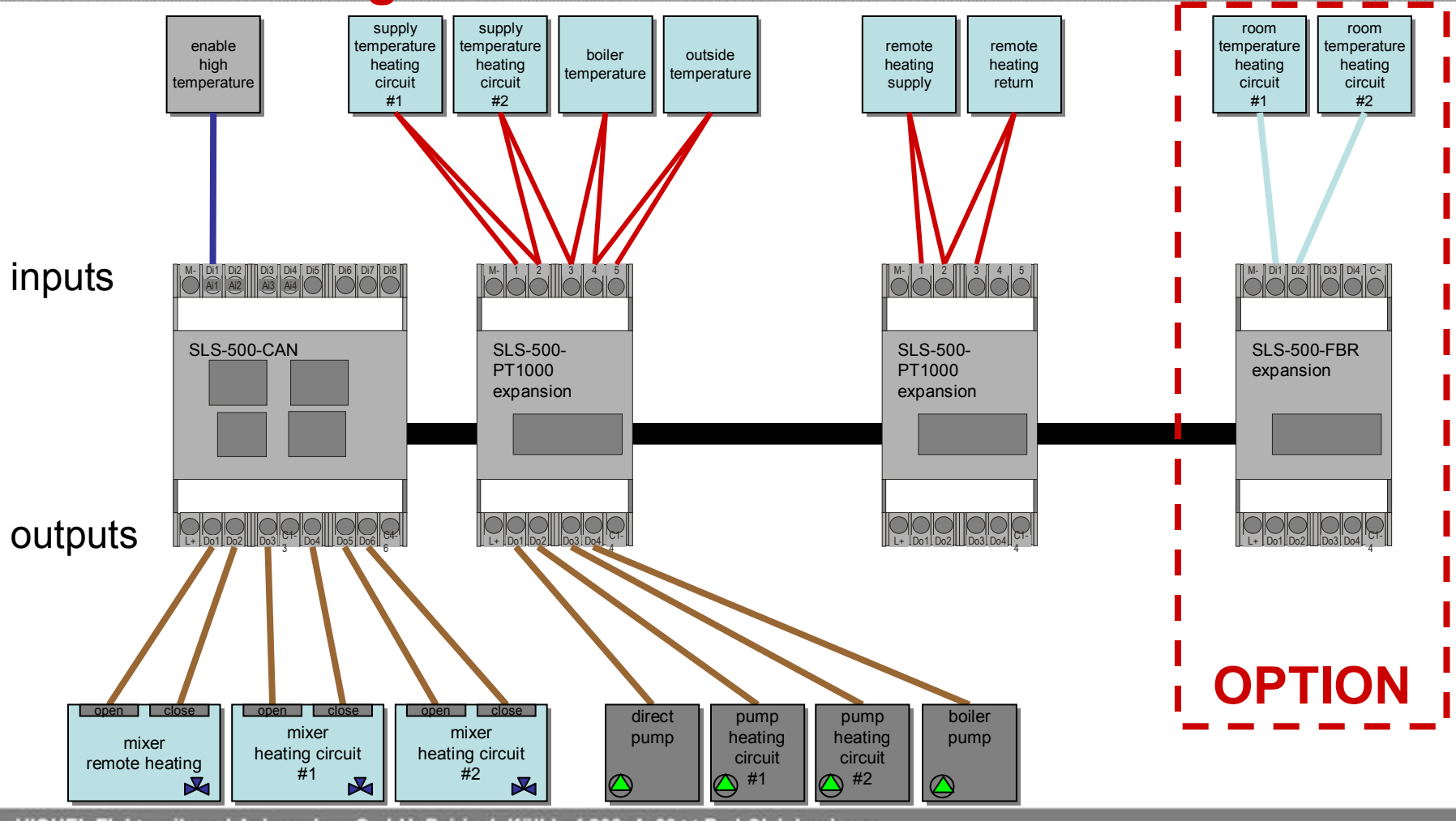
SLS-500 heating control – heating scheme



SLS-500 heating control – solution with SLS-500



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SLS-500 heating control – single zone temperature control

zone #1

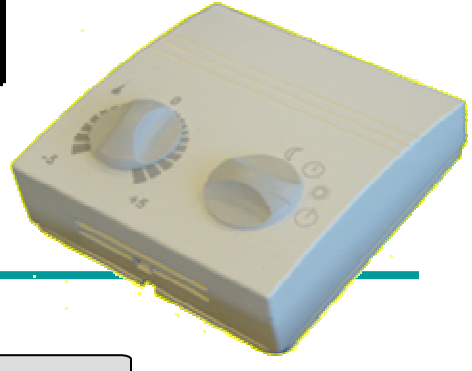
FBR zone sensor
- measure room temperature
- different modes (day/night, auto switch)
- set point correction (-5%..+5%)

zone #2

zone #3

zone #4

To connect the FBR-zone sensor, a 2-wire connection is required, one to the FBR zone module and a return wire connected to the expansion module.



SLS-500-BUS

SLS-500-BUS

The digital output regulates the heating circuit of every single zone.

valve zone#1

valve zone #2

valve zone #3

valve zone #4

Gnd

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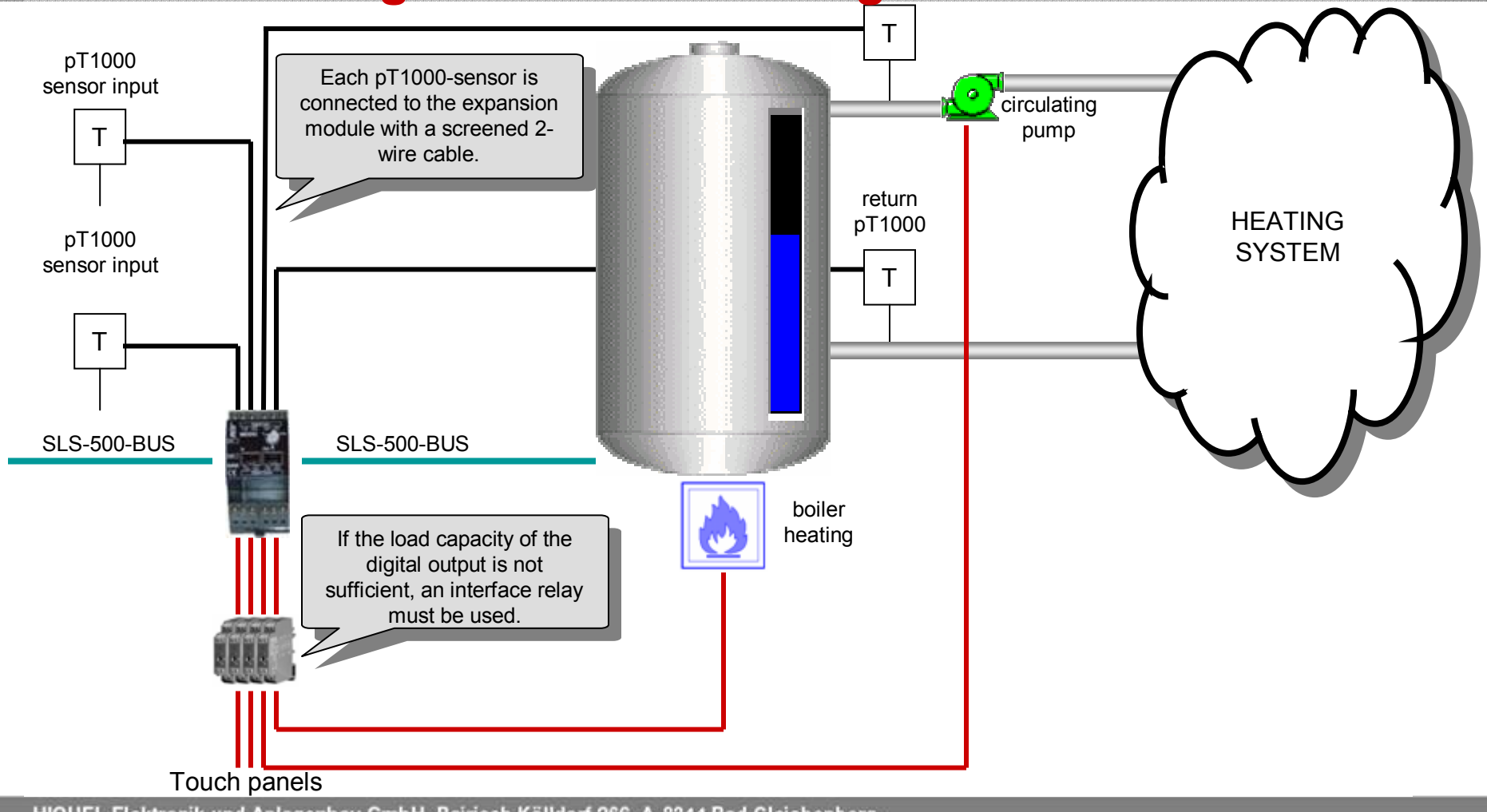
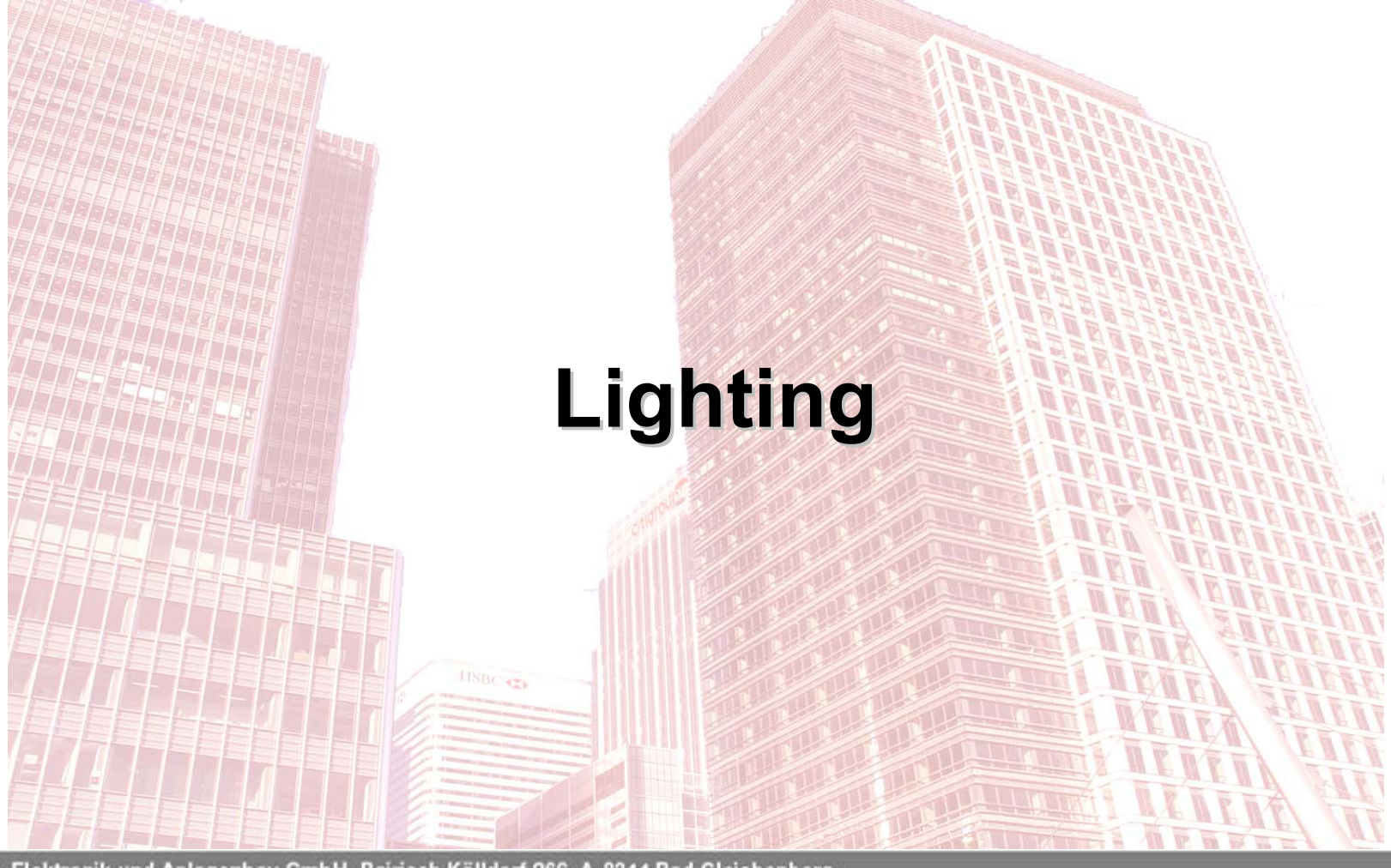
SLS-500 heating control – boiler regulation





Lighting

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modern building automation with SLS-500

LIGHTING

Typical requirements;

- integration of different lighting sources
- ease of use
- energy saving functions
- personal comfort functions
- integration of data from weather stations
- integration of window shutter, blind and curtain controls

SLS-500 Solutions

- various modules - dimmer, digital & analogue I/O plus RS232 & RS485 for flexible integration of lighting systems via industry standard signals.
- power-saving mode using room dimmer controls, time functions and/or movement sensors
- central mimic display with operation of all lighting functions
- linking with access control systems
- lighting sources can be switched on/off according to ambient light
- different lighting schemes and moods can be created

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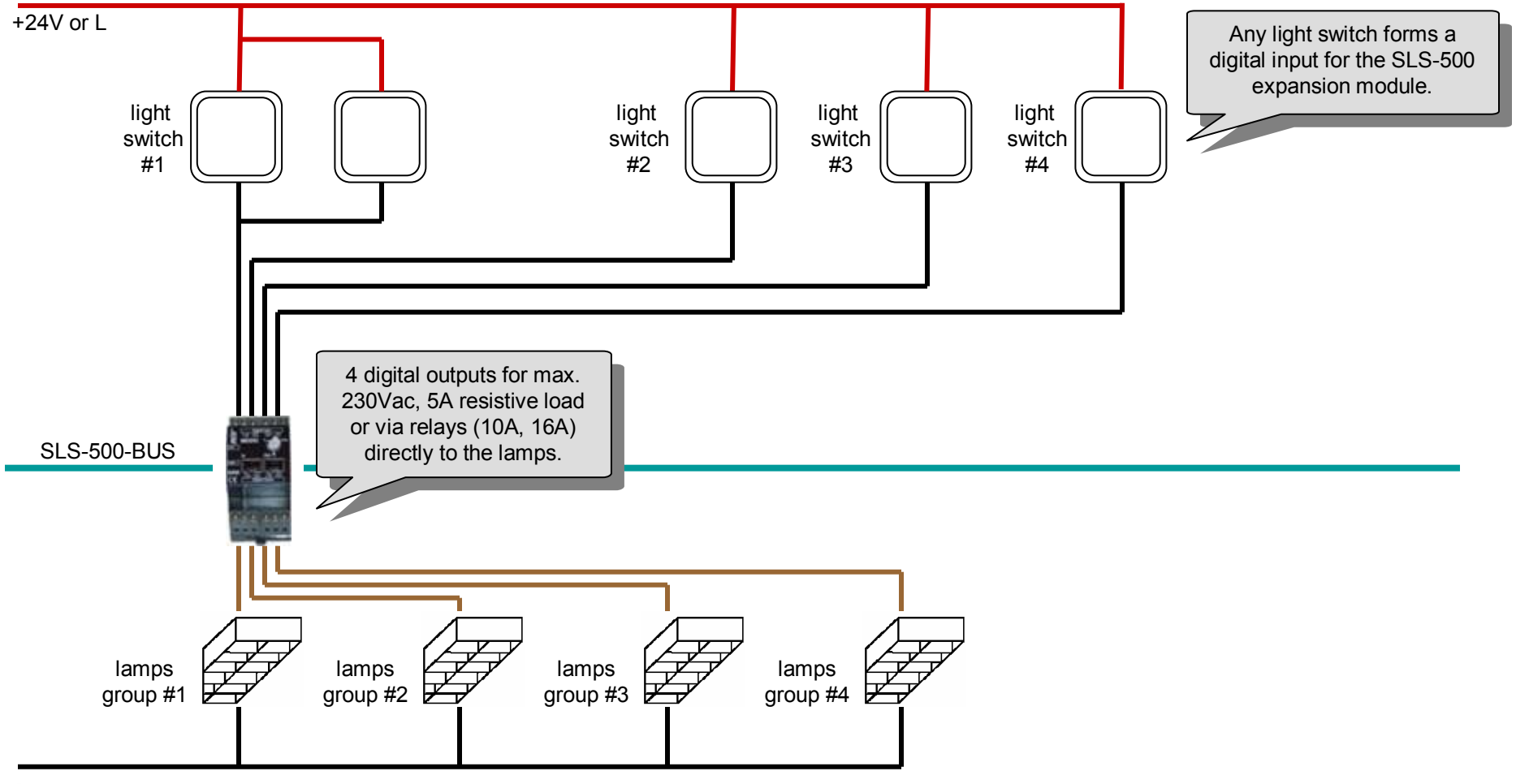
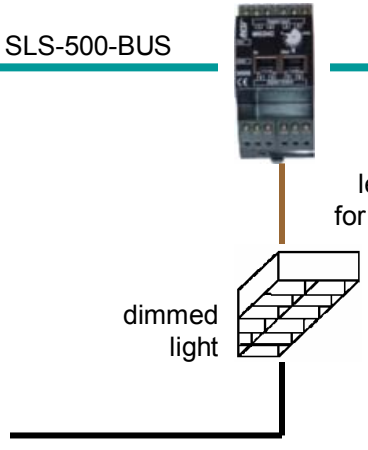
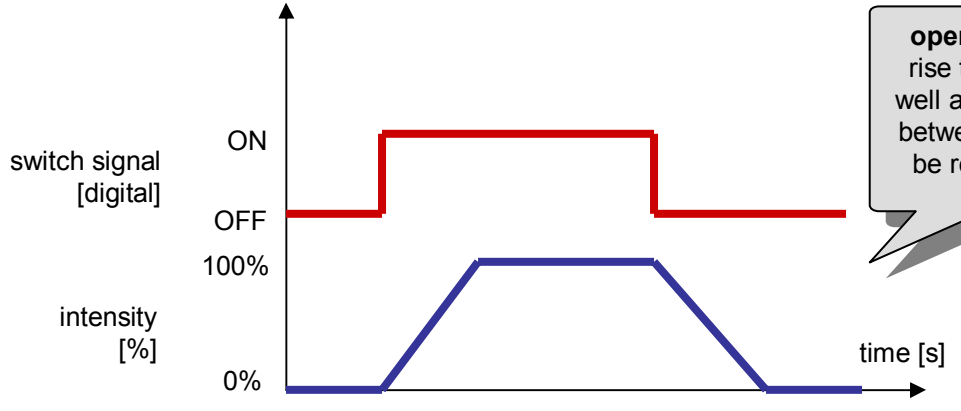
SLS-500 lighting control – wiring of light switches and lights

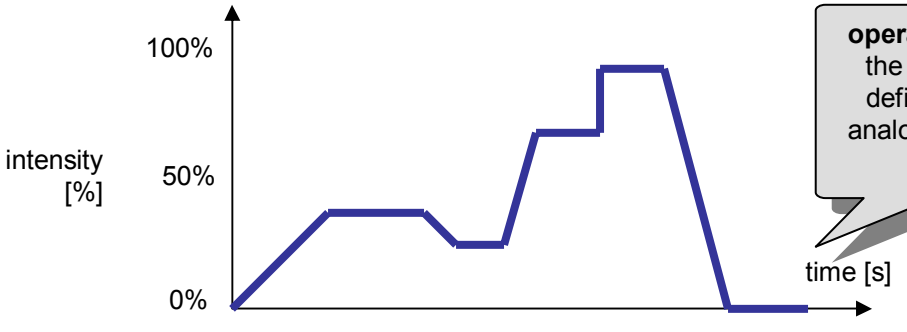


SLS-500 lighting control – dimmer module



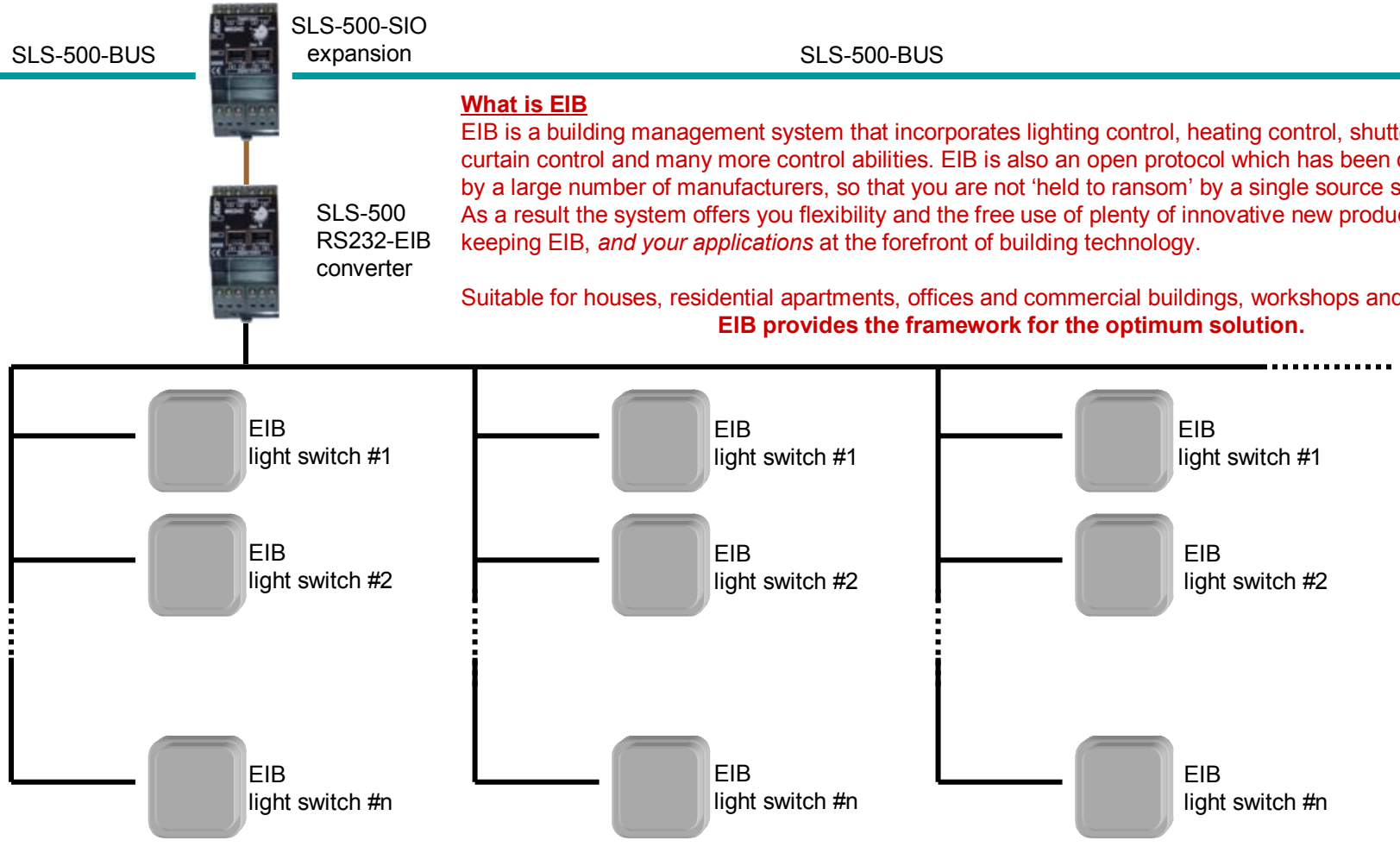


operating mode: switch
rise time- and fall time, as well as maximum intensities between 0% und 100% can be regulated as required.



operating mode: analogue
the dimmed value can be defined at any time as an analogue value between 0% and 100%.

SLS-500 lighting control – integration of European Installation Bus (EIB)



What is EIB

EIB is a building management system that incorporates lighting control, heating control, shutter, blind & curtain control and many more control abilities. EIB is also an open protocol which has been developed by a large number of manufacturers, so that you are not 'held to ransom' by a single source supplier. As a result the system offers you flexibility and the free use of plenty of innovative new products thus keeping EIB, *and your applications* at the forefront of building technology.

Suitable for houses, residential apartments, offices and commercial buildings, workshops and factory floors,
EIB provides the framework for the optimum solution.

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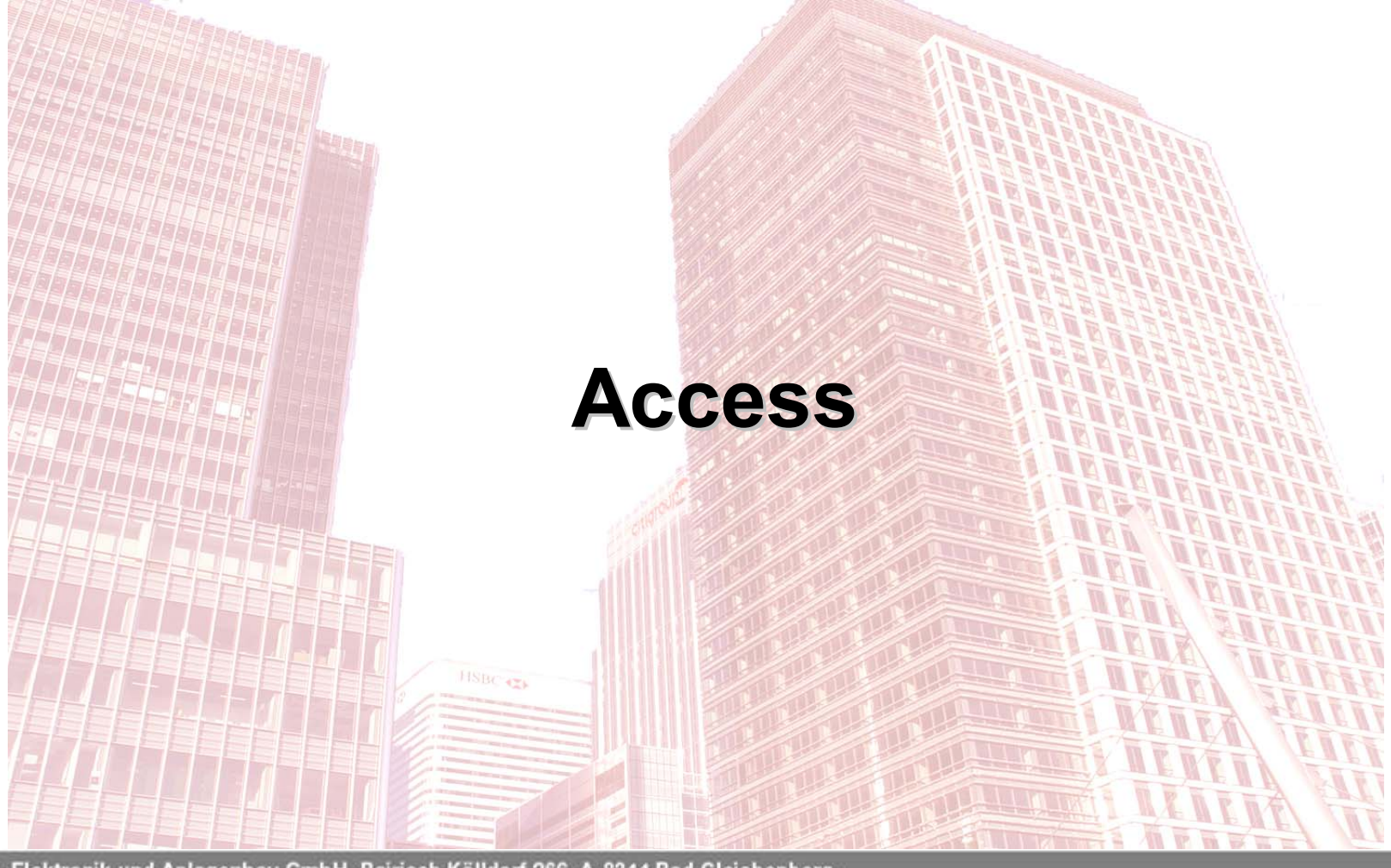

Access

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SLS-500 Building Access Control

ACCESS CONTROL

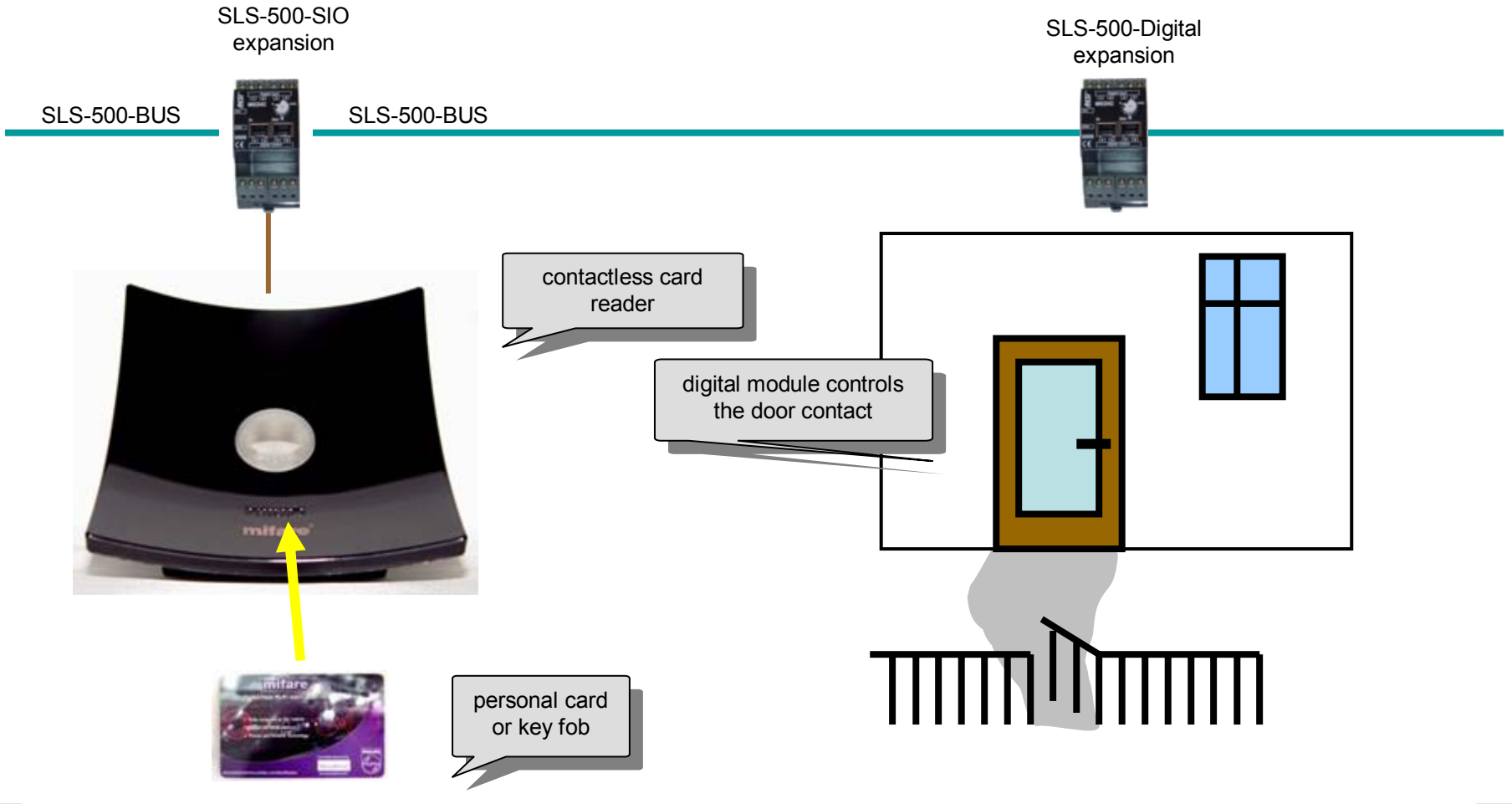
Typical requirements;

- secure configuration of legitimate users
- user authorisation is permanently verified when card reader and 'key' cards are used
- time/attendance recording

SLS-500 Solutions

- use of RFID systems for access control
- linking of the RFID reader via RS232/RS485 or TCP/IP
- door openers are controlled by SLS-500 PLC's
- security lighting control
- linking of video surveillance systems with access control systems
- access data is stored in an SQL data base

SLS-500 access control – integration with RFID systems



Programming with ‘SLS-500 Configurator’

a unique graphical programming environment utilising the full functionality of the Microsoft Office suite with your future in mind

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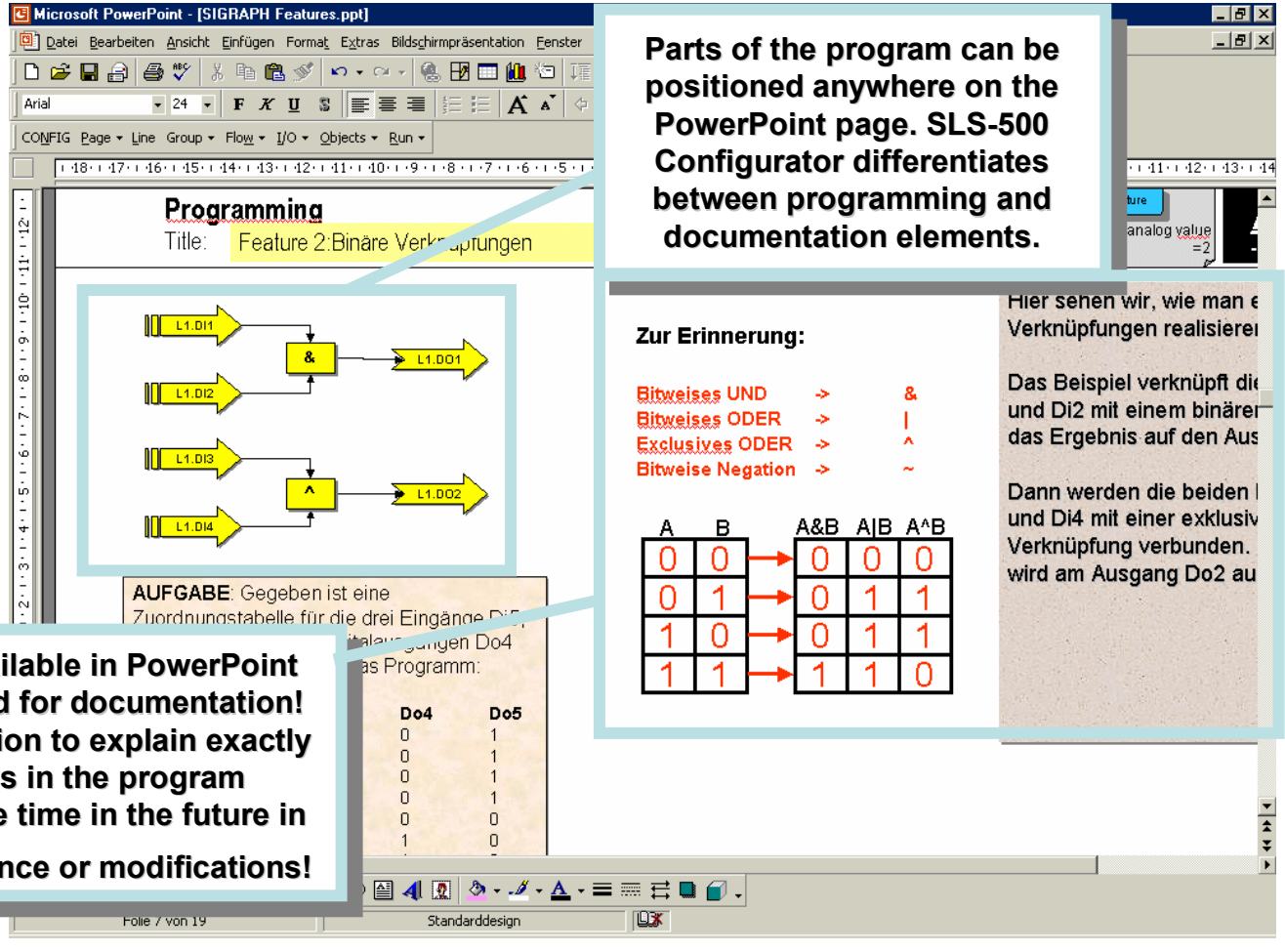
‘SLS-500 Configurator’ – easy graphical programming

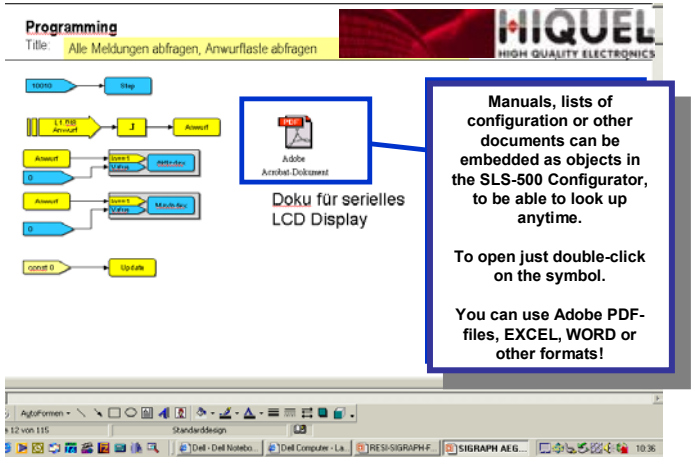


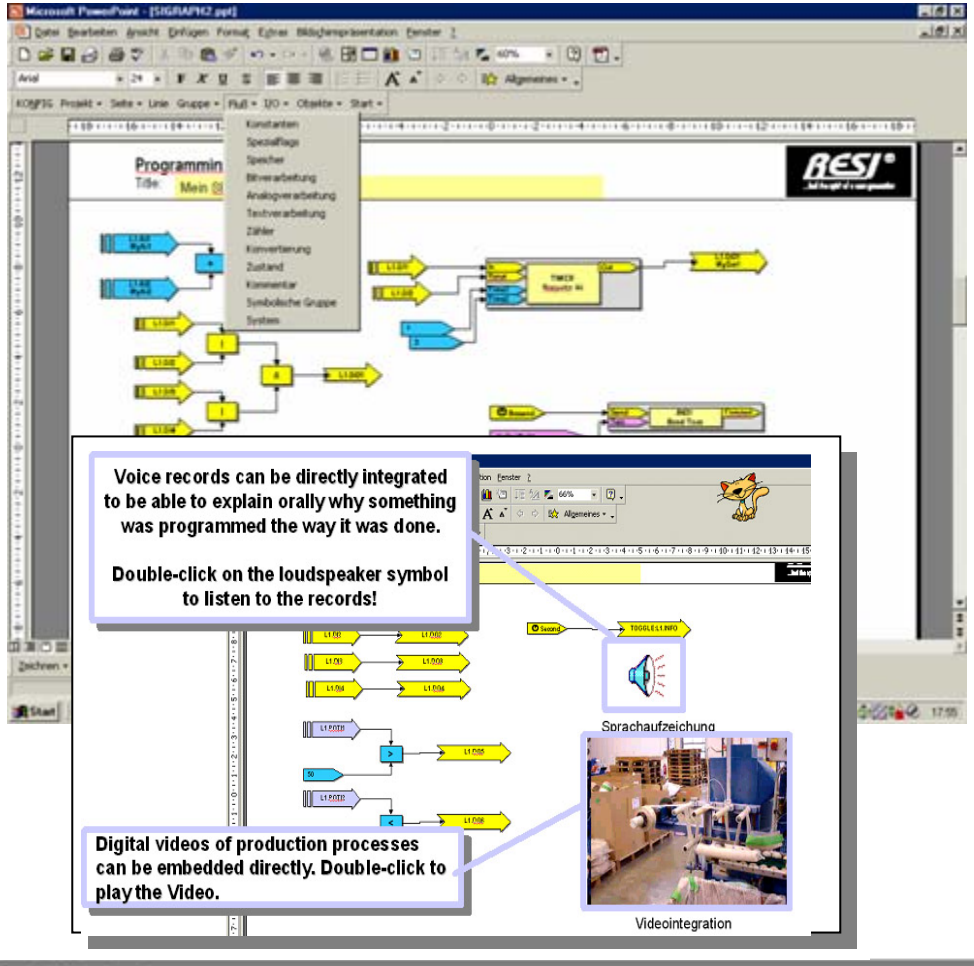
Parts of the program can be positioned anywhere on the PowerPoint page. SLS-500 Configurator differentiates between programming and documentation elements.

All elements available in PowerPoint can be integrated for documentation! You have the option to explain exactly what happens in the program sequence to save time in the future in case of maintenance or modifications!

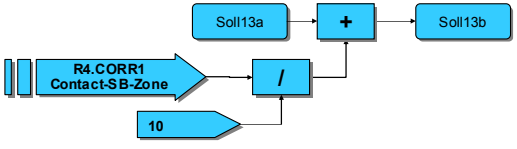
‘SLS-500 Configurator’ – highlights

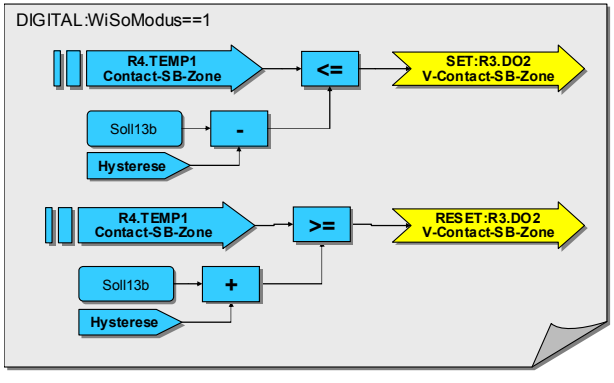
- graphical programming under Microsoft‘s PowerPoint

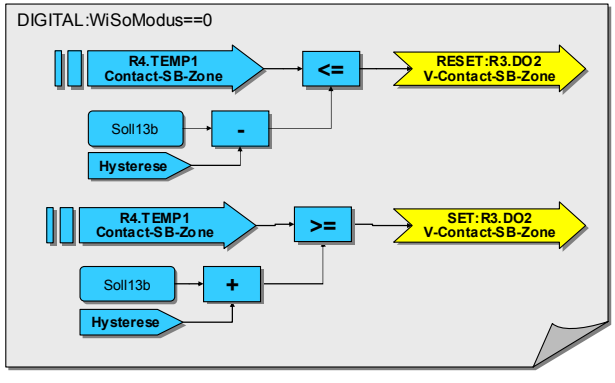


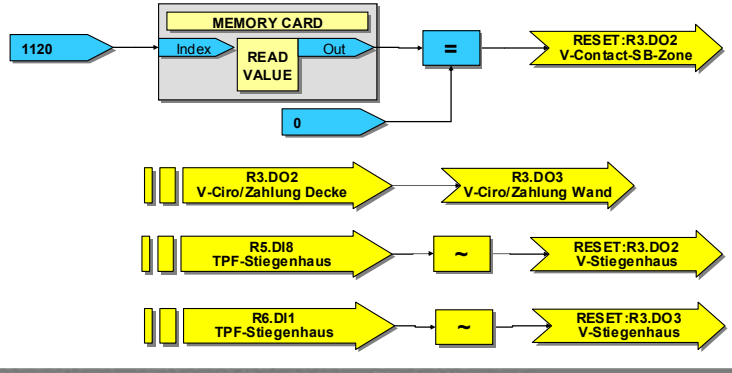


‘SLS-500 Configurator’ – examples of programming

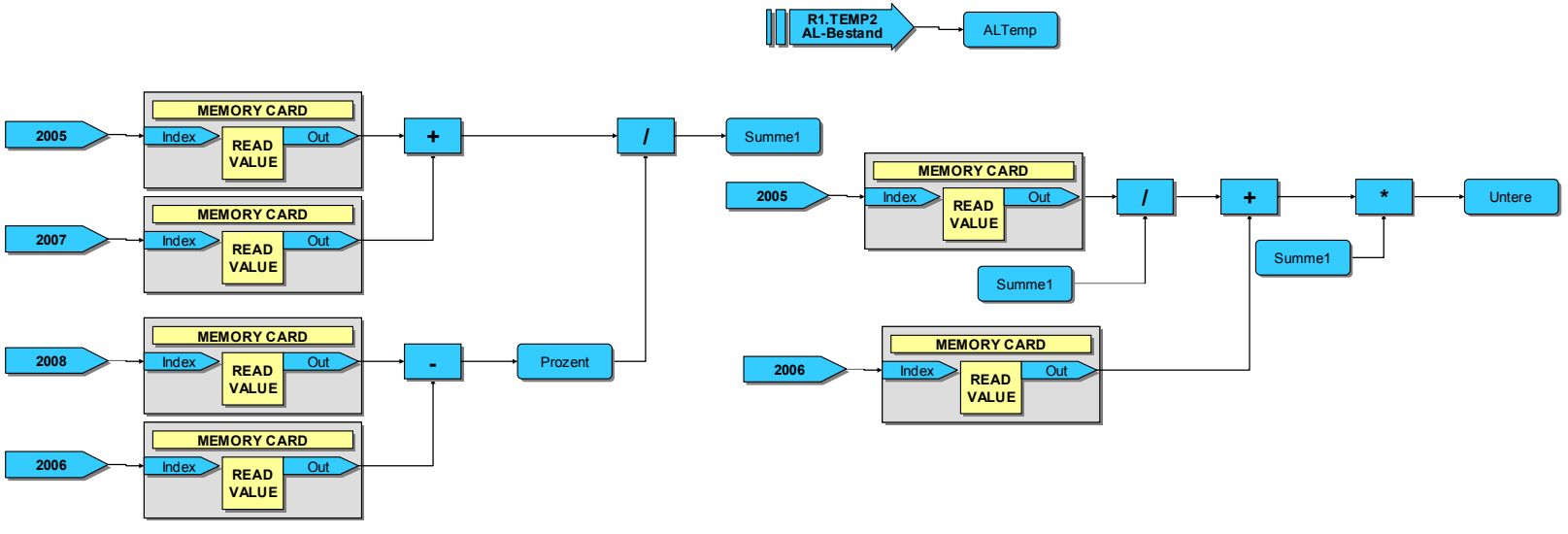


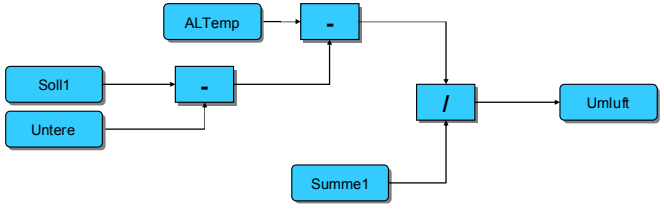




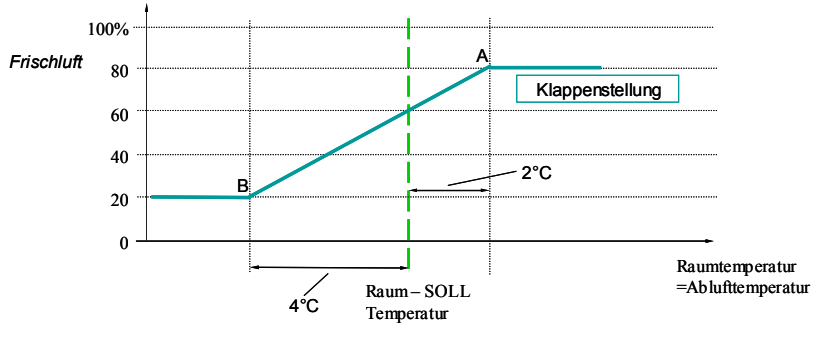


‘SLS-500 Configurator’ – examples of programming

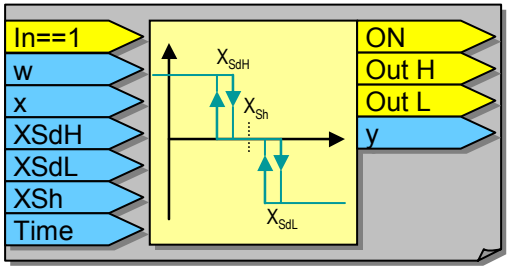




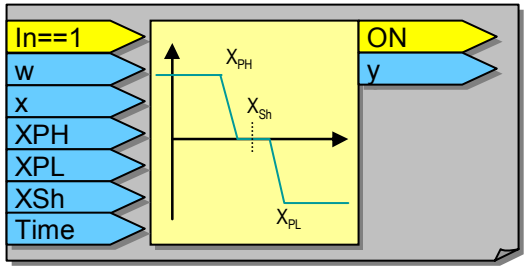
Stellung der Umluftklappe in Abhängigkeit von der Raumtemperatur:



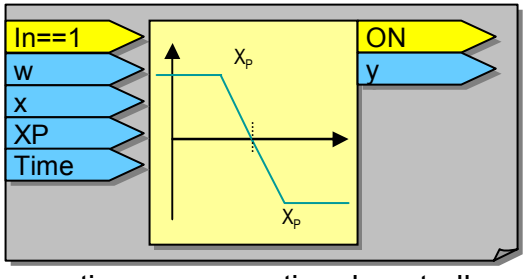
‘SLS-500 Configurator’ – heating and ventilation symbols



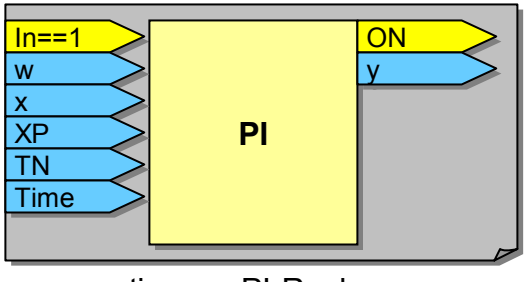
discontinuous three-step controller



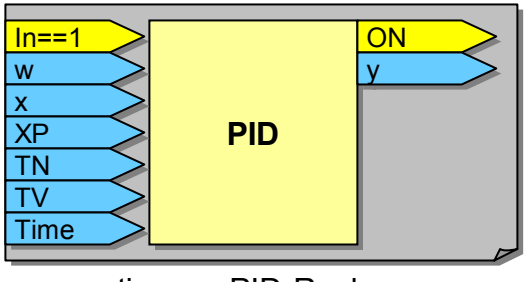
continuous-like proportional controller



continuous proportional controller

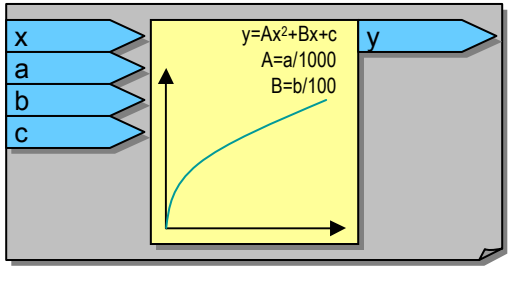


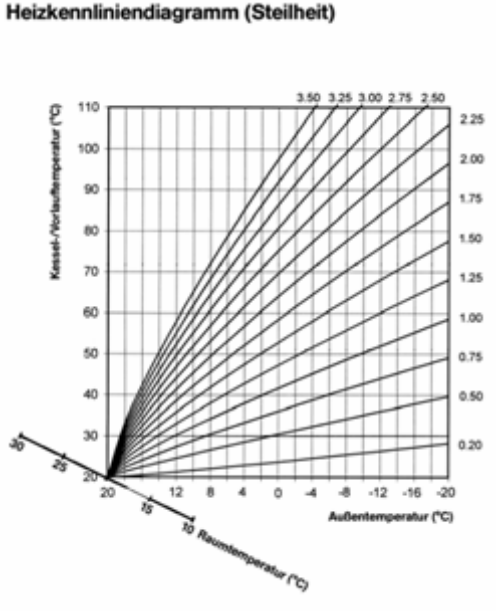
continuous PI-Regler



continuous PID-Regler

and lots of others…





SCADA systems

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SLS-500 – integration with SCADA systems

Operation and monitoring

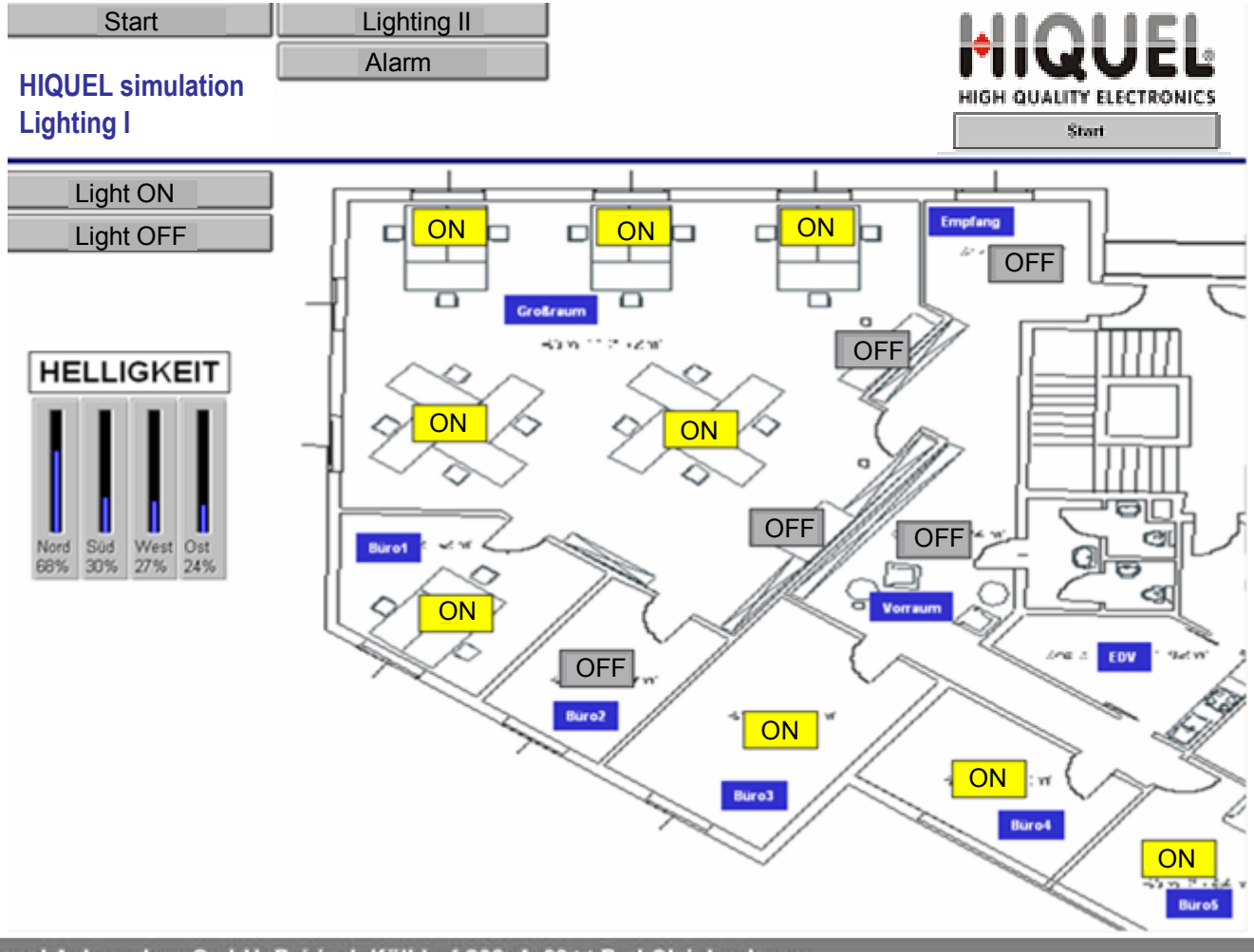
Typical requirements;

- local/remote operating
- archiving of measured data
- reporting
- incident oriented

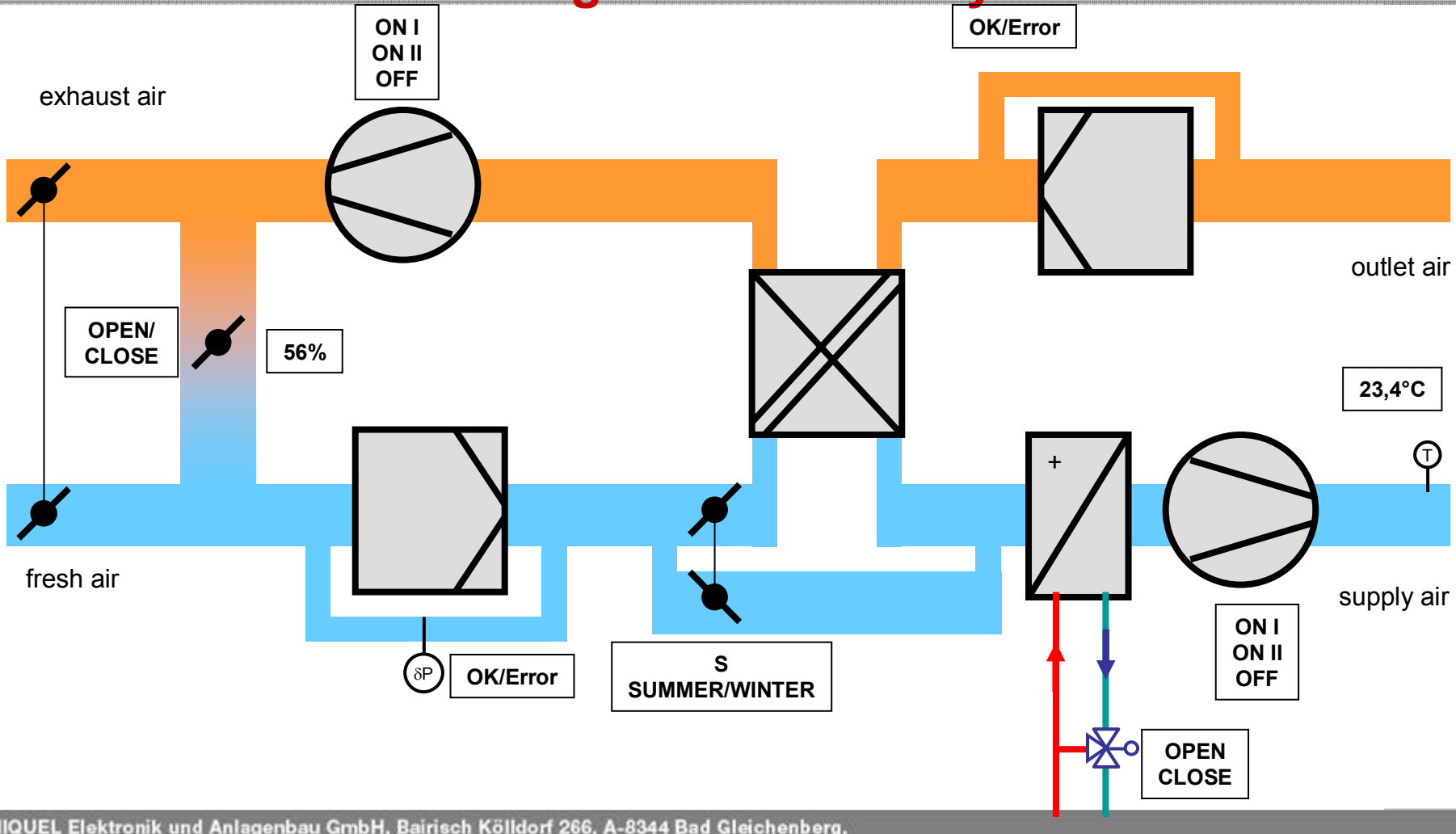
SLS-500 solution

- local or remote installation of panels, PCs, consoles, mobile panels etc…
- a specified value can be viewed and/or changed on every single panel
- remote access to the mimic display via Explorer
- all data is saved in an SQL data base
- data from the SQL data base can be saved and/or analysed based on different criteria: technical or commercial
- alarms can be displayed on the panels via SMS, audio announcement, …

SLS-500 – lighting with SCADA system



SLS-500 - air conditioning with SCADA System



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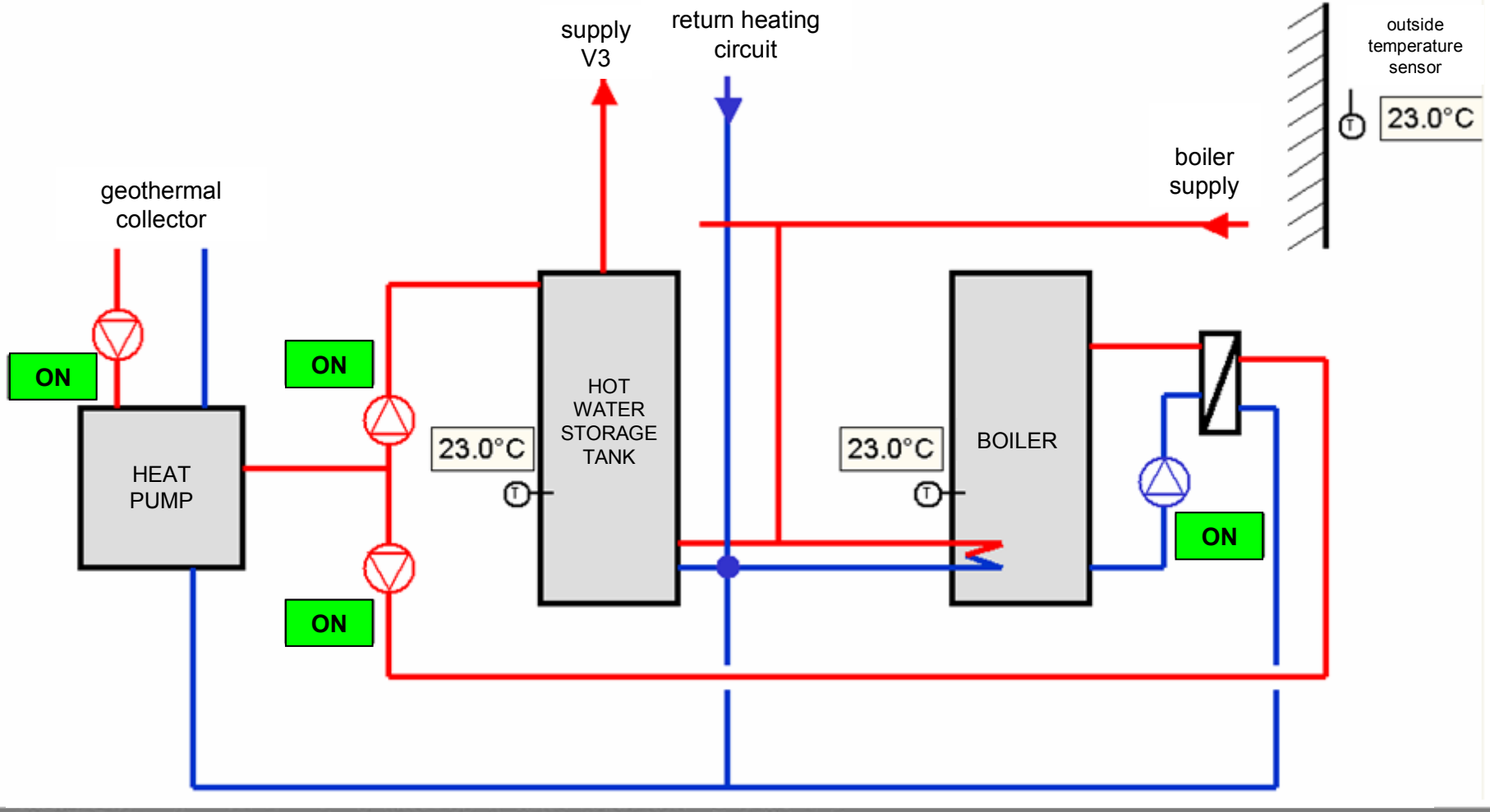
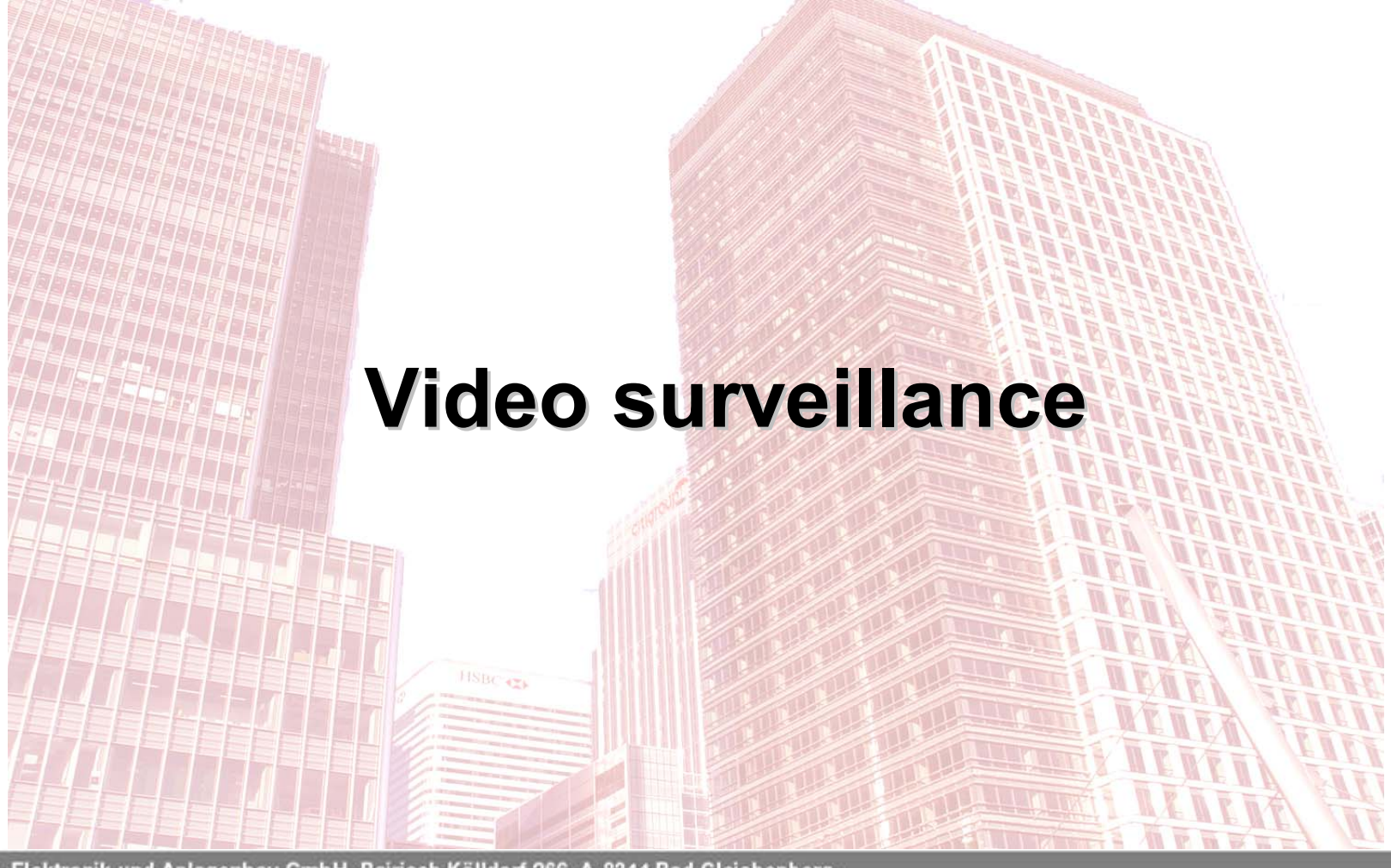
SLS-500 - heating control with SCADA system

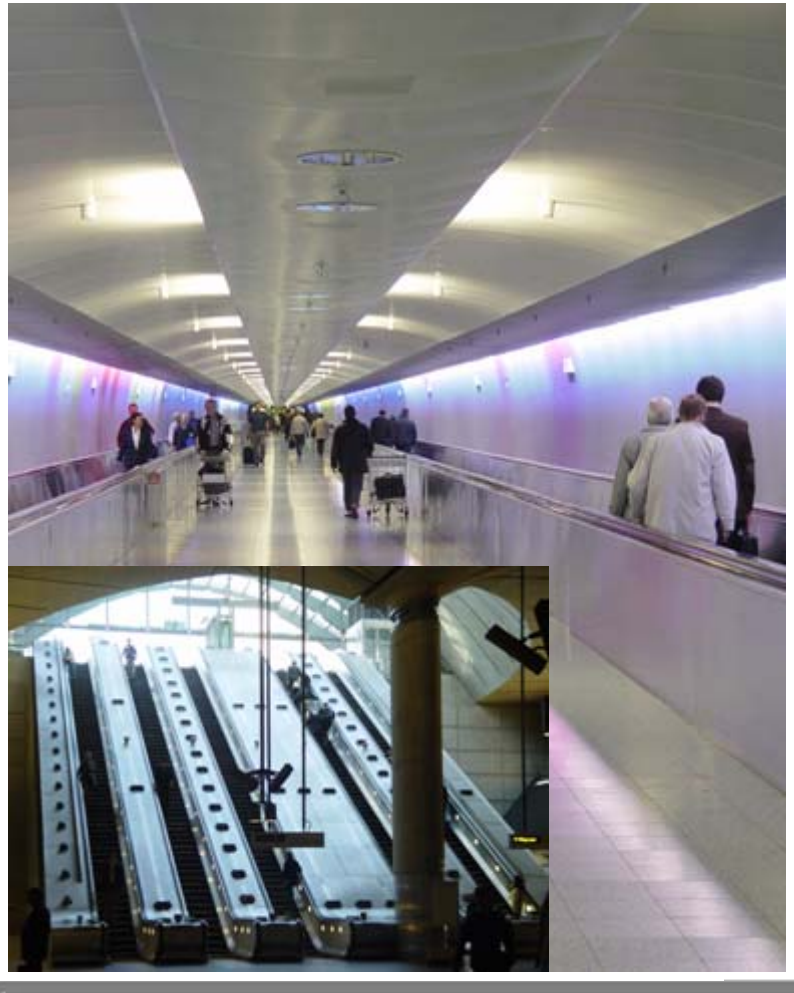




Video surveillance

SLS-500 - video surveillance - overview

- digital recording to up to 160 video cameras
- digital video replay via TCP/IP network
- automatic identification and surveillance of hot-spots within the screen
- emails with MPEG-videos attached are send in case of an alarm
- stored videos are integrated into Internet-Explorer or into the SCADA system



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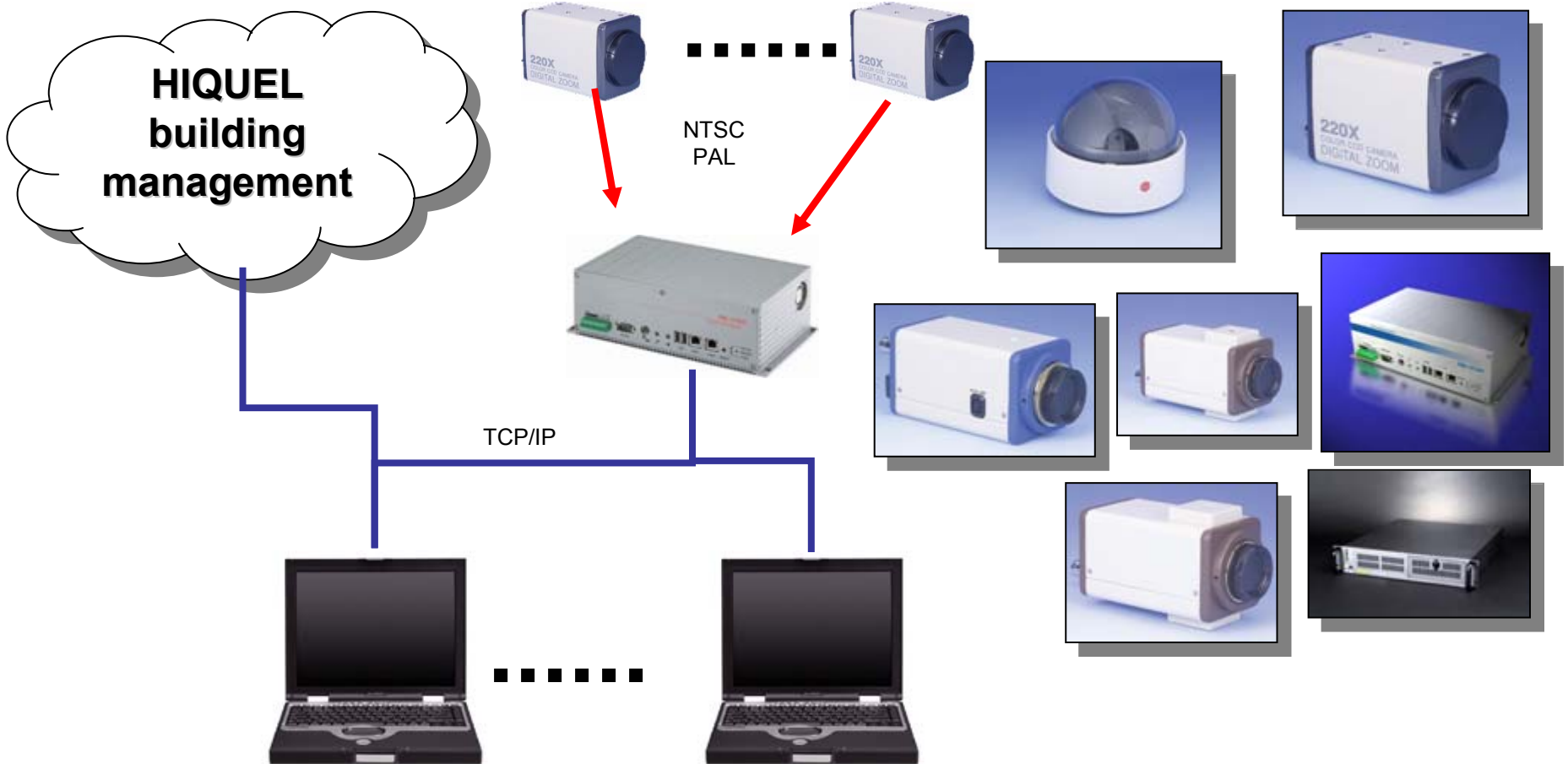
SLS500 - video surveillance - overview



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SLS500 - video surveillance - highlights

Video surveillance

Typical requirements;

- all cameras are recording continuously
- automatic event alarm, e.g. movement
- playback of alarm events
- integration into the building's central control system

SLS-500 solutions

- usage of digital video servers and cameras
- declaration of hot-spots within the screen for automated sending of emails or event alarms
- linkage of all data from movement sensors, contact less card readers and video
- cyclic recording by the video cameras
- video can be played directly in the SCADA mimic display
- distribution of video data via TCP/IP

Weather Station

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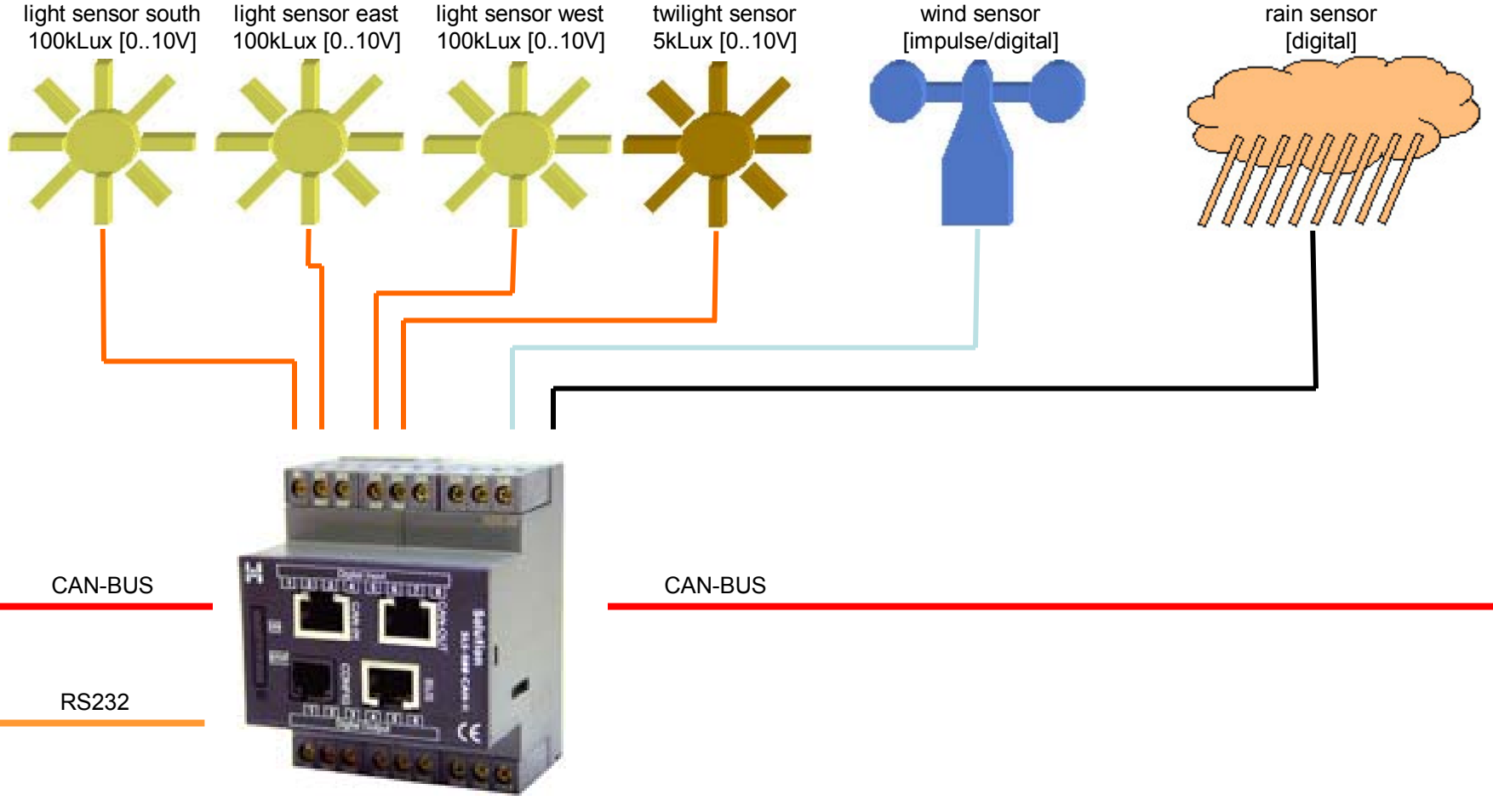
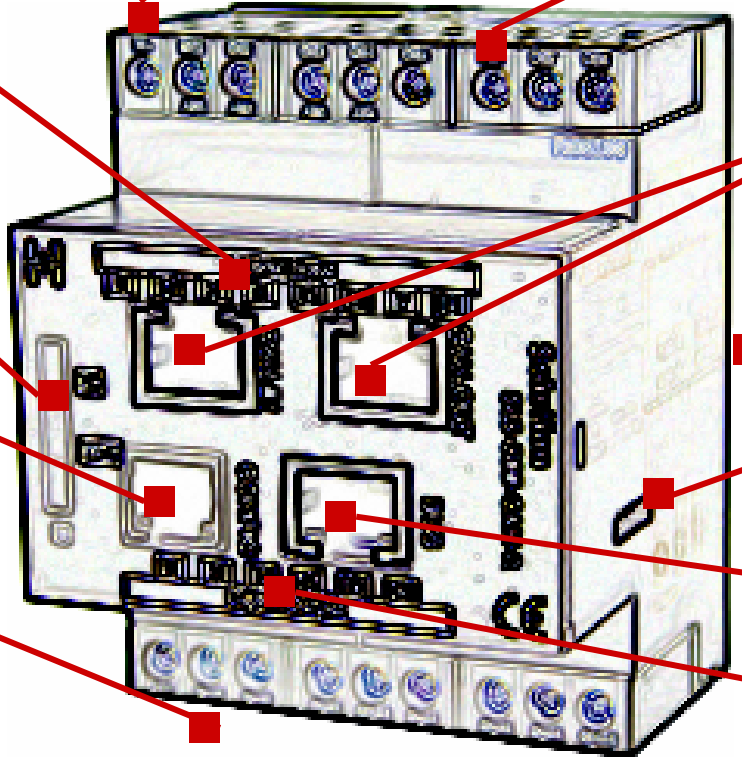
SLS500 - Weather Station - Highlights

- Detects the light levels in the south, east and west
- Detects twilight
- Measures wind strength
- Rain sensor to automatically close windows
- Detects outside air temperature
- Transmits data via CAN-Bus
- Transmits/displays data via RS232

SLS500 - weather station - overview



SLS-500 base module – connections

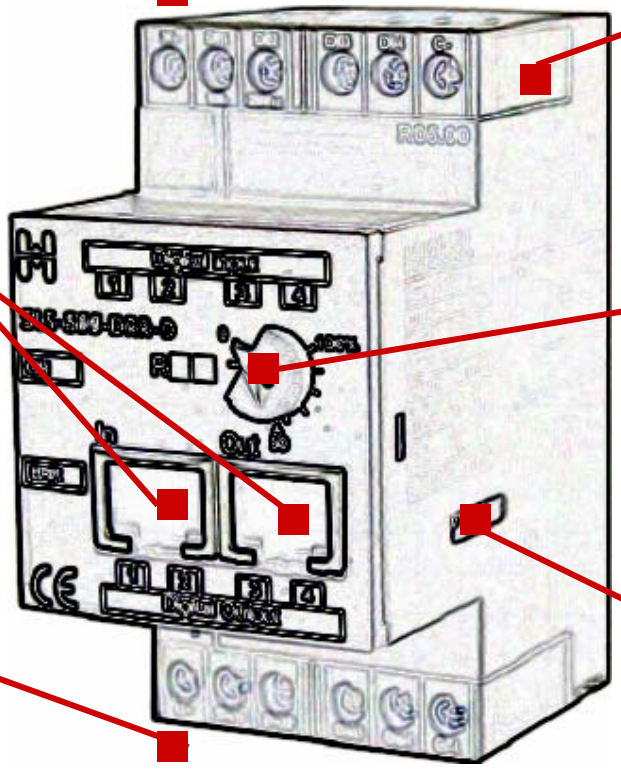


SLS-500 expansion modules – connections

connector for power supply

terminal block for various inputs: digital inputs, analogue inputs (current, voltage), temperature-inputs, PTC-inputs, counter inputs, encoder-inputs, serial ports

SLS-500-BUS interface for connection via CAT5 cable



analogue potentiometer

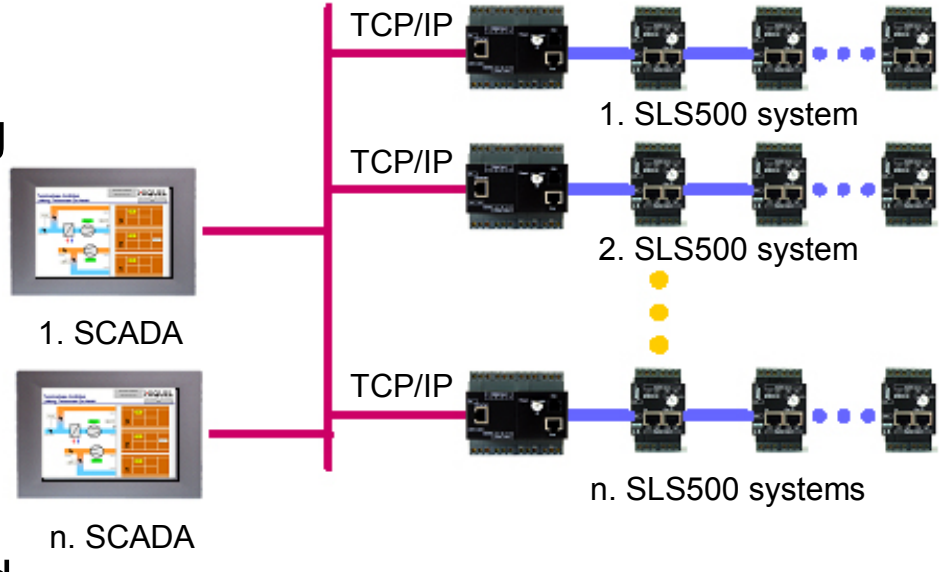
adapter for DIN-rail mounting

various outputs: digital outputs (SPNO relay, Solid State or transistor) or analogue voltage or current outputs

SLS-500-BUS interface for local connection to adjacent module/s

SLS500 - SCADA highlights

- broad range of touch panels and text displays for flush mounting
- communication via TCP/IP, CAN or RS232/RS485
- SCADA-software for easily creating customer-specific mimic display of the plant
- directly supported by ‚SLS-500 Configurator' software
- can also be used for logging man-hours using key-less entry card and contact-less card reader



SLS-500 PLC Base modules - overview

PLC with expansion modules + CAN-Bus


SLS-500-base module


SLS-500-CAN-base module


F1 controller with mass storage


F2 motion-controller with 3 networks

PLC‘s with expansion modules + TCP/IP


SLS-550 base module


HCOM 41, 50, 52, 53

compact PLC‘s


HI-86


SLS-510


SLS-520

SLS-500 PLC's – Expansion module overview

Remote module

Local module

digital expansion modules

SLS-500-DT
⇨4xdigital (24V=)
⇦4xtransistor (24V=, 0.8A)

SLS-500-DR
⇨4xdigital (24V=)
⇦4xSPNO relay (230V~, 5A)

SLS-500-DS
⇨4xdigital (24V=)
⇦4xSolidState (60V~, 2A)

SLS-500-DRR
⇨4xdigital (115V~..230V~)
⇦4xSPNO relay (230V~,5A)

SLS-500-8DI
⇨8xdigital (24V=)

SLS-500-DR
⇦8xSPNO relay (230V~, 5A)

SLS-500-DS
⇦8xSolidState (60V~, 2A)

SLS-500-DT
⇦8xtransistor (24V=, 0.8A)

SLS-500-HSC
⇨4xcounter (24V=, 500kHz)
⇦4xtransistor (24V=, 0.8A)

SLS-500-ENC
⇨2xencoder (24V=, 500kHz)
⇦4xtransistor (24V=, 0.8A)

SLS-500-DIV
⇨1xencoder (24V=, 500kHz)
⇦6xtransistor (24V=, 0.8A)

analogue expansion modules

SLS-500-AU
⇨4xanalogue (0..10V=)
⇦1xanalogue (0..10V=)
⇦4xtransistor (24V=, 0.8A)

SLS-500-4AI
⇨4xanalogue (0/4..20mA)
⇦1xanalogue (0..10V=)
⇦4xtransistor (24V=, 0.8A)

SLS-500-AUAU
⇨4xanalogue (0..10V=)
⇦4xanalogue (0..10V=)

SLS-500-AIAU
⇨4xanalogue (0/4..20mA)
⇦4xanalogue (0..10V=)

SLS-500-AUAI
⇨4xanalogue (0..10V=)
⇦4xanalogue (0/4..20mA)

SLS-500-AIAI
⇨4xanalogue (0/4..20mA)
⇦4xanalogue (0/4..20mA)

SLS-500-MAI
⇨4xanalogue (0/4..20mA,16Bit)

SLS-500-MAU
⇨4xanalogue (0..10V=,16Bit)

temperature, motor/pump, RS232,RS485,GSM/SMS, dimmer

SLS-500-PT1000
⇨4xPT1000
⇦4xtransistor (24V=, 0.8A)

SLS-500-PT100
⇨2xPT100
⇦4xtransistor (24V=, 0.8A)

SLS-500-FBR
⇨4xFBR
⇦4xSPNO (230V~, 5A)

SLS-500-PTC
⇨4xthermistor
⇦4xtransistor (24V=, 0.8A)

SLS-500-DIM
⇦1xdimmen(230V~,600W)

SLS-500-SIO
⇨2xRS232 or RS485
⇦2xRS232 or RS485

SLS-500-SMS
⇨1xGSM/SMS via TC35
⇦1xGSM/SMS via TC35

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Building Management System

FA
Factory Automation

Machine Automation

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