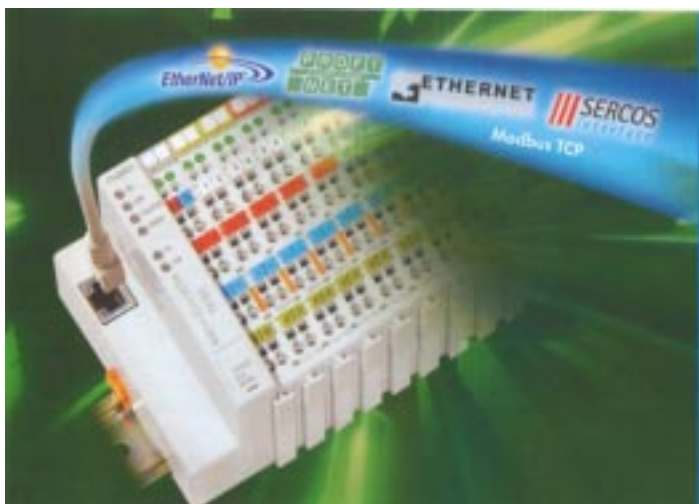


# Trainingsssystem



## PLC Function-Simulators Bus technology



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# Trainingsssystem

## PLC / Funktion-Simulators / Technology-Models

The advantage's of this didactic system:

All Didactic-Equipment from our house follows the same concept: All elements for education are compatible. Components from Pneumatics, Electrics, Hydraulics and PLC with Function-Simulators can be use in this different Systems. Now, we have three different PLC-Systems in our Didactic system integrated. Thats OMRON, SIEMENS and MITSUBISHI. Principle we can integrated every PLC-kind in our system.

It's doesn't matter: If you have the pushing system for Pneumatics or the insertion system in Hydraulics or both in PLC-Technologie with Function-Simulators, all equipment can be use in all different Systems.

Some examples:

- the electrical equipment for electro-pneumatics is compatible for electro-hydraulics, while you can screwing off the pushing-legs from pneumatics and than thats all for the insertion in hydraulics.
- Space-problems? In our hydraulics-trolley we can integrated the pneumatics display. You can teach this different things on the same place
- we can screw in the PLC-display and his function-simulators the pushing-legs from pneumatics and electro-pneumatics. Than you can integrated the PLC-system in the pneumatics in a grid of 25 mm for control cylinders and everyone. A other way is without the legs in to the insertion-system for hydraulics and you can control all hydraulics equipment with PLC

And the display for PLC and the simulators have the height DIN A4 (297 mm). Than its compatible for electric and electronics lab's.

- Every simulators and models we are deliver with a PLC-example program.

The Literatur is from our house. Thats the result from 15 years know how in seminars for the systems above. Additionally for every PLC system we are deliver specified document from the due hardware.

The term **Simulator** means equipment for different process without movement.

The term **Technology-model** means equipment for different process with movement.

The term **Simulator-model** is the combination of both above.

At this time we have four different Technoloy-models:	Production station	"Distribution"
	Production station	"Testing ground"
	Production station	"Process"
	Production station	"Magasin"

all Production stations are independent and can be suppose with other stations. So, you can built a small automation factory, the new way: Mechatronic!

You can see it, with this intelligent system you can teach everyone in control technology's. And its doesn't matter where you are start, this is not a one way education system!!



# PLC - Programming unit's OMRON

Description

Order - No.

PLC

PRO-15

- o Programming - Console
- o directly connecting on the top of the PLC
- o Move´able Switch for three different Mode´s:  
RUN / MONITOR / PROGRAM
- o Connection for Cassette-recorder
- o useable for S - 100



PLC

PRO-27

- o Programming - Console
- o with cable connecting to the PLC (cabel ordering seperatly)
- o Key-switch for three different Mode´s:  
RUN / MONITOR / PROGRAM
- o Connection for Cassette-recorder
- o useable for S - 100 and S - 010



PLC

CQM-PRO001

- o Programming - Console
- o with cable connecting to the PLC (cabel ordering seperatly)
- o Key-switch for three different Mode´s:  
RUN / MONITOR / PROGRAM
- o Connection for Cassette-recorder
- o useable for S - 100

# PLC - Unit's Mitsubishi



Description	Order - No.
PLC	S - 010 / M
<ul style="list-style-type: none"> <li>o PLC - Compact-unit</li> <li>o Voltage supply 24 VDC</li> <li>o 16 digital Input's</li> <li>o 14 Output's, Relay 24 VDC/2A</li> <li>o Instruction Execution time: 1,60 s (Basic Instruction) 3,5 s (Function)</li> <li>o integrated seriell connection for communication with PC</li> <li>o 4 integrated High-Speed-Counter up to 5 KHz</li> <li>o 20 Basic Instruction's</li> <li>o Memory up to 800 Words (Word=2 Byte)</li> <li>o 496 Auxiliary Relay</li> <li>o 56 Flags</li> <li>o 16 Holding Relay</li> <li>o 80 Timer / 16 Counter</li> <li>o expanding up to 256 In-/Output's</li> <li>o also with 8 I / 6 O and with 12 I / 8 O delivery useable for DIN A4-System (Rack) or for Pneumatics pushing system</li> <li>o integrated Function-model "7-Segment-LED"</li> <li>o integrated Digital-Simulator</li> </ul>	
PLC	S - 100 / M
<ul style="list-style-type: none"> <li>o PLC - Compact-unit</li> <li>o Voltage supply 24 VDC</li> <li>o 14 digital Input's</li> <li>o 10 Output's, Relay 24 VDC/2A</li> <li>o expandable with Analog-module</li> <li>o Instruction Execution time: 1,60 s (Basic Instruction) 3,5 s (Function)</li> <li>o integrated seriell connection for communication with PC</li> <li>o 4 integrated High-Speed-Counter up to 5 KHz</li> <li>o 20 Basic Instruction's</li> <li>o Memory up to 2000 Words (Word=2 Byte)</li> <li>o 384 Auxiliary Relay</li> <li>o 57 Flags</li> <li>o 128 Holding Relay</li> <li>o 64 Timer / 32 Counter</li> <li>o expanding up to 128 In-/Output's</li> <li>o also with 24 I / 16 O and with 36 I / 24 O delivery useable for DIN A4-System (Rack) or for Pneumatics pushing system</li> <li>o integrated Function-model "7-Segment-LED"</li> <li>o integrated Digital-Simulator</li> </ul>	

# PLC - Programming units and Software Mitsubishi

Description

Order - No.

PG

FX 10P

- o Programming - Console
- o with cable connecting to the PLC (cabel ordering seperatly)
- o useable for S - 100 and S - 010



Description

Order - No.

MELSEC

MEDOC

- o PC-Software for MS-DOS/Windows
- o Ladder diagram and Instructionslist
- o german / english
- o Disc 3,5"
- o incl. 1 Connecting cabel PC - SPS
- o incl. Instruction book

# PLC - Unit's, SIEMENS S7

Description

Order - No.



LOGO!-Small control

S-001/L

- o Base unit with Display
- o 24 VDC
- o 8 Input's ( 2 useable as analogues Input's)
- o 4 Output's (Relay, 10 A)
- o without short circuit proof
- o Protection class IP 20
- o all In-and Output's with safety connectors
- o Quick mounting in Electro frame of the trolley
- o System width 150 mm

PLC

S - 010 / S7-16

- o PLC - Compact-unit S7-300 (CPU 312 C)
- o Voltage supply 24 VDC
- o 10 digital Input's
- o 6 digital Output's, 24 VDC/ 0,5A
- o Instruction Execution time: 0,4 s (Basic Instruction)
- o 1-2 s (Word-Operation)
- o integrated seriell connection for communication with PC (MPI-Interface for 32 branches)
- o integrated High-Speed-Counter up to 10 KHz
- o Word Instructions, fluid-point addition available
- o Memory 16 KByte
- o 1024 Auxiliary Relay, all remanent adjustable as Holding Relay
- o 128 Timer / 128 Counter, all remanent adjustable
- o Puls-with-modulation for valve control functions
- o Programmable with our **Software WINSPS-S7**
- o useable for DIN A4-System (Rack) or for Pneumatics pushing system
- o integrated Function-model "7-Segment-LED"
- o integrated Digital-Simulator
- o incl. top table Aluminium frame

PLC

S - 010 / S7-48

- o same as S-010 / S7-16 but with additional 16 digital Inputs and 16 digital Outputs

also together: 26 DI, 22 DO

for big sequence control circuits, e.g. by the education to Mechatronics



The PLC is delocable from the didactical-subplate with two screws, thereby easy to integrate in Mechatronics-Flexible production system!!

Description

Order - No.

PLC	S - 100 / S7
-----	--------------

The PLC is delocable from the didactical-subplate with two screws, thereby easy to integrate in Mechatronics-Flexible production system!!

- o PLC - modular-unit S7-300 (CPU 313 C)
- o Voltage supply 24 VDC
- o 24 digital Input's
- o 16 digital Output's, 24 VDC / 0,5A
- o 4 analog Input's, +-10V, +-20mA, solution 11Bit
- o 1 analog Input for Resistance and Temperure
- o 2 analog Output, +-10V, +-20mA, solution 11Bit
- o Instruction Execution time: 0.1 0.2 s  
(BasicInstruction)  
0.5 s  
(Word-Operation)
- o integrated seriell connection for communication with PC (MPI-Interface for 32 branches)
- o integrated High-Speed-Counter up to 30 KHz
- o Word Instructions, fluid-point addition available
- o Memory 32 KByte
- o 2048 Auxiliary Relay, all remanent adjustable as Holding Relay
- o 256 Timer / 256 Counter, all remanent adjustable
- o Puls-with-modulation for valve control functions
- o Programmable with our **Software WINSPTS-S7**
- o Real-Time-Clock
- o programmable with S7-Software or WINSPTS
- o useable for DIN A4-System (Rack) or for Pneumatics pushing system
- o integrated Function-model "7-Segment-LED"
- o integrated Digital and Analog - Simulator
- o incl. top table Aluminium frame

3 connectors for MCS



# SPS - Steuergeräte SIEMENS-S7 mit Profibus-DP-Master

The PLC is delocable from the didactical-subplate with two screws, thereby easy to integrate in Mechatronics-Flexible production system!!



Description

Order - No.

PLC

S - 100-S7DP-MCS

- o PLC - modular-unit S7-300 (CPU 313 C DP)
- o Voltage supply 24 VDC
- o 16 digital Input's
- o 16 digital Output's, 24 VDC / 0,5A
- o DP-Master-Interface
- o Instruction Execution time: 0.1 0.2 s  
(BasicInstruction)  
0.5 s  
(Word-Operation)
- o integrated seriell connection for communication with PC (MPI-Interface for 32 branches)
- o integrated High-Speed-Counter up to 30 KHz
- o Word Instructions, fluid-point addition available
- o Memory 32 KByte
- o 2048 Auxiliary Relay, all remanent adjustable as Holding Relay
- o 256 Timer / 256 Counter, all remanent adjustable
- o Puls-with-modulation for valve control functions
- o Programmable with our **Software WINSPS-S7**
- o Real-Time-Clock
- o programmable with S7-Software or WINSPS
- o useable for DIN A4-System (Rack) or for Pneumatics pushing system
- o integrated Function-model "7-Segment-LED"
- o integrated Digital and Analog - Simulator
- o incl. top table Aluminium frame

PLC

S - 100-S7DP-MCS 2

- o CPU 314 CDP
- o same as S-100-S7DP-MCS but with extra  
4 analog Input's, +-10V, +-20mA, solution 11Bit  
1 analog Input for Resistance and Temperure  
2 analog Output, +-10V, +-20mA, solution 11Bit
- or: Same as S-100 / S7 with extra  
Profibus-DP-Interface

ideal for the base education as with the CPU 313C, but after the base training you can start with education in Bus technology.



# Slaves with all Protocols

Basically, we can implement the Slave-Adapter with following Bus controllers: Profibus-DP, Ethernet TCP-/IP, Profinet IO, Interbus, DeviceNet, CANopen, CAL, MODBUS, CC-Link, Firewire, LONWORKS.

Our Module`s (on the next page) are realized with a Profibus-Controller. Other controllers can be switched very easy on the same place as the PROFIBUS-Controller. The I/O`s are the same.



# PLC - Slaves with Profibus-DP-Interface

Basically, we can implement the Slave-Adapter with following Bus controllers:

Profibus-DP, Ethernet TCP/IP, Profinet IO, Interbus, DeviceNet, CANopen, CAL, MODBUS, CC-Link, Firewire, LONWORKS.

Our Module's below are realized with a Profibus-Controller. Other controllers can be switched very easy on the same place as the PROFIBUS-Controller. The I/O's are the same.



## Slave-Adapter

MCS-569

- o Adapter to realize the SUB-D-plug from a PLC or a following Base-slave to the 4 mm safety plugs. Than you can connect very easy the equipments like Valve's, switches, sensors, and relays from our Electropneumatics and Electrohydraulics system to the Bus-technology.
- o SUB-D-connector with 1.5 m cable
- o 6 digital Inputs; 24 VDC
- o 4 digital Outputs; 24 VDC; 0,5A
- o 24 VDC-Supply



## Base-Slave

MCS-DP-2D

- o Slave with digital I/O's
- o together with MCS-569 also to connect to standard components like Valve's, switches, sensors, and relays from our Electropneumatics and Electrohydraulics system to the Bus-technology
- o Profibus-Controller with a max. Data width up to 32 Byte
- o 12 digital Inputs; 24 VDC
- o 12 digital Outputs; 24 VDC; 0,5A



## Base-Slave

MCS-DP-2DA

- o Slave with digital I/O's
- o together with MCS-569 also to connect to standard components like Valve's, switches, sensors, and relays from our Electropneumatics and Electrohydraulics system to the Bus-technology
- o Profibus-Controller with a max. Data width up to 32 Byte
- o 12 digital Inputs; 24 VDC
- o 12 digital Outputs; 24 VDC; 0,5A
- o 2 analogous Inputs, 0-10V; 16 Bit

# PLC - Slaves with Profibus-DP-Interface

Basically, we can implement the Slave-Adapter with following Bus controllers:  
Profibus-DP, Ethernet TCP-/IP, Profinet IO, Interbus, DeviceNet, CANopen, CAL, MODBUS, CC-Link, Firewire, LONWORKS.

Our Module´s below are realized with a Profibus-Controller. Other controllers can be switched very easy on the same place as the PROFIBUS-Controller. The I/O´s are the same.

MCS-700-Slave

MCS-DP-700

- o Slave with digital I/O´s
- o together with MCS-569 also to connect to standard components like Valve´s, switches, sensors, and relays from our Electropneumatics and Electrohydraulics system to the Bus-technology
- o Profibus-Controller with a max. Data width up to 32 Byte
- o 16 digital Inputs; 24 VDC
- o 12 digital Outputs; 24 VDC; 0,5A
- o 2 analogous Inputs, 0-10V; 16 Bit

Exactly for our 4-Module-System MCS-700



Big-Slave

MCS-DP-10

- o Slave with digital I/O´s
- o together with MCS-569 also to connect to standard components like Valve´s, switches, sensors, and relays from our Electropneumatics and Electrohydraulics system to the Bus-technology
- o Profibus-Controller with a max. Data width up to 32 Byte
- o 48 digital Inputs; 24 VDC
- o 40 digital Outputs; 24 VDC; 0,5A
- o 2 analogous Inputs, 0-10V; 16 Bit

Exactly for our Big-Module-Systems like MCS-730 till MCS-760



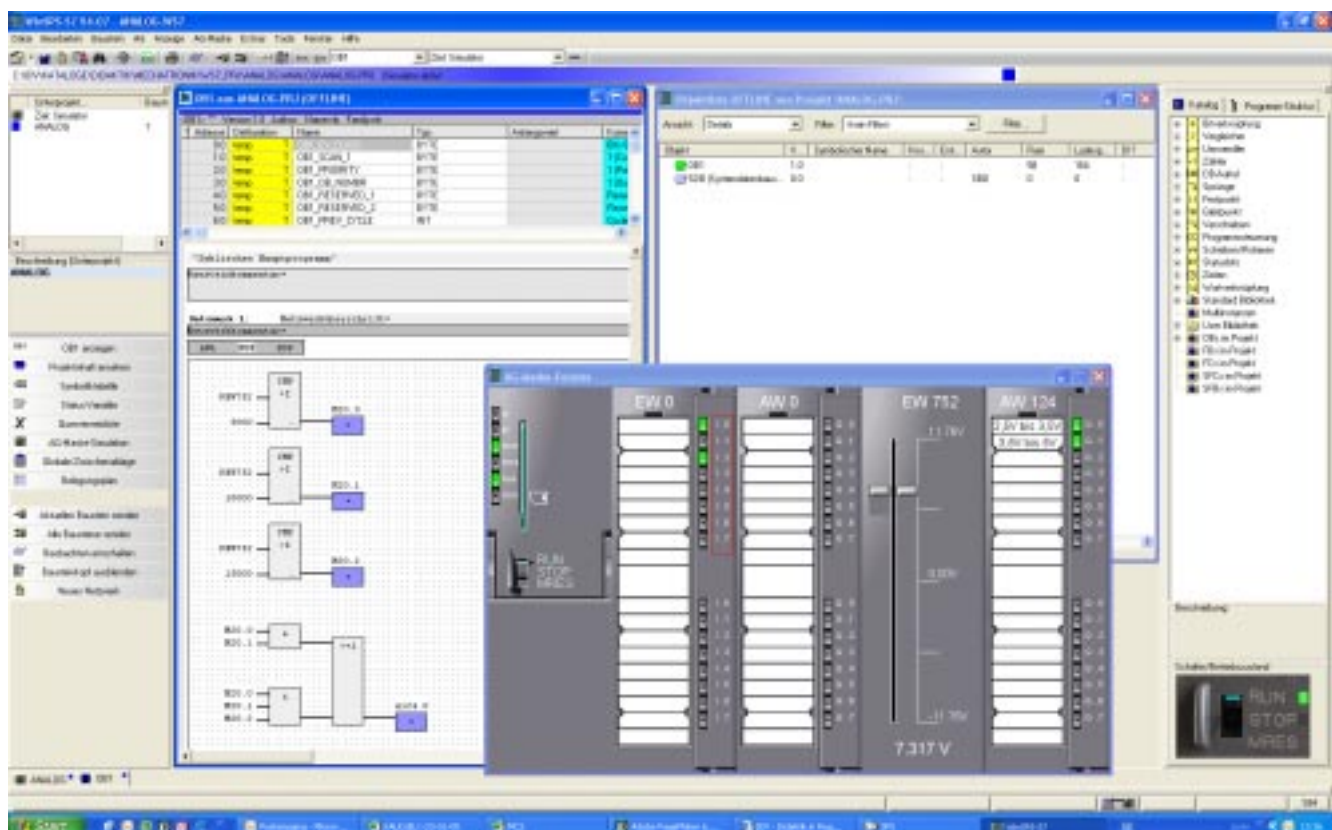
# Software for SIEMENS - PLC WINSPS-S7

## Easy Start:

WINSPS is a Programming- Simulations- and Diagnostik-Software für PLC's from the company SIEMENS. With S7-Software, you can programming all CPU's (S7-300 und S7-400) and with the integrated Simulator you can check the created program. With a MPI-Interface you can connect a real PLC (CPU-Type's are described above). The programming and working is the same like a real PLC. Digital I/O and Analogous I/O and also BCD-Display's and BCD-Input's is possible to configure. Via a mouse you can switch the CPU in RUN or STOP and also with a mouse you can switch the configured input's. The input's are showed via LED-control lamps. Analogous the programm the output's would be switched from the created program and shows your that also with LED-control lamps.

Also it is possible to create Profibus-DP-Nets, configuration and programming

Order-No. WINSPS-S7





# Software and Literatur OMRON / Mitsubishi / SIEMENS



Description

Order - No.

## Software for WINDOWS

- o PC-Software for WINDOWS 95 / 98
  - o Ladder diagram, Functions diagram and Instructions-list
  - o german / english
  - o Disk 3,5" or CD
  - o Connecting cabel PC - PLC
  - o incl. handbook
- 1) SYSWIN for OMRON-PLC's
  - 2) MELSEC MEDOC / MELSEC F for Mitsubishi PLC
  - 3) WINSPTS for SIEMENS S5 (only in german)
  - 4) WINSPTS for SIEMENS S7 (only in german)

## Literatur

The Literatur are for the three different kinds of PLC delivery is possible!!

Instruction book for programming unit	S-500
The PLC - Trainer, Volume 1 (acc. IDV)	S-520
Overheadtransparencys for S-520	S-530
The PLC - Trainer, Volume 2 (acc. IDV)	S-540
Overheadtransparencys for S-540	S-550
The PLC - Trainer, Volume 3 (acc. IDV)	S-560
Overheadtransparencys for S-560	S-570



Additionally:

for each Simulator a example-programm

# Equipment Rack's

Description

Order - No.

Rack

S-050

- o for PLC and Functions-simulators
- o Height DIN A4
- o Wide 720 mm
- o 2 Installation-rows
- o for PLC-Subplats and big / small Simulator-subplate's with 240 / 120 mm wide

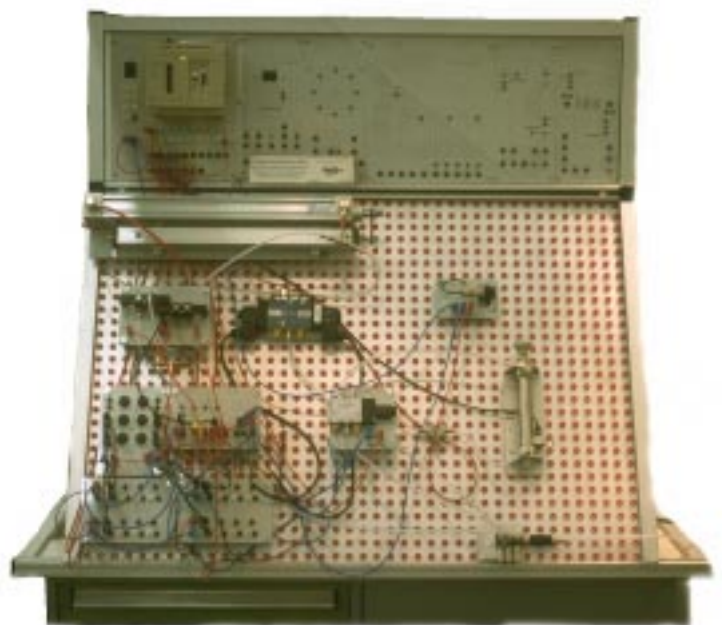
also possible with only one row (S-060)



Rack

S-030

- o necessity for trolley LW-007 and LW-008
- o for PLC and Functions-simulators
- o Height DIN A4
- o Wide 960 mm
- o 1 Installation-rows
- o for PLC-Subplats and big / small Simulator-Subplats with 240 / 120 mm wide



# PLC - Simulator's



Description

Order - No.

BCD - Chooser

S - 200

- o BCD - Chooser, 4-digits

The BCD-Chooser are using for variable processes in control technology. The number 0 - 9 shows in the BCD-Code on 16 Outputs for a easy reading in the PLC.

Example:

After push a start button a pneumatic cylinder works so many times as choosing on the BCD-Chooser.

Number of digital Inputs: 17

Number of digital Outputs: 1



Stepper Motor

S - 250

- o Unipolar - Stepper Motor
- o 200 Steps / Rotation
- o 24 VDC

Example:

With a extern start button we are start the stepper motor with a frequz of 50 Hz.

A second extern switch for the direction are choose the rotating direction (clockwise or anticlockwise).

The third extern switch means to stop the motor just in the moment when the stop signal a presented.

Number of digital Inputs: 3

Number of digital Outputs: 4

# PLC - Simulator's

## Stepper-motor control unit

S - 255

- o for high frequency control of a stepper motor
  - o Position, Rotation, Flagposition, Tact-Direction, Analog, Joystick
  - o 0 bis 50 KHz in Tact-/Direction mode
  - o 0 bis 25 KHz in all other mode's
  - o 24 VDC
  - o USB-Interface
  - o 6 Input's (Opto coupler), 24 VDC
  - o 3 Transistor Output's (open collector)
  - o Current sinking adjustable from 0 till 100%
  - o incl. Load condenser (importend for brake situations)
  - o All connectors withn 4 mm safety plugs
  
  - o simply combination with the integrated Inputs-/ Outputs with a PLC or others (like LOGO) for many applications.
  - o 16 Positions or Rotaion frequencies with the four Inputs are useable with a PLC or LOGO
- incl. software



## Stepper motor positioning module S - 257

- o complete Modul consist of:  
Stepper motor, Linear unit with toothbelt drive,  
Measuring unit
- o Stroke = 500 mm
- o Control with a PLC or with our stepper motor control unit (S-255).
- o Max. Torque: 39,6 Ncm
- o  $I_{max}$ : 0,28 A each connection
- o Rotation till app. 1.000 Rpm
- o Linear translation: 63 mm/Rotation
- o integrable in Alu-subplate with 25 mm grid.
- o All connectors withn 4 mm safety plugs

incl. Program example with PLC and Stepper motor control unit



# PLC - Simulator's

Description

Order - No.

Machine control display

S - 260



- o For Simulation of a complex machine control loop
- o 1 Main-switch
- o 2-digit Step-display (BCD)
- o Emergency-Stop-Switch
- o 2 Switches with detent
- o 12 push switches
- o 4 lamps
- o Connecting with 4 mm safety plugs

Example:

For every control loop, we need a control display. It's controlled some different comfortable control loop's: Automatic, Emergency-Stop, ect. and a show display to showing with different lamps: Step's, Interference, ect.

Number of digital Inputs: 15

Number of digital Outputs: 12

Pt-100-Sensor

S - 265



- o To connect to the temperature-Input of the PLC
- o 2-wire technology
- o with 4 mm sockets

Example:

Control in a flower house  
Analogous control technology for temperatures

Number of analogues Inputs: 1



# PLC - Simulator's



Description

Order - No.

Building site traffic light

S - 420

- o Two Red-Green traffic lights
- o Two sensors report a car (Switch)

Example:

The complete motor traffic must be escorted about a lane at a building site traffic light.

The sensors B1 and B2 report the existence of one or several motor vehicles.

Well, the control must so react depending on need.

S0 shall with the external switch the plant one-and can be turned off.

Number of the digital inputs: 3

Number of the digital outputs: 4

Starting motor control

S - 430

- o four contactors (LED) for main and the three switch steps

Example:

To extend the initial torque and move the breakdown torque in dependence of the slip, the starting motor shall be switched for a slip-ring rotor into four steps.

Number of digital inputs: 3

Number of digital outputs: 9

Conveyor belt control

S - 440

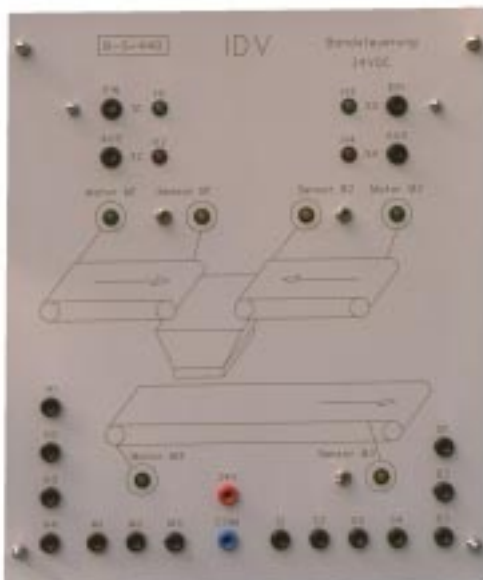
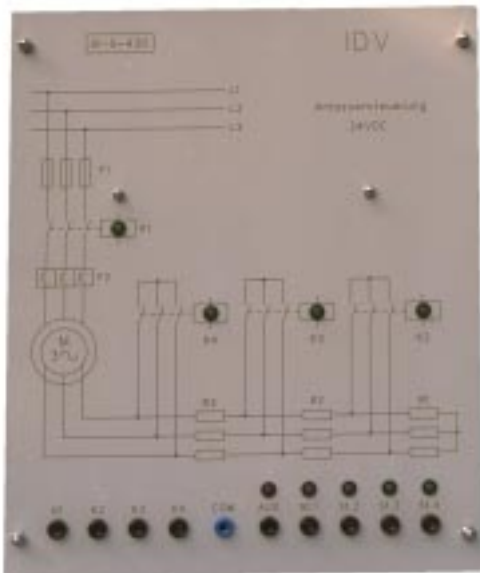
- o three ribbons
  - Two by hand starting
  - The third must in dependence for this one upper two ribbons steered are

Example:

In dependence of two conveyor belts and the push button switch (ON, OFF) shall the third conveyor belt be headed automatically. The sensors (B1 -- B3) can be used as to ask the pieces

Number of the digital inputs: 7

Number of the digital outputs: 7



# PLC - Simulator's

Description

Order - No.

Pedestrian lights

S - 450

- o mutual traffic lights (red green) for pedestrians
- Mutual traffic lights ( red-yellow-green ) for car
- Two demand switches for the pedestrian

Example:

The pedestrian light shall in this day operation go at calling of a pedestrian automatically.

In the night operation shall the set of traffic lights work into indicator circuit (yellow lights).

The switchover from day- to night operation shall be carried out with an external switch.

Number of the digital inputs:3

Number of the digital outputs: 5

Fan control

S - 460

- o respect air suppliers (switches)
- Three air exhausters of (LED)
- Coded 7 segment indication

Example:

In a car park switched on depending on need to eight air supply ventilators ON ( by switches by hand ). Runs 1-3 air suppliers, air exhausters shall so one become switched too.

Runs 4-6 air suppliers, two shall so become air exhausters switched too.

Runs 7-8 air suppliers, all three shall so become air exhausters switched too.

No order must be observed by hand but the control always shall recognize the number of the switched on air suppliers automatically.

Supposed from wear and tear arguments get so controlled the air exhausters, this they also controlledly become switched too. Well one even load of three air exhausters.

The number of the switched toos air exhausters shall be shown about the coded 7 segment indication.

A difficult formulation of a task which can be solved only with the word processing with a PLC. Also compare operations are to use.

Number of the digital inputs:8

Number of the digital outputs: 7

Colour mixed station

S - 465

- o Three color choose switches
- A maximum sensor (switches)
- A minimum sensor (automatic)

Example:

Colour shall be mixed in a retain bin. As soon as one of the three color choose switch (red, green, blue) is pressed, the motor of M1 and M2 and the radiator immediately shall start B3. As soon as the two mixers run, the raw material shall for the duration of 24s be filled about valve Y1. The corresponding valve shall for the colour for a duration after 8s then of be 8s opened also.

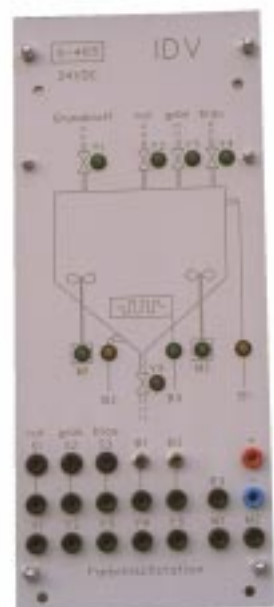
Is the complete raw material filled shall mixed further 30s still be. The colour then can Y5 drain about the drain valve.

After the PLC has switched ON Y5 reports the simulator after approx. 6s that the retain bin is empty again. The drain valve then becomes Y5 closed again after that and the mixers are switched off.

Musting as soon as the maximum sensor has effect close all supply valves of (Y1-Y4)

Number of the digital inputs:5

Number of the digital outputs: 8





# PLC - Simulator's

Description

Order - No.

Example:

Elevator

S - 490

A PLC programme shall look after the correct movement for the elevator model.

Four floors shall be able to be run at the corresponding calling. One can call the lift and inform him at once whether you up or to below want in the ground floor and in the 1st upper floor. This causes a more intelligent programme though!

The lift has internally three Position switches: Does the first Position give a signal to the PLC this is the information for the PLC that the Elevator is in the near of the correct position and can change the speed of the Elevator to slowly. After a second signal of this Position, the Motor should be STOP.

This works also in the other direction for a Start: First Signal: Slowly Start, second Signal: Fast

- o four levels
- o Cabine moved to all levels
- o Door opens with a Looping light-simulation
- o Controlling with S - 100

Example: left side

Number of the digital inputs: 15

Number of the digital outputs: 10

Explanation of the different areas:

Cabine: (to PLC-Input's)

4 switches (1, 2, 3, 4) for the calls.

4 yellow LED's then (internal electronics)

7-Segment indication shows the position ( PLC-programming logic).

Cabine -plug's: (to PLC-Input's)

4 Output's (to the PLC-Inputs) reports the signals from the switches from cabin to the PLC, (4 DI)

Sensors: (to PLC-Input's)

- 1.: "Position" is the Reference for all level's of the lift, (4 DI)
- 2.: " Door is open" gives a signal, if the door is open (simulated running lights of the door, if the door is not complete closed), (1 DI)
- 3.: "Call": From all levels every call is connected to a plug to give this information to the PLC, (6 DI)

Inputs: (to PLC-Output's)

10 plug's (can energized from the PLC outputs):

- 1.: BCD-Display to show the actual level of the elevator (4 DO)
- 2.: Direction to show the drive direction on every level (2 DO)
3. Door open, to start the simulation of the door movement (1 DO)
- 4.: Motor: (to PLC-Output's)  
3 plugs for Motor: Up, Down, Fast (with LED-control), (3 DO)

24VDC:

Power supply



# PLC - Simulator - set's

Description

Order - No.

Basic set

S - 001/X

- o S-010
- o S-030
- o S-060
- o E-500.0
- o Simulators S-200 to S-420

with each one example

Advanced set

S - 002/X

- o S-050
- o Simulators S-430 to S-490

with each one example

Complete set

S - 003/X

- o S-100
- o S-030
- o S-050
- o E-500.0
- o Simulators S-200 to S-490

with each one example

# Win Ers-Didaktik-Workstation for Analogue control, close loop, PID



Workstation for open loop control

LC2010: Storage tank for use in a practical course of binary control engineering

Depending on different tasks students can develop binary controls for the workstation. Float switches give information about level. The level is varied by switching the three pumps on and off. Switches at the control desk can be used for tasks such as emergency stop, process start and stop, interruption etc... Message lamps make the marking of error and process conditions possible. The signals of the float switches, toggle switches and buttons are provided at the panel's laboratory sockets as 24V signals. The control of the pumps and lamps is made likewise by laboratory sockets with a 24V signal.

Workstation for open and close loop control

LC2030, Storage tank with Level, Flow and Temperature Control

Extension of the LC2010 with analog signals for monitoring level, flow and temperature (option). For level and flow control the pump's flow rate can be steplessly adjusted. Level and flow signals are provided by laboratory socket as 0-10V signals. The flow rate is likewise adjusted over a laboratory socket as 0-10V signal. Temperature control is optional. With these feature not only level and flow but also temperature control is possible. The temperature signal is provided as a 0-10V-signal, the heater can be switched on or off.

LC2010, Open loop Level Control

- 1x Aluminium frame
- 2x Plexiglas storage tank, 150 x 200 x 400 (D x W x H, in mm), capacity approx. 9L
- 3x Radial pump, maximum flow rate 270 l/h
- 2x Valve for manual flow rate adjustment
- 3x Level floating switch
- 3x Quick-release connector, automatically closing for pump connecting
- 1 x Quick-release connector with drainage hose to empty tanks
- 2x Signal LED, green
- 1x Error LED, red
- 3x Control switch
- 2x Push button

LC2030, Open and close loop Level Control

As in LC2010, additional:

- 1x Centrifugal pump with adjustable flow rate, max. 230 L/h (substitutes one radial pump)
- 1x Process pressure transducer for level measurement
- 1x Frequency converter for pump control

Optional Open loop Control, Flow control

- 1x Flow meter
- 1x Valve for flow rate manipulation

Optional Open loop Control, Temperature control

- 1x Temperature probe, PT100 with signal converter (0-10V)
- 1x Heater
- 1x Circulation pump

Optional Cooler for Temperature control

- 1x Cooler
- 2x Ventilator

On the panel all signals are provided as 0-10V (analog) or 24V (binary) on 4mm-sockets. This allow using any PLC (S-100/S7) or industrial controller.

Tasks for automation of the workstation e.g. open and closed loop control or visualisation can easily be carried out by using WINers-Lab. We further offer a simulation of the workstation. With the simulation students can practice the tasks given before applying them to the real workstation.

Teach-Ro 3

robotics



# Teach-Ro 3

Industrial Robotic arm  
Industrial Robotic arm (from Denso)  
Vertically articulated  
5 axes  
Reachable radius 500 mm  
Drive system DC Servo motors  
Repeatability:  $\pm 0.02$  mm  
2-Finger-gripper  
Encoder type  
Load: 2.5 kg  
incl. Controller with 16 inputs and 16 outputs  
Emergency OFF  
Collision control technology  
Temperature control and communication control  
incl. Programming software: WINCAPS II  
with more than 5,000 instruction lines  
incl. Robotic simulation program (3D)  
incl. Hand held for teach in programming  
in 7.5" coloured LCD TFT screen  
interactive user controlling  
With emergency (Death man circuit)  
incl.  
trolley with Aluminium profile plate  
Robot electrical cable  
Robot valve cable  
Robot base plate  
Assembly holder module  
Slide module  
Holder module  
Workpiece set


Software specifications:  
virtual control pane  
simulation concepts  
Split screen modus  
Simulation of the robot in 3D  
The software generate robot movements exactly  
similar to the simulation if them program is downloaded  
System requirements: working under Windows 98 and higher

## Further catalogue:

Didactic for Control technology in vocationals **IDV**  
Engineers-Office de Vries

**Trainingsssystem**

**Pneumatics  
Electropneumatics**



Didactic for Control technology in vocationals **IDV**  
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**Mechatronic-  
Compact  
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**MCS**

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**Seminars  
Control technology**



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