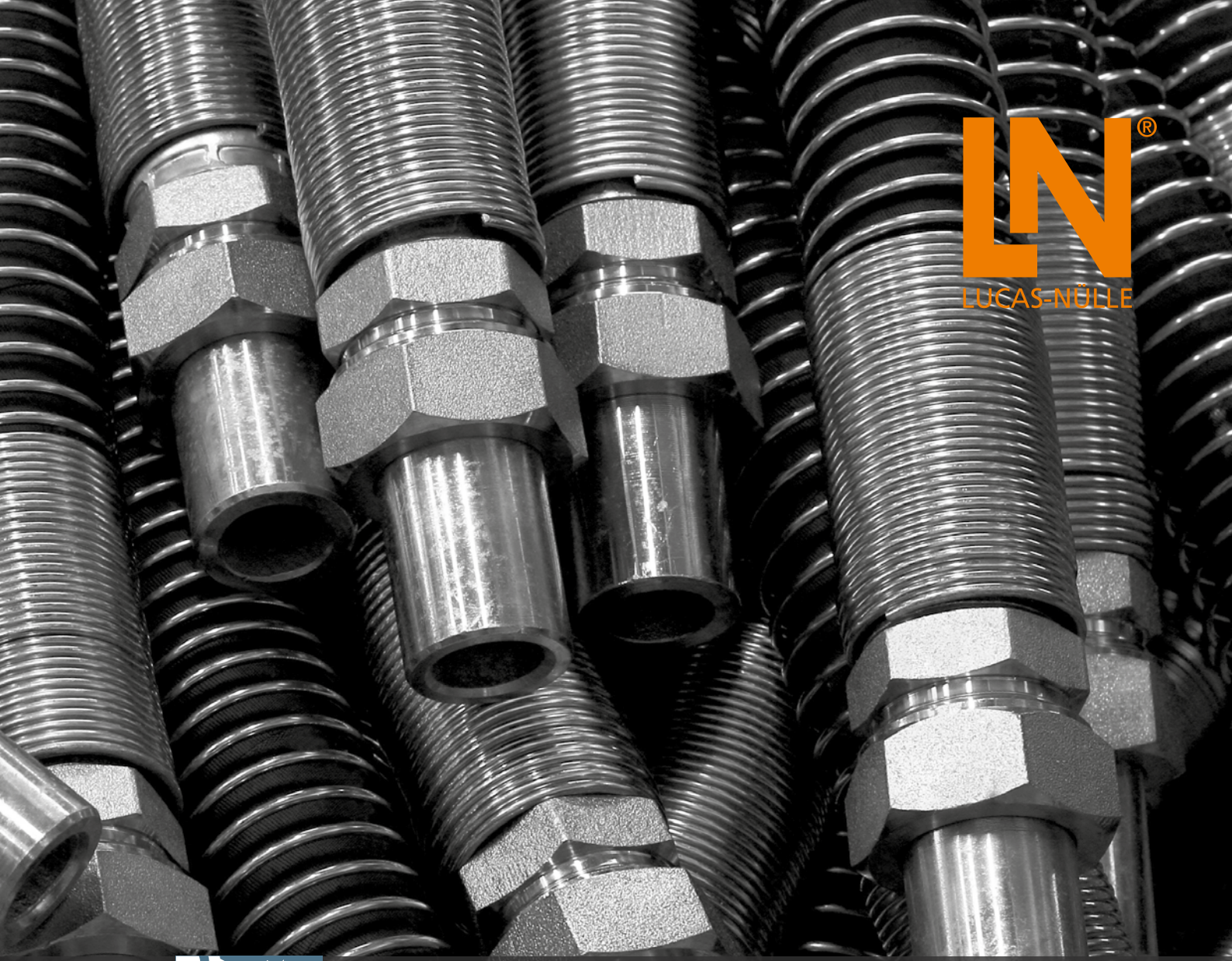


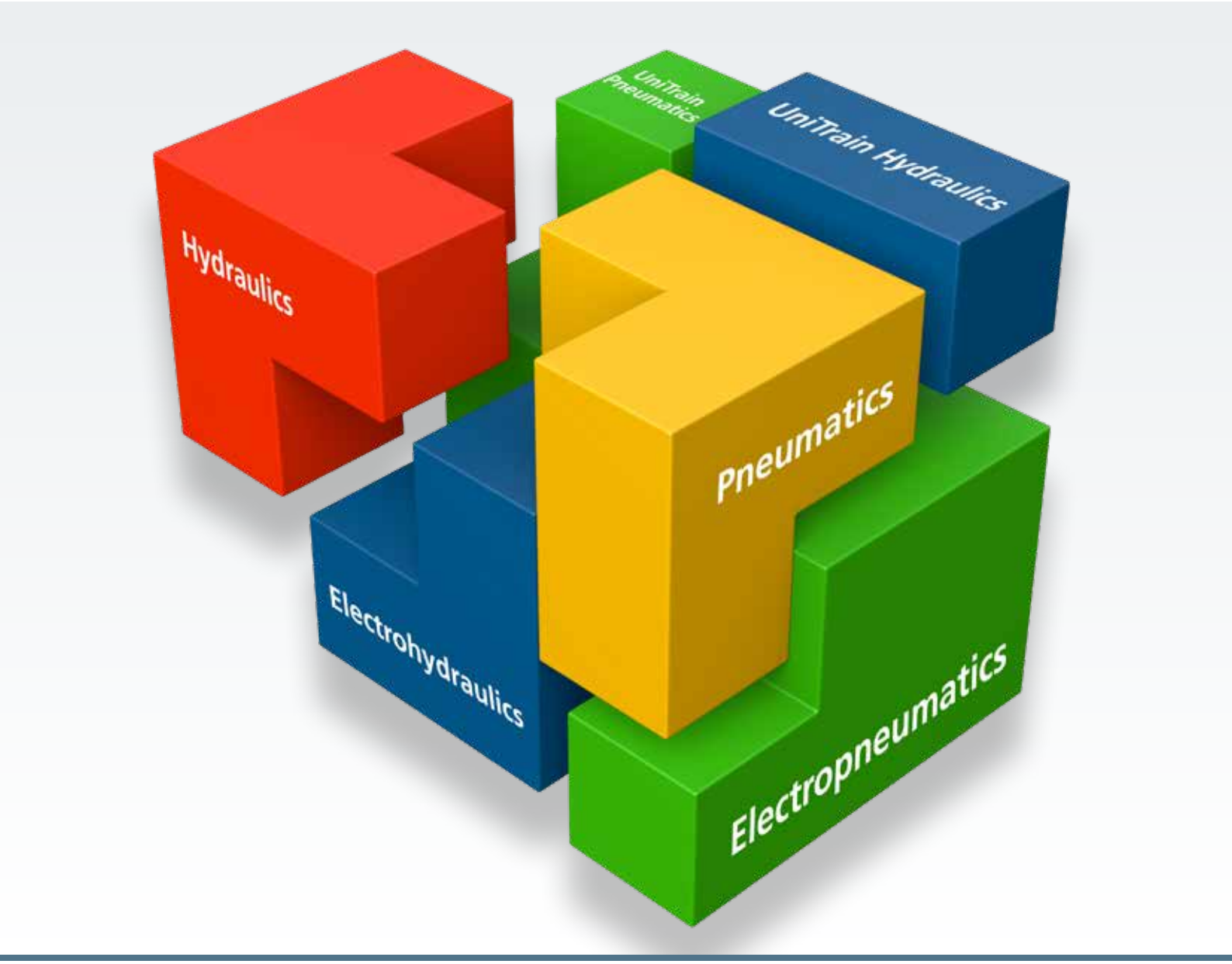
LUCAS-NÜLLE

TRAINING SYSTEMS FLUID TECHNOLOGY HYDRAULICS / PNEUMATICS

Teaching hydraulics and pneumatics in an easy and understandable way

1st Edition

BUILDING BLOCKS TO SUCCESS



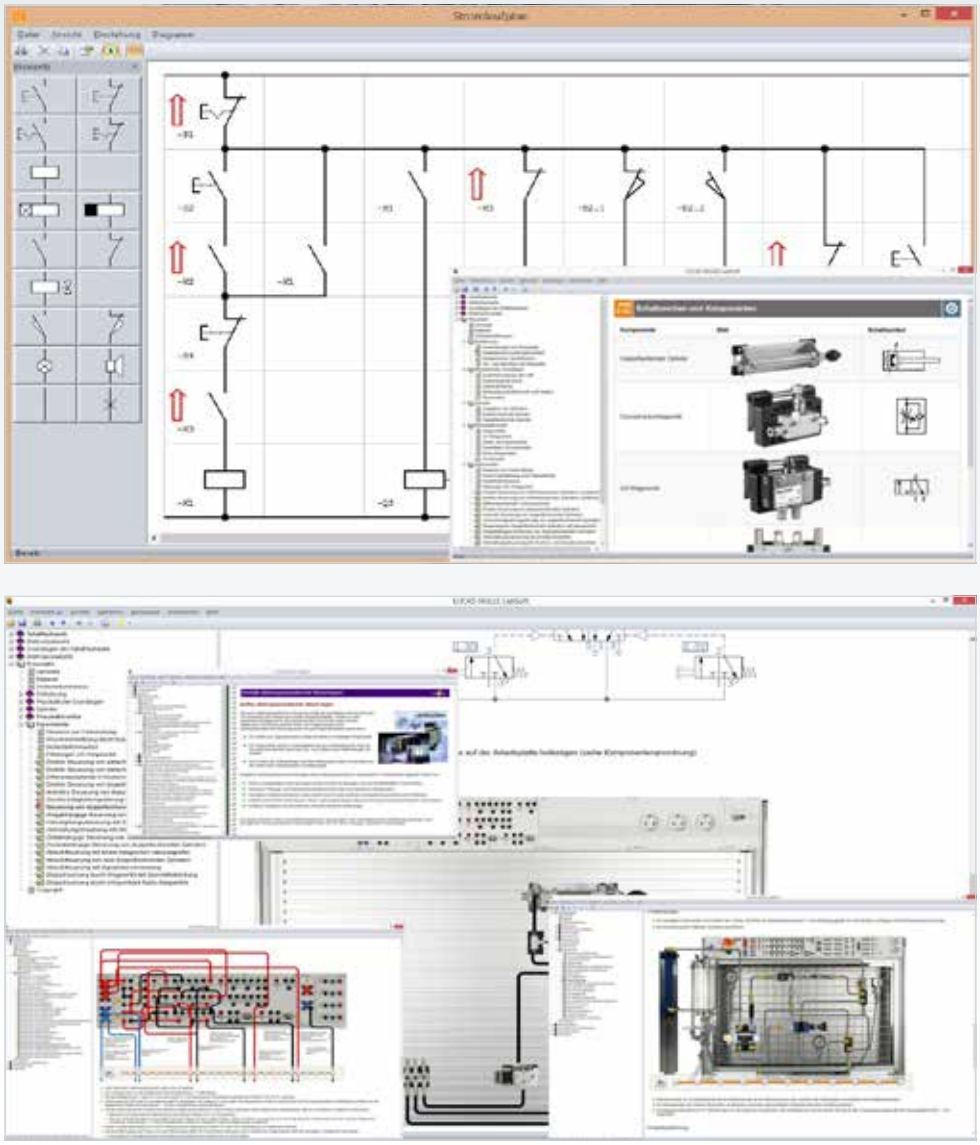
For over 40 years Lucas-Nuelle has stood for **progressive and innovative learning** and has been supporting vocational education worldwide with training systems. Each training system fits perfectly into the **overall educational concept** of Lucas-Nuelle and paves the way to **successful training**. Whether you wish to obtain a single training system or equip an entire laboratory: making your **specific wishes** come true is our passion.

Lucas-Nuelle's **overall concept** takes the form of a **building block system** that supports students in successfully acquiring practical skills.

The student uses our Unitrain **hydraulics** and **pneumatics board** in the classroom to learn the initial steps of process control technology with **interactive training material**.

The mobile experiment stands equipped with **industrial components** from hydraulics and pneumatics are used in combination with **animations** and **experiments** to impart complex training content in fluid technology.

COMPUTER-BASED LEARNING ENVIRONMENT - INTERACTIVE LAB ASSISTANT (ILA)



ILA course with set-up animation
interactive circuit diagram editor

(ILA) complex training material presented in a lively way: you are assisted by the ILA course when carrying out the experiment. It not only provides experiment instructions but also valuable theoretical information, records measurement values and automatically creates laboratory documentation as printout or PDF document. Furthermore, you can use the LabSoft Classroom to modify or supplement the training content.

Benefits

- Theoretical material is imparted with easy to understand animations
- Support for experiment procedure
- Interactive demonstration of experiment set-ups
- Access to real measuring and testing equipment with comprehensive evaluation possibilities
- Practice-oriented project assignments succeed in completing the learning experience
- Integrated operating instructions
- Documentation of the experiment results (completion of an experiment report)
- Knowledge questions incl. freedback function
- Integrated optional Automation Studio™ software

THIS IS HOW YOUR TRAINING SYSTEM COULD LOOK - SELECT YOUR EQUIPMENT SET

- Connectable single or double-sided
- With service module interface and USB port

Obtainable in 3 versions:
- **Pneumatics / Electropneumatics**
- **Hydraulics / Electrohydraulics**
- **Hydraulics / Pneumatics**

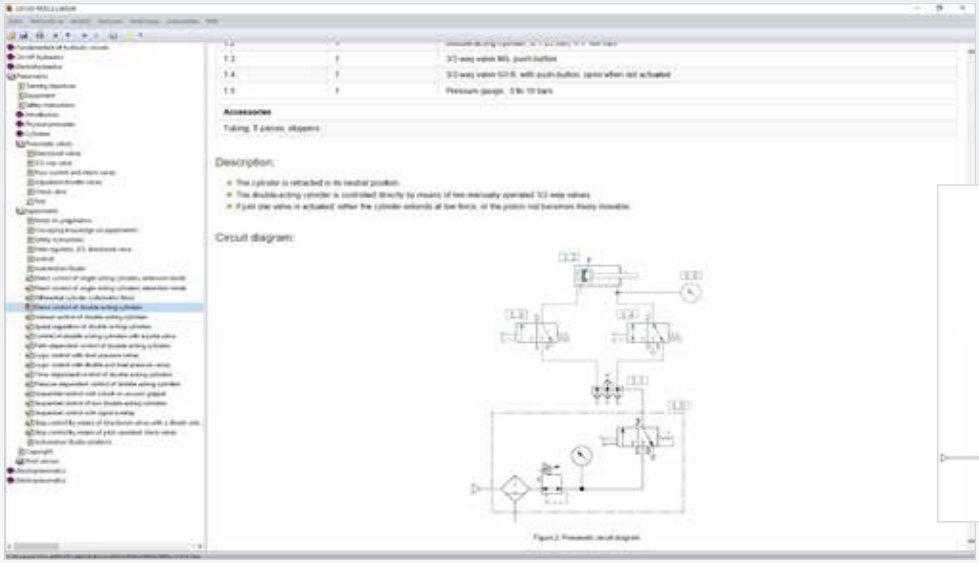
PNEUMATICS TRAINING SYSTEM

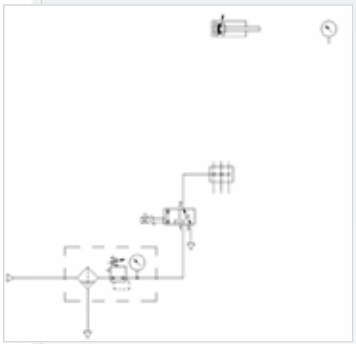
UNITRAIN
SYSTEM

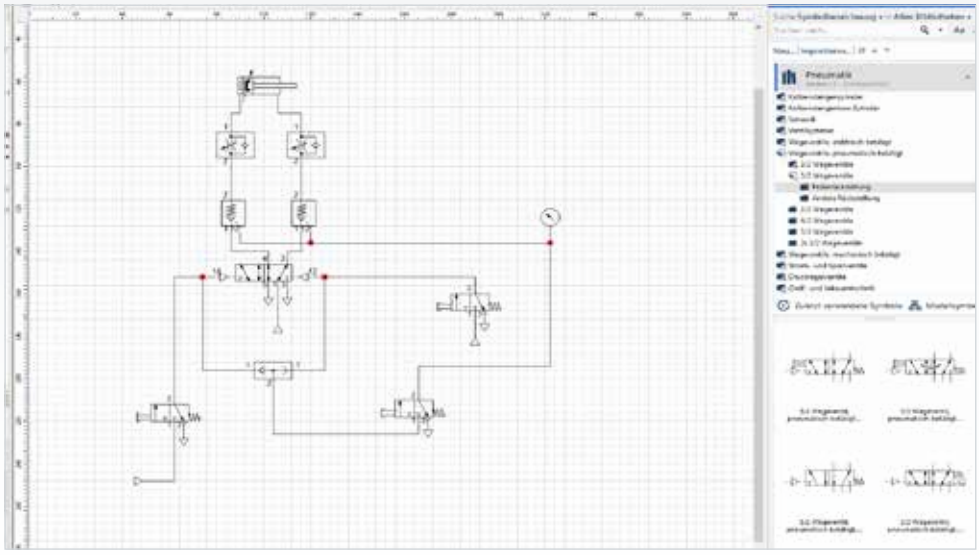
Pneumatics compact trainer
The UniTrain course on pneumatics teaches the necessary know-how needed for the control and maintenance of modern process automation. The fundamental features of industrial components are explored using animations and experiments on real systems.

Training content
- Fundamentals of pneumatics
- How single- and double-acting cylinders work
- Getting to know various directional valves
- How pneumatic controls are designed and function
- Hard-wired controls
- Programmable controls
- Recording of distance-time diagrams
- Time-dependent control

Art. no. CO4205-5E







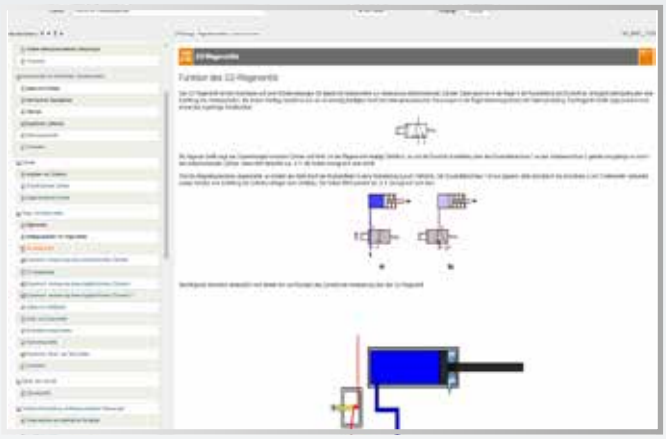
Experimenting the safe way with the UniTrain multimedia course

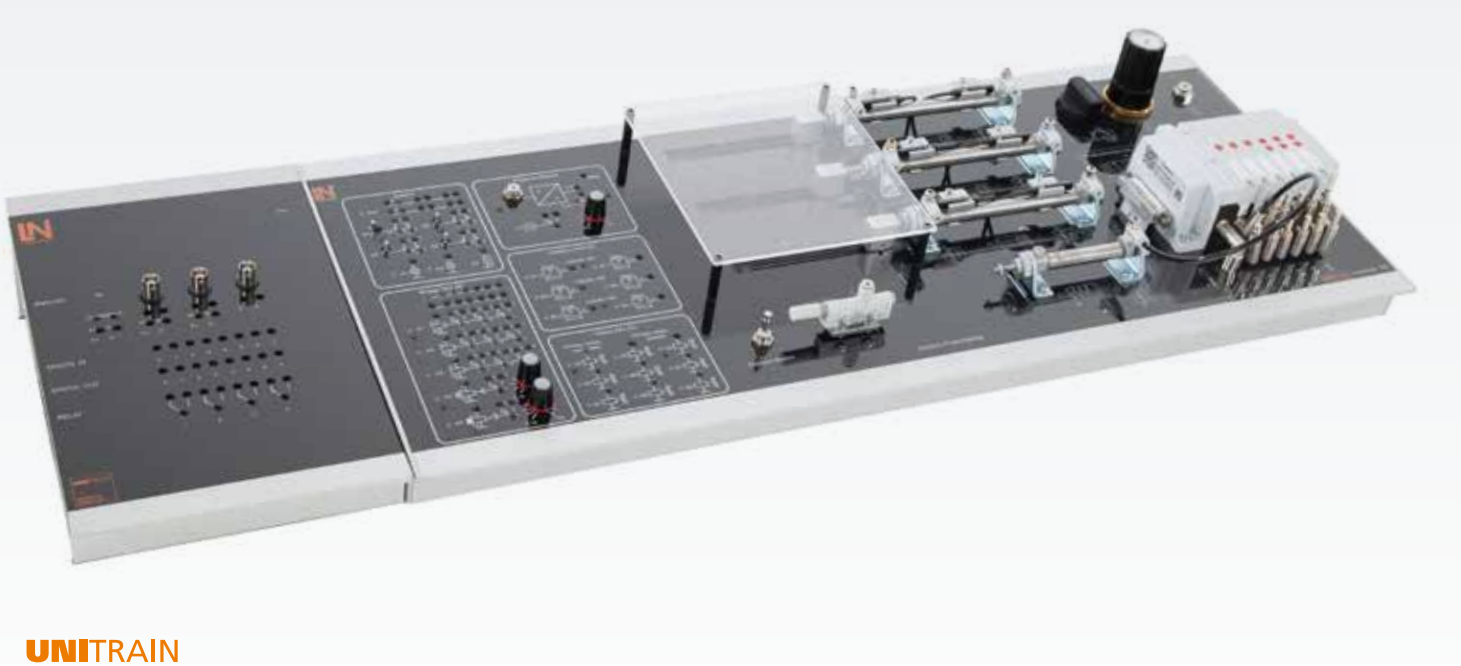
In addition to the pneumatics training system, the UniTrain multimedia course offers a PC-based evaluation of measurement data and fault simulation

Benefits

- Interactive multimedia course
- Set-up animations
- Deployable in every classroom
- Interactively create distance-time diagrams

ELECTROPNEUMATICS TRAINING SYSTEM



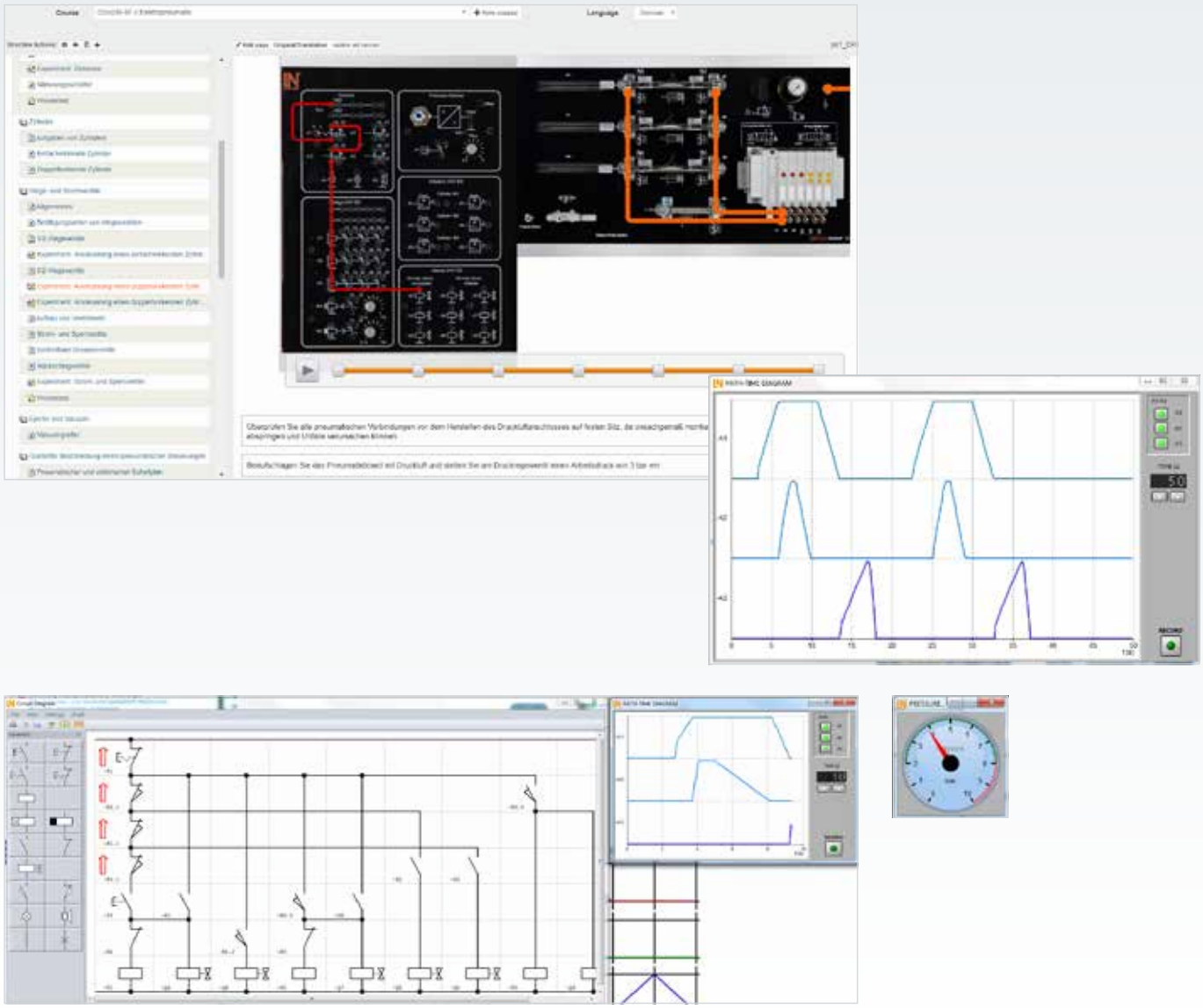


UNITRAIN
SYSTEM

Electropneumatics compact trainer
For the control and maintenance of modern process automation, our electropneumatics UniTrain course imparts all the necessary know-how. The basic features of industrial components are explored using animations and experiments on real systems.

Training content
- Fundamentals of electropneumatics
- How single- and double-acting cylinders work
- Becoming familar with various directional valves
- How electropneumatic controls are designed and function
- Hard-wired controls
- Programmable controls
- Recording of distance-time diagrams
- Time-dependent control

Art. no. CO4205-5F



Experimenting the safe way with the UniTrain multimedia course

In addition to the electropneumatics training system, the UniTrain multimedia course offers PC-based evaluation of measurement data and fault simulation

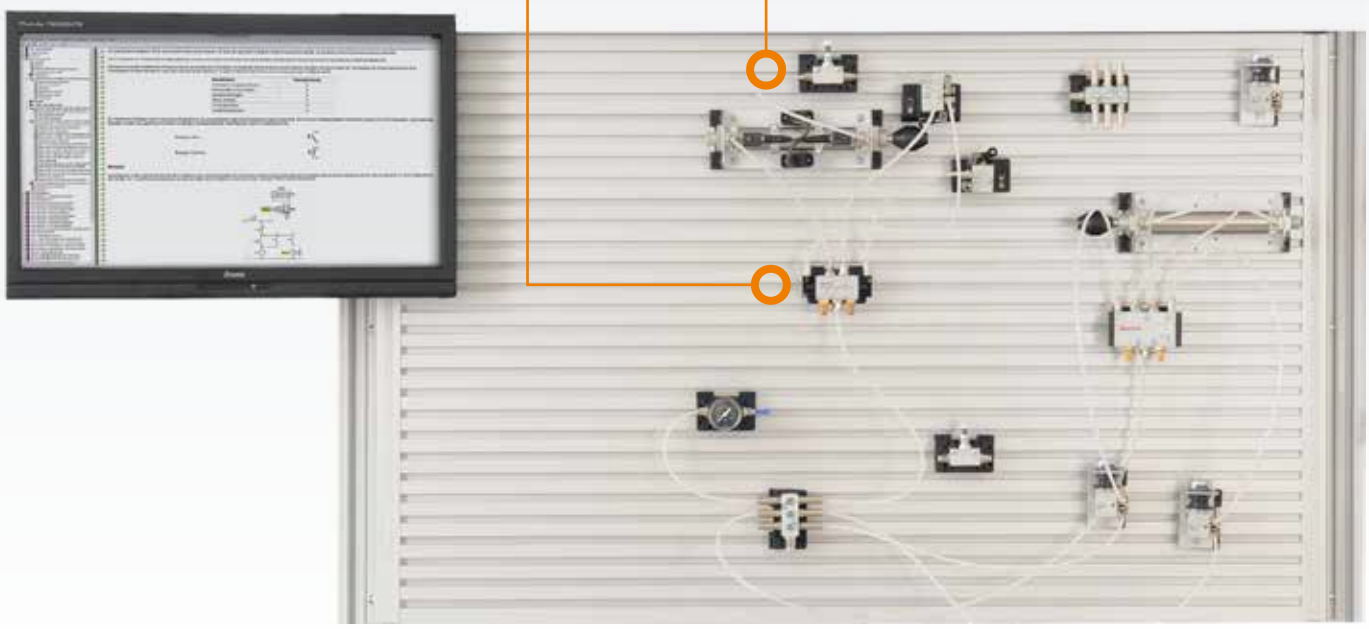
Benefits

- Interactive multimedia course
- Set-up animations
- Deployable in every classroom
- Interactively create distance-time diagrams
- Direct control of the hardware with interactive circuit diagram editor

PNEUMATICS TRAINING SYSTEM

Patented "snap-in" mounting mechanism

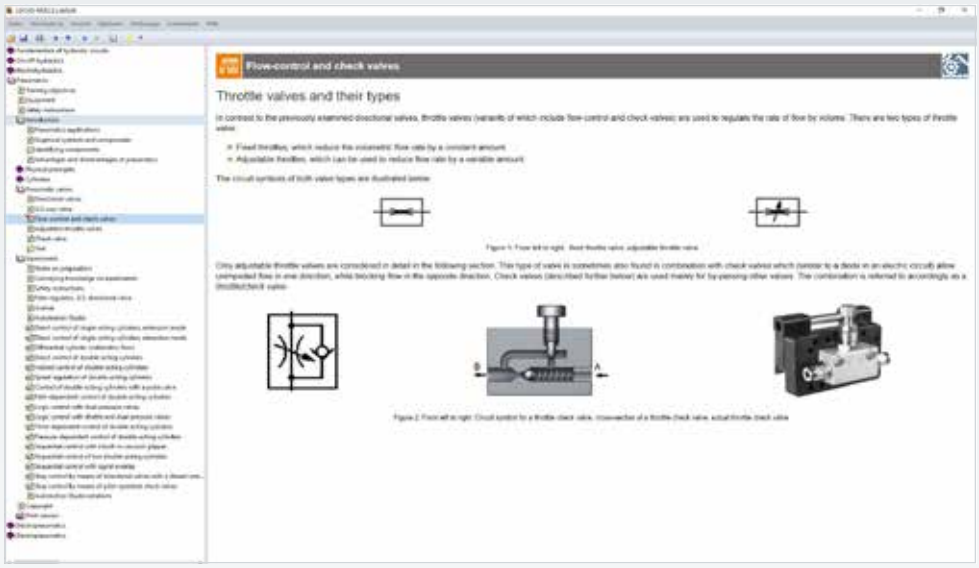
Standard industrial components



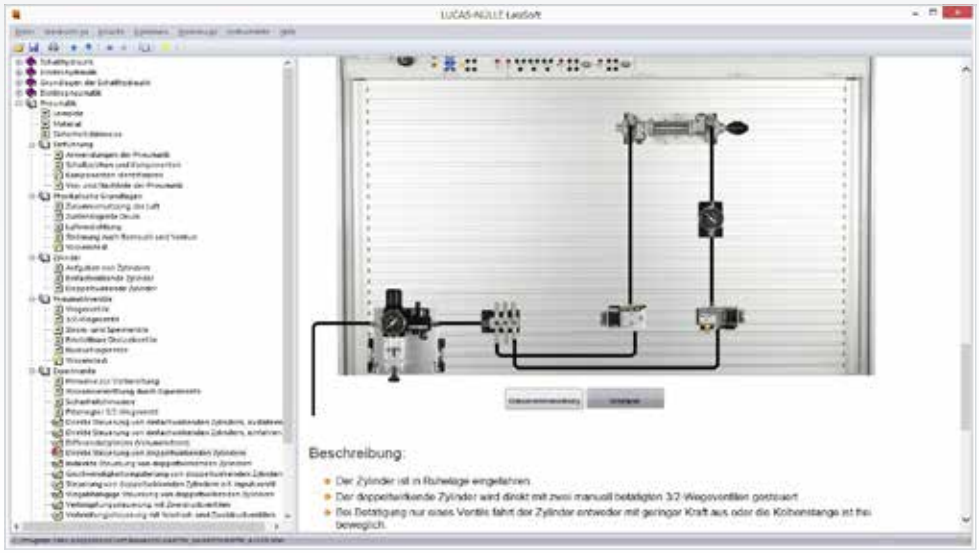
Manually operated pneumatics
Equipped with authentic industrial components and the patented "snap-in" mounting mechanism the pneumatics training system is a cutting edge system for vocational and advanced training.

Training content
- Direct/indirect control of single- and double-action cylinders
- Path-dependent process controls
- Control of double-action cylinders using pulse valves
- Logic controls with exchange and two-pressure valves
- Pressure- and time-dependent controls
- Sequential control with pneumatic proximity switch

Art. no. PBC 11



Teaching the fundamentals in the pneumatics course



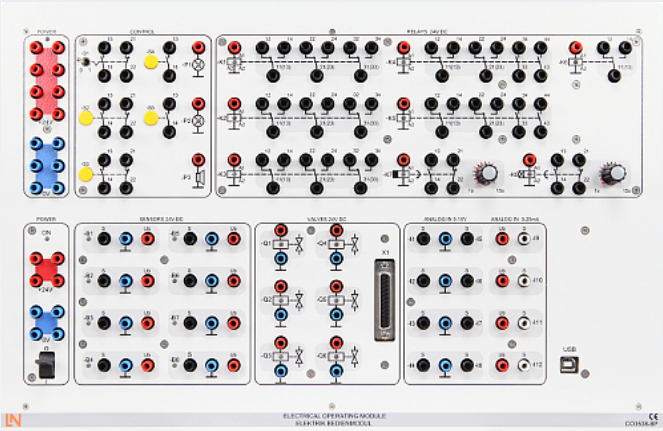
Step-by-step set-up animation in all courses

Testing learning progress with the ILA course

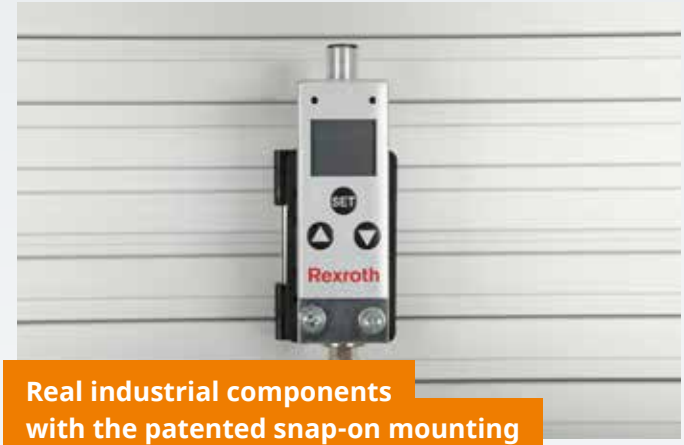
Benefits

- Step-by-step instructions using multimedia
- The physical principles are explained using easy to understand animations
- PC-based evaluation of measurement data
- Virtual measuring instruments are started directly from within the experiment instructions

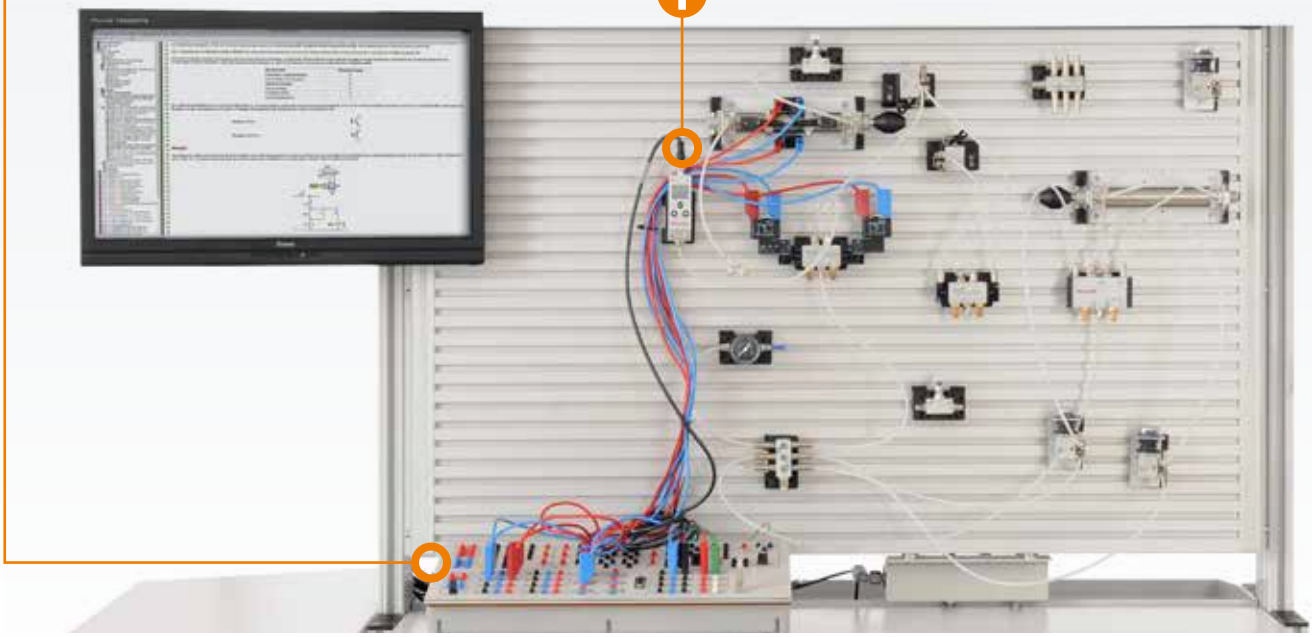
ELECTROPNEUMATICS TRAINING SYSTEM



Interactive interface for the circuit diagram editor



Real industrial components with the patented snap-on mounting mechanism



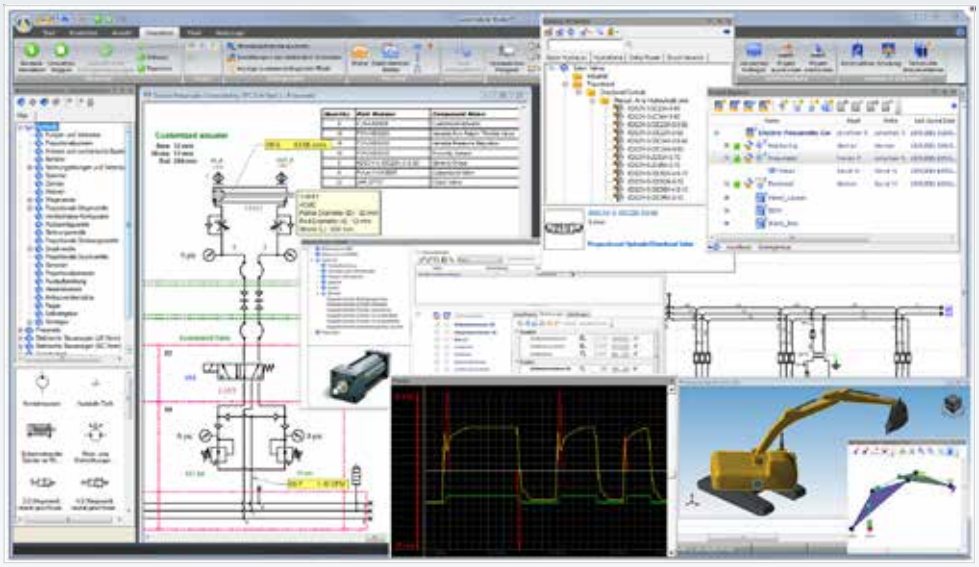
Electrical supplement to industrial pneumatics

With the electro-pneumatic component supplement, it is possible to carry out project-related exercises in electropneumatics. The electro-pneumatic components are functionally connected via an electric control console. Alternatively, this can also be carried out using the service module located in the power duct.

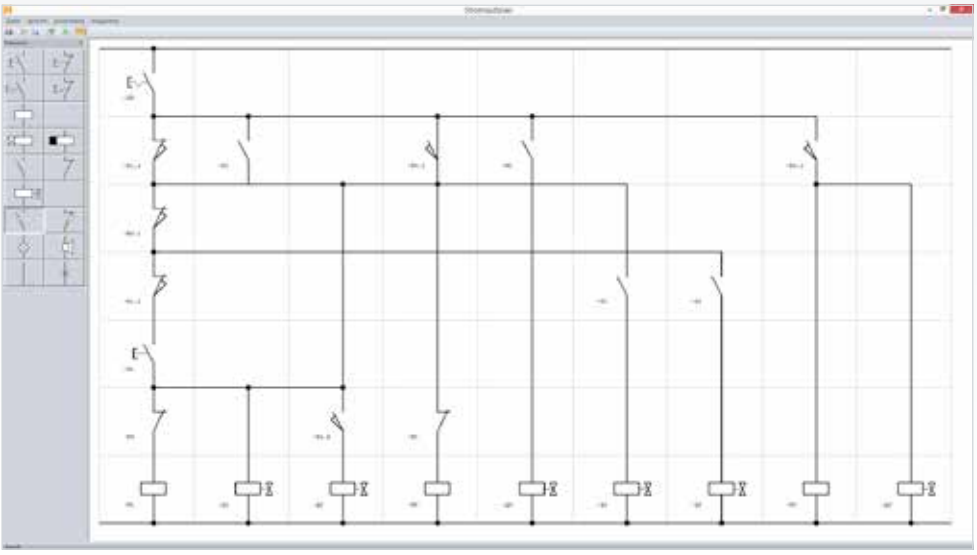
Training content

- Function and use of electro-pneumatic components
- Setting up relay and self-holding controls
- Time- and process-based sequence control system
- Path-dependent process controls with sensors and presetting counters
- Program control with clock cycle

Art. no. PEC 11



Automation Studio™, control of pneumatics components using the OPC interface



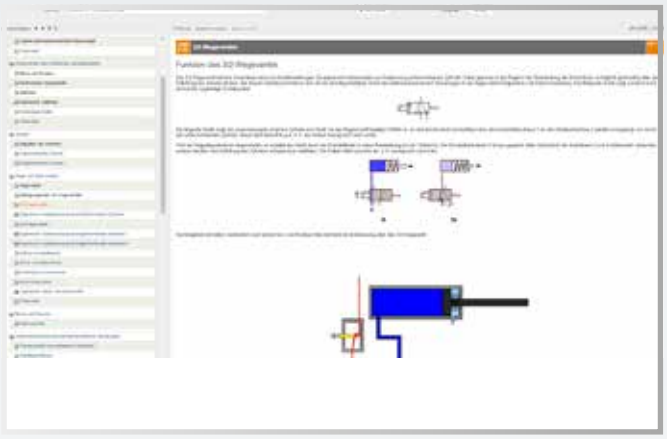
Interactive circuit diagram

Direct control of hardware from the ILA course

Benefits

- Interactive control of hardware from the ILA course
- Use Automation Studio™ to create circuit diagrams
- Open the interactive circuit diagram editor from the ILA course
- Open the measuring instruments from the ILA course
- Control and measurement data acquisition via USB

HYDRAULICS / ELECTROHYDRAULICS TRAINING SYSTEMS



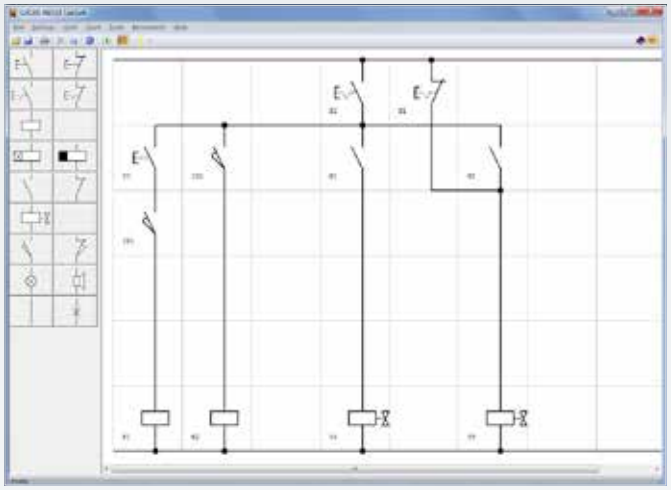
Work safety guaranteed
thanks to a leak-free hose system

UNITRAIN
SYSTEM

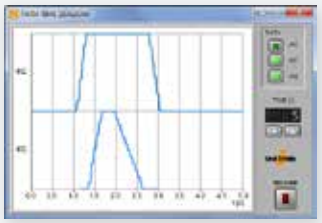
Hydraulics compact trainer
Thanks to leak-free hose connections work can be done safely and cleanly in the classroom even up to a pressure level of 40 bar. The accompanying UniTrain self-study course guides the trainee through all the basics of hydraulics. Create logic operations in the software in the integrated circuit diagram or use cables to connect up the integrated control elements in the conventional way on the board to complete a required project.

Training content
- Fundamentals of hydraulics / electrohydraulics
- Hydraulic and electrical circuit diagrams
- Recording of distance-time diagrams
- Basic logic circuits with AND- / OR operations
- Path-dependent process controls

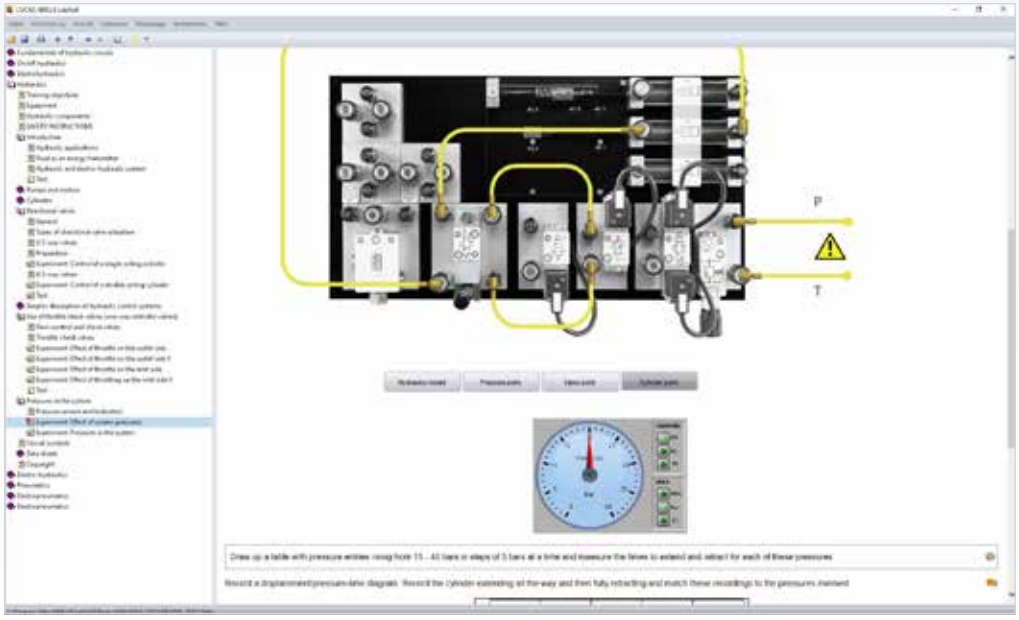
Art. no.
Hydraulics SO4205-8A
Electrohydraulics SO4205-8B (excl. accessories)



Interactive circuit diagram editor



Distance-pressure-time diagram for pressure-dependent process control



Hose connection animations in the UniTrain course

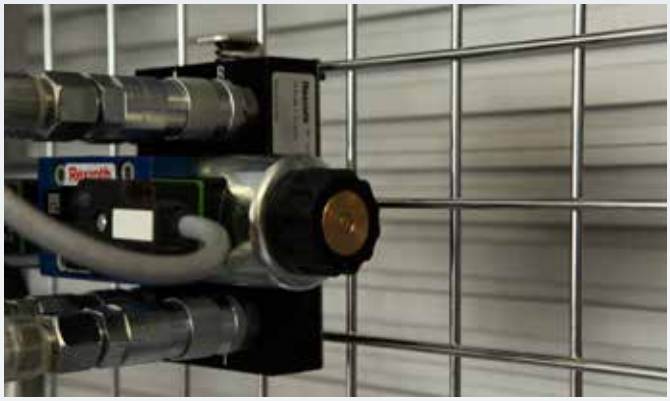
Direct control of hardware from the ILA course

Benefits

- Compact, portable hydraulic system with a constant pressure pump
- Self-sealing hydraulic hose connections with low oil leakage
- Interactive multimedia course
- Activate instruments directly from the multimedia course
- Control the hardware using the interactive circuit diagram editor

HYDRAULICS TRAINING SYSTEM

Customized: 4/3-way valve for vocational training and developing skills

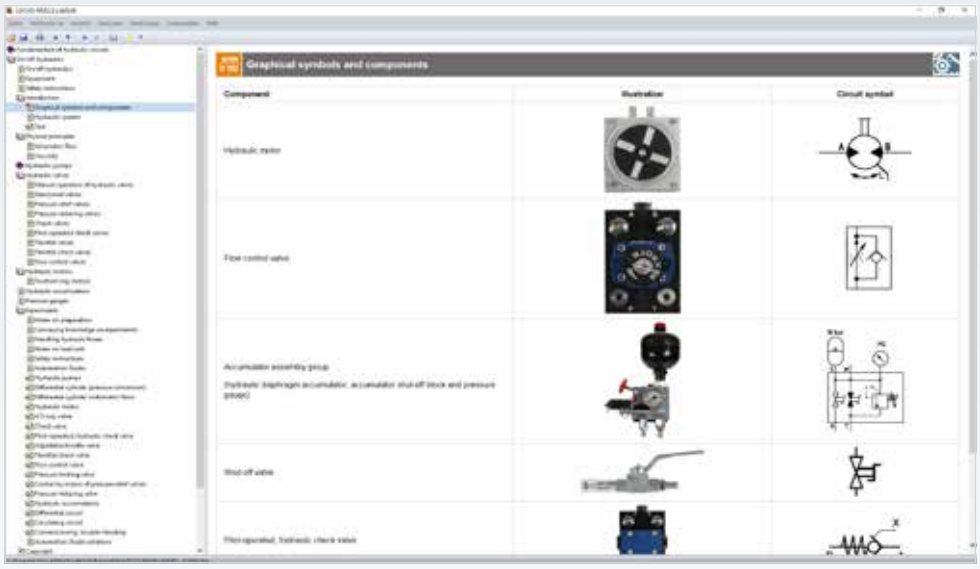


Standard industrial components

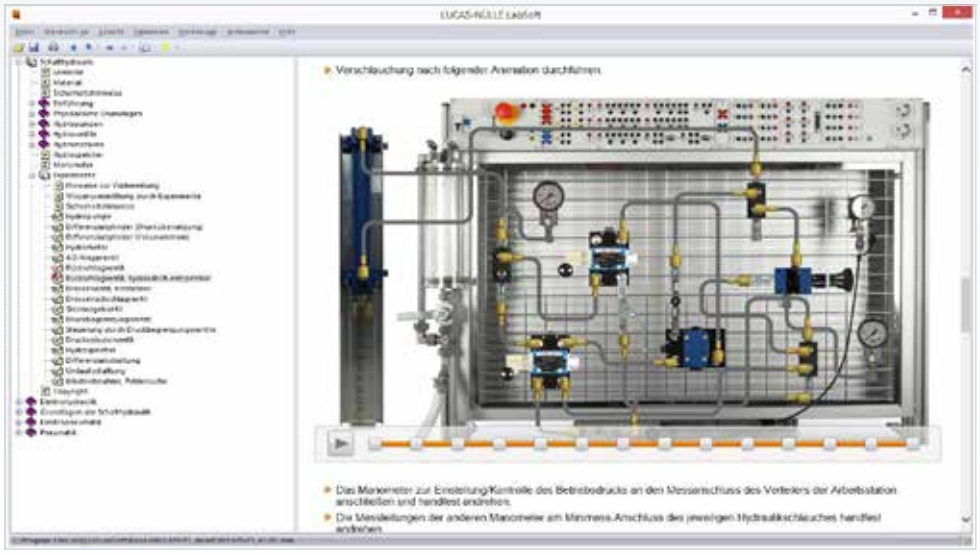
Manually operated hydraulics
Real industrial components and our patented "snap-in" mounting mechanism make the hydraulics training system a cutting edge system for vocational and advanced training.

Training content
- Direct/indirect control of single- and double-action cylinders
- Path-dependent process controls
- Control of double-action cylinders using pulse valves
- Logic controls with exchange and two-pressure valves
- Pressure- and time-dependent controls
- Sequential control with pneumatic proximity switch

Art. no.
Basic equipment set HBC 10
Supplementary equipment set HBC 11



Detailed visualisation of the hardware



ILA supports the interactive set-up animator

Carry out projects with the ILA course

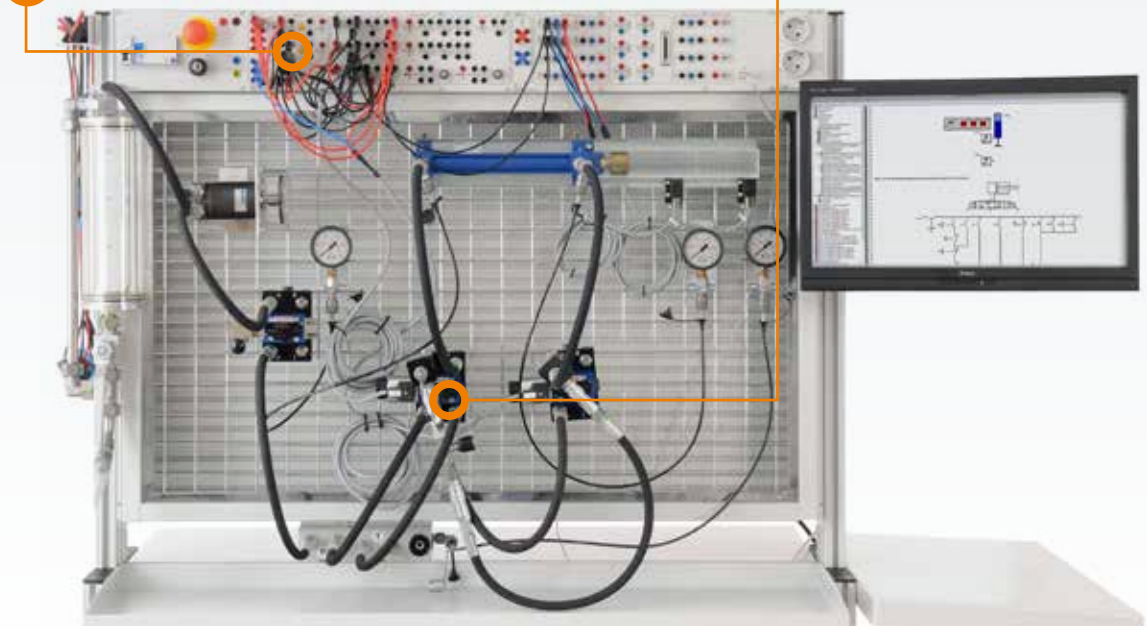
Benefits

- Use standard industrial components
- Set-up animations included in the interactive multimedia course
- Excellent monitoring of forces arising thanks to interactive measuring instruments
- Lots of freedom to arrange the component configurations
- High operating pressures are possible

ELECTROHYDRAULICS TRAINING SYSTEM

Customized: 4/3-way valve for training and developing skills

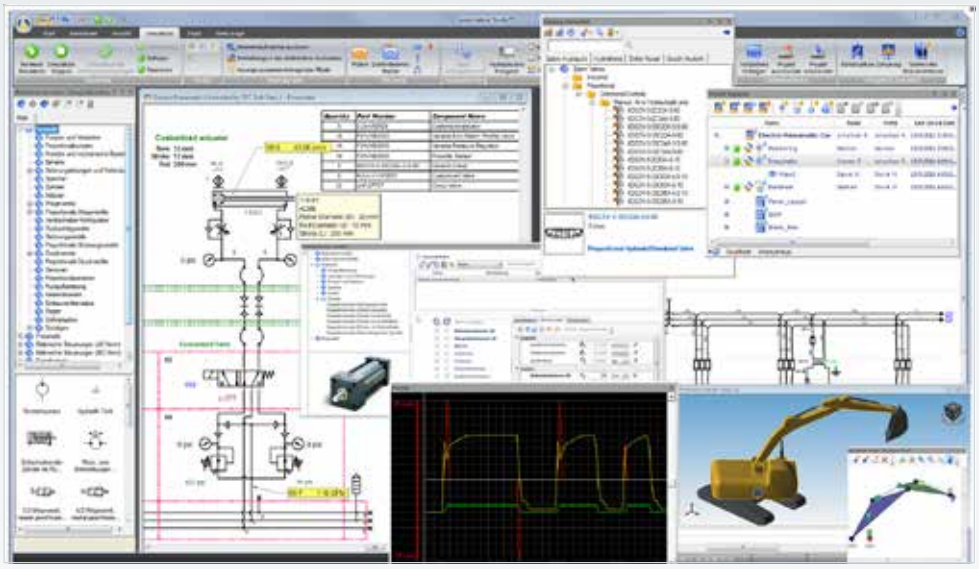
Standard industrial components



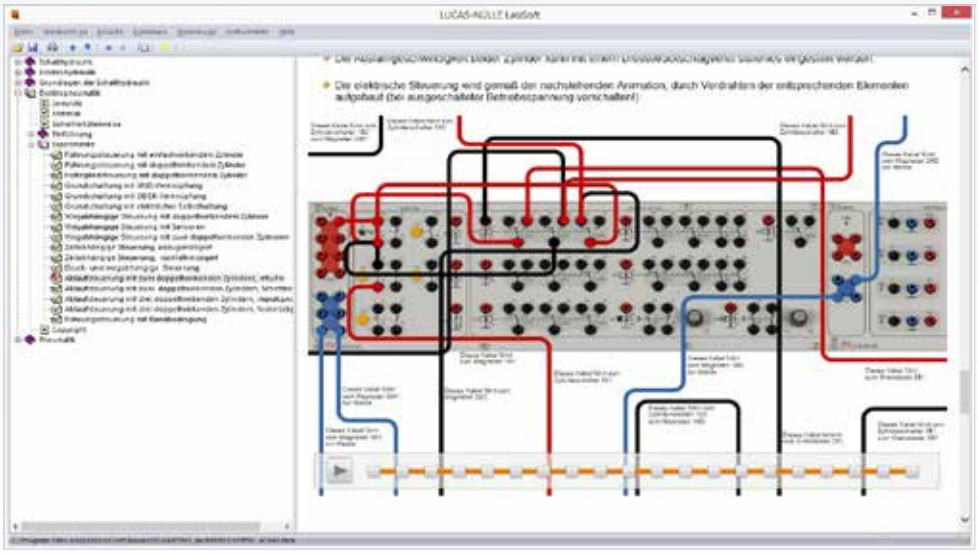
Electrical supplement to industrial hydraulics
Core skills and technical qualifications are imparted by including autonomous planning, implementation, and inspection in all practice-oriented project assignments. The system is rounded off with components from Bosch Rexroth.

Training content
- Exploring pressure-volume characteristics
- Pressure transmission in differential cylinders
- Open-loop control using directional valves
- Relationship between opening cross-section/pressure differential / volumetric flow rate
- Process control of the hydraulic drive

Art. no. HEC 11



Direct hardware control via the interface



Electrical wiring as set-up animation in the ILA course

Control the hardware with the ILA course and Automation Studio™

Benefits

- Use of real industrial components
- Work with the simulation software Automation Studio™
- Direct evaluation of the interactive knowledge test
- Step-by-step animation as set-up instructions for wiring and hose connections
- Easy to operate simply by starting the controls from the course itself

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