

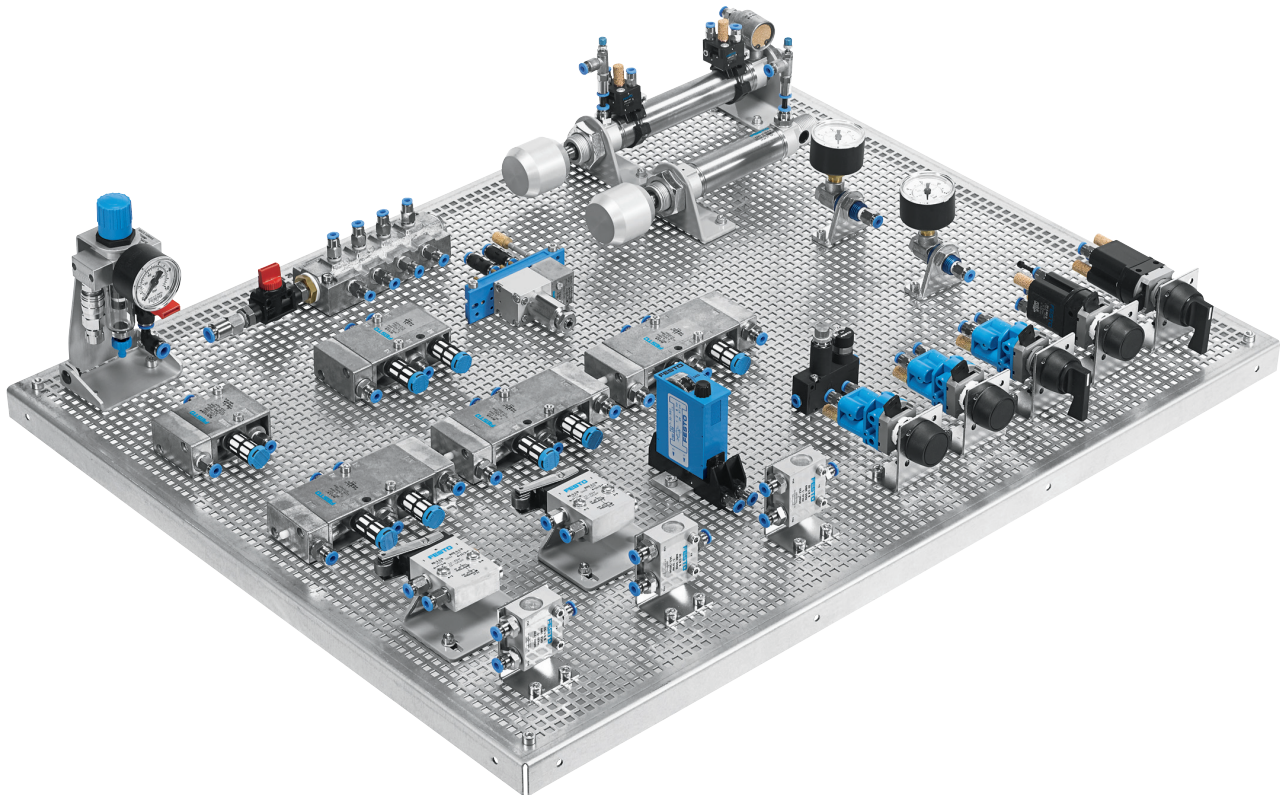
Basic Training in Pneumatics/Electropneumatics

Budget Solution



Basic Training in Pneumatics

LC 101 equipment set



Pneumatics, Basic level

The Classic as a Budget Solution

Conveying today what will be standard in the company tomorrow. The workbook contains a series of graduated project exercises based on actual industrial applications, an enhanced section on fundamentals and a multimedia CD-ROM.

The number of components and the design are specially tailored to the projects contained in the workbook. This means maximum training return for minimum investment. The industrial-quality components are not assembled and are intended for assembly on a perforated panel with an 8 mm grid.

Storage and organisational tools should be ordered separately.

Learning goals

- Structure, function and application of single-acting and double-acting cylinders
- Calculating basic parameters
- Direct and indirect actuation
- Application and function of 3/2 and 5/2-way valves
- Methods of actuation of directional control valves
- Analysing circuits
- Options for pressure measurement
- Pressure-dependent control systems
- Distinguishing flow control methods and using them as intended
- Explaining and building latching circuits
- Logic operations: explaining and implementing AND/OR/NOT operations
- Combining logic operations
- Function and application of limit switches
- Time delay valves
- Realising oscillating movement
- Economic considerations of using pneumatic components

Close up

In industrial applications, switches and valves should be mounted as close to the actuator as possible to ensure optimum performance. You can now apply the same principle when designing your circuits thanks to the new components.

Time delay valve

The pneumatic time delay valve permits precise adjustment and can be read easily from the front – pneumatics at their finest!

The best teachware for LC 101

The workbook

Provides detailed descriptions of industry-related projects with problem descriptions, parameters and project orders. Worksheets support the students through the required stages of planning, execution and function testing and provide sample solutions. New topics: economic considerations and notes on safety. Includes a multimedia CD-ROM containing photos and videos of industrial applications and circuit diagrams. Theoretical information is conveyed using animated cutaway models for greater comprehension and worksheets and exercise sheets can be reprinted as necessary.

DE	540671
EN (1)	541088
ES	542503
FR	542507

Optional supplements

- Design and simulation using FluidSIM® (2)
- Digital learning program, Pneumatics

Pneumatics LC 101 equipment set (without mounting plate) 548682

The most important components at a glance:

2x	Plastic tubing PUN 4 x 0.75, packaging unit 10 m	151496
1x	Plastic tubing PUN 6 x 1, packaging unit 5 m	152963
10x	Push-in T-connector for tubing PUN 4 x 0.75	153128
1x	On-off valve with filter regulating valve	540691
1x	Adjustable pressure regulating valve with pressure gauge	153495
2x	3/2-way valve, actuated by the ring magnet of the cylinder	541189
3x	5/2-way valve, actuated at both ends by pressurizing	541194
1x	5/2-way valve, actuated at one end by pressurizing	541195
1x	Quick exhaust valve for direct assembly on the cylinder	541196
1x	Timer, 2 – 30 s, pressure supply port normally blocked	541197
1x	Distributor block with hand slide valve	541198
1x	Shuttle valve with threaded joint and mounting kit	541199
2x	Dual-pressure valve with threaded joint and mounting kit	541200
2x	One-way flow control valve, adjustable	539773
1x	3/2-way valve, actuated by lever with detent	541202
2x	3/2-way valve, actuated by pushbutton	541203
1x	Double-acting cylinder with adjustable end-position cushioning	544323
2x	3/2-way valve, actuated by roller with spring return	544324
1x	3/2-way valve, actuated by pushbutton with spring return	548663
1x	5/2-way valve, actuated by lever with detent	548664
2x	Pressure gauge	548665
1x	3/2-way valve, actuated at one end by pressurizing	548666
1x	Pressure sequence valve, pressure supply port normally closed	548667
1x	Single-acting cylinder	548668

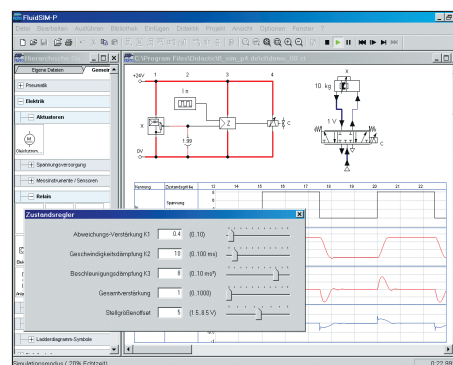
Recommended accessories

Mounting plate 550 x 700 mm, zinc-coated perforated panel 8 mm grid	541206
Distance bolt, packaging unit 4 items	110693
Tubing cutter	255851
Compressor, 40 dB (A), maximum 800 kPa (8 bar) and 50 l/min (3)	91030
Case for the mounting plate and the components (4)	30336

1 Workbook Pneumatics Basic Level



2 FluidSIM® Pneumatics



3 Compressor

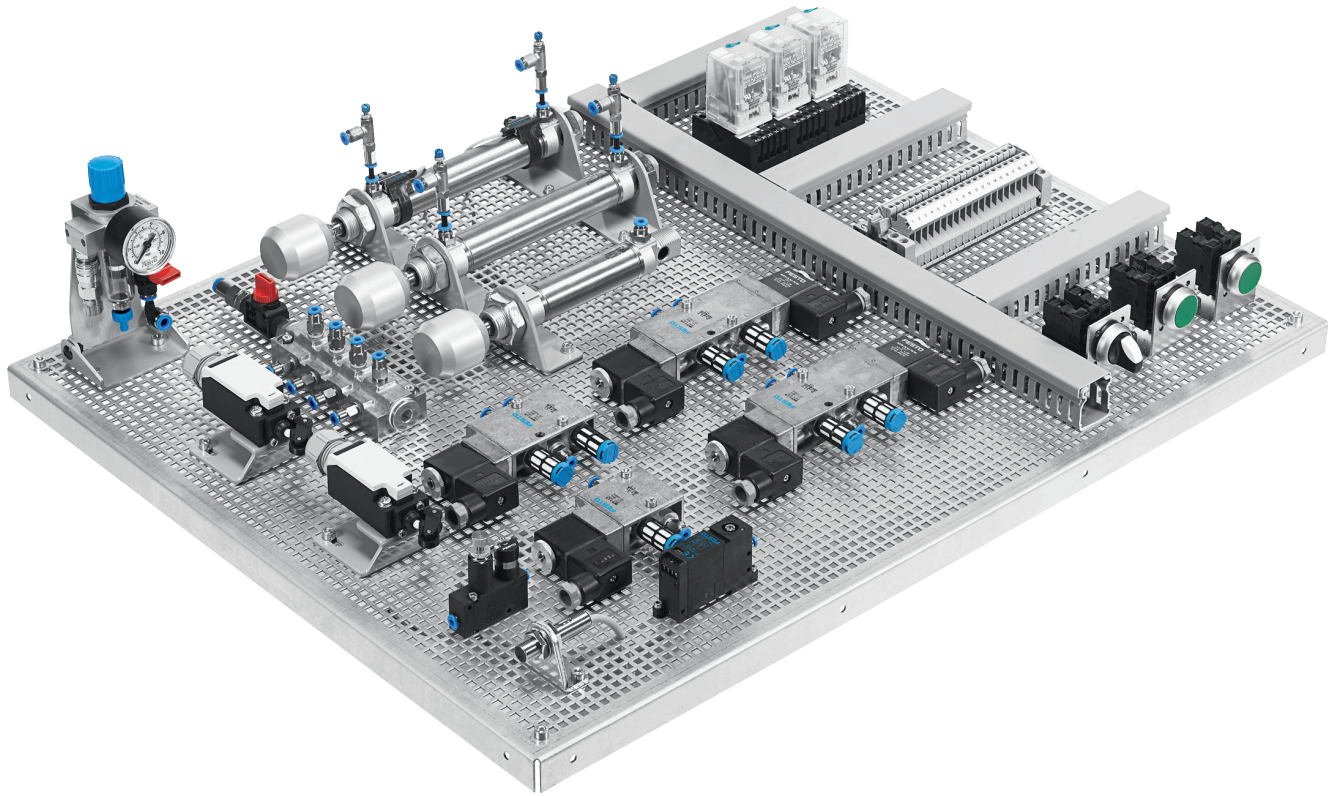


4 Case for mounting plate and components



Basic Training in Electropneumatics

LC 201 equipment set



Electropneumatics, Basic level

The most important basic principles in one compact and practical book!

The workbook contains a series of graduated project exercises based on actual industrial applications, an enhanced section on fundamentals and a multimedia CD-ROM. The foundation for competent training. Place your order now!

The number of components in the equipment set LC 201 is specially tailored to the projects contained in the workbook. This means maximum training return for minimum investment. The industrial-quality components are not assembled and are intended for assembly on a perforated panel with an 8 mm grid.

Storage and organisational tools should be ordered separately.

Learning goals

- Structure, function and application of single-acting and double-acting cylinders
- Calculating basic parameters
- Direct and indirect actuation
- Application and function of 3/2 and 5/2-way solenoid valves
- Analysing circuits
- Options for pressure measurement
- Pressure-dependent control systems
- Latching circuits
- Logic operations: AND/OR/NOT
- Combining logic operations
- Function and application of limit switches
- End-position monitoring using electronic proximity sensors
- Time delay valves
- Realising oscillating movement
- Economic considerations of using pneumatic components
- Troubleshooting simple electropneumatic circuits

Magnetic proximity sensors – compatible and reliable

The proximity sensors are based on the same slot mounting system as the pneumatic proximity sensors in LC 101.

Industrial wiring

Wire your signal inputs and outputs and the signal processing in line with industry standards using wire end sleeves and cable channels on a terminal strip. Use the FluidSIM® P to generate a terminal allocation list and document your circuit professionally.

The convincing teachware for LC 201

The workbook

DE	540673
EN (1)	541090
ES	542505
FR	542509

Optional supplements

- Design and simulation using FluidSIM® (2)
- Digital learning program, Electropneumatics

Equipment set, Electropneumatics LC 201 (without mounting plate)	548683
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The most important components at a glance:

2x	Electrical limit switch, actuated by roller with spring return	110669
1x	Connecting cable, blue and red with 4 mm connectors	110678
1x	Plastic tubing PUN 4 x 0.75, packaging unit 10 m	151496
1x	Plastic tubing PUN 6 x 1, packaging unit 5 m	152963
20x	Push-in T-connector for tubing PUN 4 x 0.75	153128
1x	On-off valve with filter regulating valve	540691
3x	Relay w. 3 changeover switches or 3 norm. closed and 3 norm. open contacts	541152
2x	Electrical pushbutton (normally open and normally closed contacts)	541155
1x	Electrical control switch	541156
1x	Terminal strip complete with 35 terminals	541158
1x	H-rail for relay base and terminal strip	541159
1x	Distributor block with hand slide valve	541198
1x	One-way flow control valve, adjustable	539773
1x	5/2-way valve, electrically actuated at one end with spring return	541208
2x	Proximity sensor, magnetic (reed)	544243
2x	5/2-way valve, electrically actuated at both ends	544244
1x	Cable duct set with mounting accessories	544252
1x	Cable/tube binder set, packaging unit 100 items	544258
1x	Core end sleeve 0.75 mm ² , packaging unit 100 items	544259
1x	Plastic conductor blue 0.75 mm ² , packaging unit 100 m	544260
1x	Electromechanical pressure switch 1.5 – 8 bar (changeover switch)	544291
2x	Double-acting cylinder with adjustable end-position cushioning	544323
1x	Single-acting cylinder	548668
1x	3/2-way valve, pressure supply port normally closed	548669
1x	Proximity sensor, optical (changeover switch)	548670

Recommended accessories

Mounting plate 550 x 700 mm, zinc-coated perforated panel 8 mm grid	541206
Distance bolt, packaging unit 4 items	110693
Tubing cutter	255851
Compressor, 40 dB (A), maximum 800 kPa (8 bar) and 50 l/min	91030
Power pack 24 V DC/4.5 A for 115/230 V AC (47 – 63 Hz), without cable (3)	162416
Case for the mounting plate and the components (4)	30336

Supplement to a Pneumatics LC 101 equipment set, making it a complete Electropneumatics LC 201 equipment set

Supplementary equipment set LC 101 – LC 201	548684
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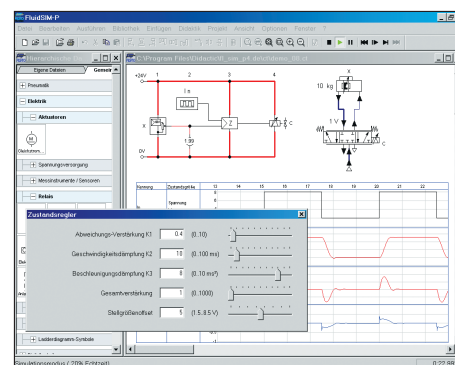
The most important components at a glance:

2x	Electrical limit switch, actuated by roller with spring return	110669
1x	Connecting cable, blue and red with 4 mm connectors	110678
3x	Relay w. 3 changeover switches or 3 norm. closed and 3 norm. open contacts	541152
2x	Electrical pushbutton (normally open and normally closed contacts)	541155
1x	Electrical control switch	541156
1x	Terminal strip complete with 35 terminals	541158
1x	H-rail for relay base and terminal strip	541159
1x	5/2-way valve, electrically actuated at one end with spring return	541208
2x	Proximity sensor, magnetic (reed)	544243
2x	5/2-way valve, electrically actuated at both ends	544244
1x	Cable duct set with mounting accessories	544252
1x	Cable/tube binder set, packaging unit 100 items	544258
1x	Core end sleeve 0.75 mm ² , packaging unit 100 items	544259
1x	Plastic conductor blue 0.75 mm ² , packaging unit 100 m	544260
1x	Electromechanical pressure switch 1.5 – 8 bar (changeover switch)	544291
1x	3/2-way valve, pressure supply port normally closed	548669
1x	Proximity sensor, optical (changeover switch)	548670
1x	Double-acting cylinder with adjustable end-position cushioning	544323
2x	One-way flow control valve, adjustable	539773

1 Workbook Electropneumatics Basic Level



2 FluidSIM® Pneumatics



3 Power pack



4 Case for mounting plate and components



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