Equipment set TP 210 – Advanced level

Measurement and control in pneumatics with FluidLab®-P



Fit for tomorrow?

The TP 210 equipment builds on the training content of the TP 101 and TP 201 equipment sets on the topic of pneumatic measurement and control. The training content ranges from the simple measurement of individual, pneumatic components, basic principles of status monitoring (condition monitoring) to (closed-loop) control technology with discontinuous (two-step action controller) and continuous controllers (PID controller).

In addition, great emphasis is placed on raising awareness of how to handle compressed air responsibly as a form of energy.

Exercises for measuring and analyzing system and control behavior help you to prepare for a future in which diagnostics, preventative maintenance, and saving energy are becoming increasingly important.

Something extra special

In order to the complete the exercises, sensors (e.g., pressure, flow and proximity sensors) are connected to the inputs and control signals are guided to the EasyPort USB outputs. The signals are interpreted and visualized on computer by the FluidLab®-P software included in the scope of delivery. Analog values are displayed as measurement curves.

Instructions on how to complete the exercises, positional sketches, and block circuit diagrams are included with each exercise, so that students are guided step-by-step through each of the tests. Measured results are then interpreted and compared with sample solutions, and students will be asked to answer questions about comprehension.

Course topics

- Basic principles of analog data processing
- Application and adaptation of sensors
- Interpretation of measurement results
- Reading and understanding of technical data and measurement curves
- Fluid engineering components, their influence and function
- Demonstrating fluid engineering effects and special features
- Analytical fault finding
- Saving energy
- Evaluation of changes in status
- Proportional technology
- Control technology with continuous and discontinuous controllers

The benefits to you

- Fast, PC-supported recording of measured values
- Greater training success through measurement of components and interpretation of results
- Sensors that enable students “to look into” the circuit and components
- Suppositions regarding system behavior can be easily proven
- Learning the principles of measurement and analysis and applying them directly in other circuits
- Demonstrating and understanding the principles of fluid engineering faster
- System analysis via PC: state-of-the-art diagnostic method
- Better understanding of fluid engineering components and processes and thus higher quality of training

Complete equipment set TP 210 in equipment tray			**556228**

The most important components at a glance:

1	1x	I/O data cable with SysLink connectors (IEEE 488) at both ends, 2.5 m	34031
2	1x	Universal connection unit, digital (SysLink)	162231
3	1x	Connection unit, analog	567232
4	1x	Analog cable, parallel, 2 m	529141
5	1x	EasyPort USB	548687
6	1x	Quick-Fix screw adapter	549806
7	2x	Pressure sensor with display	572745
8	1x	Flow sensor, 0.5 – 50 l/min, analog	8036235
9	1x	Proportional-pressure regulator	539779
10	1x	Pressure regulator valve with gauge	539756
11	3x	Flow control valve	193972
12	1x	Plastic tubing, 4 x 0.75 silver 10 m	151496
	1x	FluidLab-P Single license, de/en	556241
	2x	Non-return valve, delockable	540715

Option: force measurement
For piston force measurement exercises, the force sensor (order no. 539780) not included in scope of delivery, is required.

Accessories, also order:

Aluminum profile plate ➔ Page 39	
Compressor ➔ Page 136	
Tabletop power supply unit ➔ www.festo-didactic.com	
Power supply unit for mounting frame ➔ Page 159	
4 mm Safety laboratory cables ➔ Page 159	
Force sensor	539780

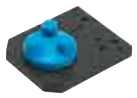
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FluidLab®-P inclusive
The FluidLab®-P software for recording measured values is an important component of the training package TP 210. Just a few simple steps are needed to configure the interface, adapt the sensors, and select the language. Exercises can then be started, which are divided into the areas, basic tests, cylinder controls, proportional technology, and control technology. Exercises are supported by connection diagrams, descriptions, and sample solutions. The measurement process is also software-controlled. Results can be measured with measuring points, printed out, or exported to a spreadsheet program. The software also includes the complete book of exercises in PDF format.

System requirements
– PC with Windows 7/8/10
– Pentium® III or equivalently
– 2 GB RAM
– CD-ROM disk drive
– USB 2.0 or serial interface
– 1280 x 1024 pixels
– NI LabView 2012 Runtime (included in scope of delivery)

Components from the TP 101 and TP 201 equipment sets are required in order to complete the exercises.

