

# Equipment set TP 111

## Basic closed-loop pneumatics training

Complete equipment set TP 111 in equipment tray

184467

The most important components at a glance:

1	1x Signal input, electrical	162242
2	2x 3/2-way valve with pushbutton actuator, normally closed	152860
3	1x 2 x 3/2-way solenoid valve with LED, normally closed	567198
4	1x Pressure gauge	152865
5	2x One-way flow control valve	193967
6	1x On-off valve with filter/regulator, 5 µm	526337
7	1x Manifold	152896
8	1x Plastic tubing, 4 x 0.75 silver 10 m	151496
9	1x PID controller	162254
10	1x Comparator	162257
11	1x Pressure sensor, analog	167094
12	1x 5/3-way solenoid valve, mid position closed	567201
13	1x 5/3-way proportional valve	167078
14	2x Air pressure reservoir, 0.4 l	152912
15	1x Status controller	162253
16	1x Linear drive, pneumatic, with guide and accessories	192501
17	1x Position encoder	152628
18	1x Ruler	525927
19	1x Weight, 5 kg, for linear drive	34065
20	2x Shock absorber	34572
	1x Connecting cable for linear potentiometer	376177
	1x Adapter for Y-axis or weight	167032
	1x Mounting accessories for position encoder	8065079

Recommended accessories:

Aluminum profile plate → Page 39	
Compressor → Page 136	
Digital multimeter	8040005
Digital storage oscilloscope	571845
Function generator	152918
Cable BNC – 4 mm	152919
Cable BNC – BNC	158357
T-connector BNC	159298
Tabletop power supply unit → www.festo-didactic.com	
Power supply unit for mounting frame → Page 159	
4 mm Safety laboratory cables → Page 159	

### Training aims

- Controlling pressure and position
- Action sequence of a control circuit
- Activity and timing of control units: discontinuous and continuous controls, P, I, D, PI, PD, PID controls, status controls
- Behavior of control sequences: transfer characteristics, transient response, system with and without compensation, system of first, second and third order, idle times
- Interaction of closed-loop controls and control systems: control circuit optimization, stability considerations
- Set-up, commissioning, and optimization of closed-loop control assemblies, devices, and systems with analog controller cards

### Recommended training media

- WBT Pneumatics
- Design and simulation program, FluidSIM® Pneumatics

Also order:

### Workbook Closed-loop pneumatics

Campus license (→ Page 19):

de	94459
en	94465
es	533499
fr	94347

Partial equipment sets for controlling pressure and position on request.

Note: The linear drive and linear potentiometer are mounted perpendicular to the profile slot.

