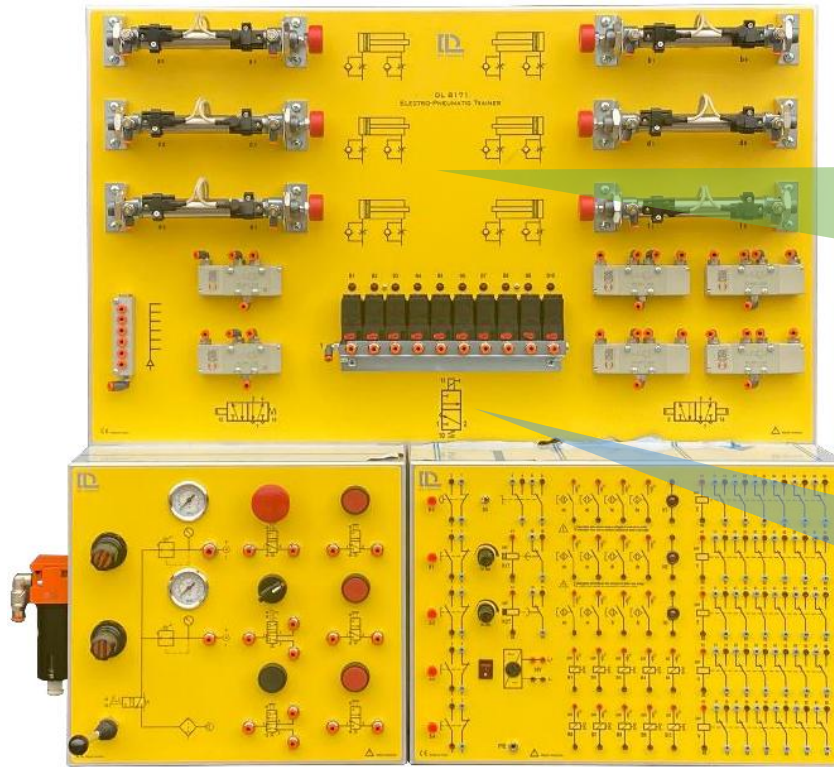




## BASIC ELECTRO-PNEUMATICS TRAINER



### Who is it for?

- Mechatronics & Automation Technician
- Automatic Systems Maintenance Tech.
- Electronics Tech.

With this trainer the students can perform more than

**55** experiments

### DL 8171

This compact trainer has been designed to implement complete application programs on electro-pneumatics automation. It can be used for demonstrations and experiments in the electro-pneumatic field.

It is a collection of interconnected components using compressed air to do work for automated equipment, and it is suggested as a workstation for two/three students to be placed on any table.

It is a slightly inclined stand composed of three sections. In the lower side, at the left, there are all the components necessary for compressed air treatment such as filter, regulators, manometers, and manually operated pneumatic valves, and at the right, the electronic unit including the components such as switches, timers, interfaces for reed sensors and solenoids, lamps and relays to operate with the electro-pneumatic panel. In the upper side, the main pneumatic/electro-pneumatic components are mounted and fixed such as valves pneumatically operated of different types, electro valves, and DE cylinders with reed sensors as limit switches. All the components are identified through clear symbols.



## TECHNICAL FEATURES

The lower left section (Air Supply Unit) includes:

- 1 filter with automatic discharge dehumidifier,
- 1 manually controlled pneumatic valve 3/2-NC with lever for general pneumatic supply,
- 2 pressure regulators,
- 2 manometers/pressure gauges, 0 ÷ 10 bar,
- 1 manually controlled pneumatic valve 3/2-NC with mushroom-head push button,
- 3 manually controlled pneumatic valves 3/2-NC with fat push button each,
- 1 manually controlled pneumatic valve 5/2-NC/NO with fat push button,
- 1 manually controlled pneumatic valve 5/2-NC/NO with selector short lever.

The lower right section (Electronic Unit) includes:

- 1 emergency push button with 1NO/1NC contacts, identified by S0,
- 4 control push buttons with 1NO/1NC contacts each, identified by S1.... S4,
- 1 DPDT (**D**ouble **P**ole **D**ouble **T**hrow) switch with 1NO/1NC contacts each pole, identified by S5,
- 1 on-delay timer (0 ÷ 30 s) with 1 NO/NC auxiliary contacts, identified by K1T,
- 1 off-delay timer (0 ÷ 30 s) with 1 NO/NC auxiliary contacts, identified by K2T,
- 1 24Vdc/2A available output with bipolar switch and red LED, fuse protected,
- Terminals of the reed sensors mounted on the cylinders identified by a<sub>0</sub>/a<sub>1</sub>.... f<sub>0</sub>/f<sub>1</sub>,
- Terminals of the coils for the electro valves identified by B1.... B10,
- 3 pilot lamps 24Vdc identified by H1, H2, H3,
- 5 relays 24Vdc, with 6 NO/NC changeover contacts each, identified by X, Y, Z, U, V,
- Socket with fuse protection, on the right side, for power supply: 220 ÷ 240Vac, 50Hz.

The upper section includes:

- 1 distributor/6 positions,
- 2 pneumatically operated monostable valves 5/2, with spring return,
- 4 pneumatically operated bistable 5/2 valves,
- 1 manifold of 10 solenoid valves 3/2-NC operated either manually or electrically through coils 5W/24Vdc and LEDs indication,
- 6 double acting magnetic cylinders (∅20mm, l=100mm),
- 12 micro flow unidirectional regulators, assembled on the cylinders,
- 12 reed sensors, assembled on the cylinders.



## TRAINING PROGRAM

With this trainer, the students can perform a huge number of experiments starting from basic applications and reaching at the end complex configurations, allowing them to understand how the pneumatic system converts force into potential energy driving for example an actuator such as a cylinder with kinetic energy, and also how various basic/advanced electro-pneumatic circuits can be built easily due to special design of the trainer.

The course is mainly divided into the following areas:

- Circuits with single and double acting cylinders,
- Basic logic functions in electro-pneumatic circuits,
- Self-holding (memory) circuits using relay,
- Circuits with timers,
- Circuits with combinational and sequential logic controls,
- Single and continuous cycles of two and four cylinders,
- Circuits with multiple cylinder sequences.

## SUPPLIED ACCESSORIES

The trainer is supplied with the following accessories:

- Flexible tubes enough for connecting to an external main air supply and for carrying out all the exercises included in the manual,
- Pipes cutter,
- Pipes extractor,
- T-fittings and stoppers,
- A complete kit of cables of different lengths and colours for electrical wiring.

Supplied complete with detailed service manuals and two practical manuals for both the student and the teacher.

## ACCESSORIES SUGGESTED (NOT INCLUDED)

1. To perform the practices, it is suggested the compressor **DL 8110SLZ** that has excellent qualities such as:
  - Very low noise level,
  - Tank capacity: 24 litres,
  - Max. working pressure: 8 bar or 116 PSI,
  - Motor power: 0.34 kW or 0.45 HP,
  - Noise level: 40 dB,
  - Weight: 25 kg,
  - Dimensions: 40 x 40 x 60 (h) cm.





# AUTOMATION AND CONTROL



2. The electronic unit of this trainer can also be wired to a PLC (Programmable Logic Controller) to increase and/or replace the already supplied experiments using the automatic control that plays a vital role in industries. De Lorenzo suggests **DL 2210A** or **DL 2210B**.

