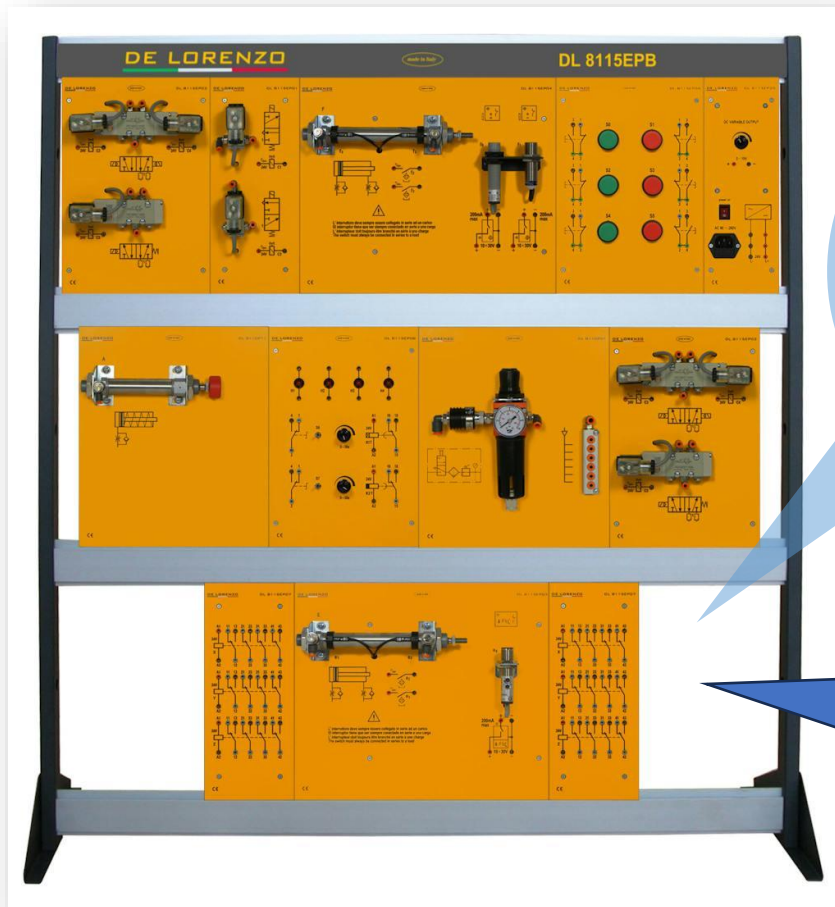




## BASIC MODULAR ELECTRO-PNEUMATICS TRAINER



### Who is it for?

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

With this trainer the students can perform more than **40** experiments

### DL 8115EPB

This modular 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 modules mounted on a frame, including pneumatic/electro-pneumatic components and 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 includes many of the components that need compressed air treatment such as filter with pressure regulator and manometer, solenoid valves with coils, DA cylinders with reed sensors as limit switches, and other electronic modules necessary to operate with the previous electro-pneumatic components such as switches, timers, lamps, relays, push-buttons, and proximity sensors.

All the components are mounted and identified through clear symbols.



## TECHNICAL FEATURES

The trainer includes the following modules:

- **DL 8110P01** with:
  - ◆ a filter with automatic discharge dehumidifier,
  - ◆ a pressure regulator,
  - ◆ a manometer/pressure gauge,  $0 \div 12$  bar,
  - ◆ a valve 3/2 slide type, for general pneumatic supply,
  - ◆ a distributor with 6 positions.
- **DL 8110P11** with:
  - ◆ 1 single-acting magnetic cylinder with retracted rod ( $\varnothing 20\text{mm}$ ,  $l=50\text{mm}$ ),
  - ◆ 1 micro flow unidirectional regulator, assembled on the cylinder.
- **DL 8115EP01** with:
  - ◆ 1 solenoid valve 3/2-NC (YES) in line with coil 24Vdc/5W,
  - ◆ 1 solenoid valve 3/2-NO (NOT) in line with coil 24Vdc/5W and silencer.
- **DL 8115EP02 (X 2)** each with:
  - ◆ 1 solenoid valve 5/2-NC/NO bistable with coils 24Vdc/2W and silencers,
  - ◆ 1 solenoid valve 5/2-NC/NO monostable with coil 24Vdc/2W, with spring return and silencers.
- **DL 8115EP03** with:
  - ◆ 1 double acting magnetic cylinder ( $\varnothing 20\text{mm}$ ,  $l=100\text{mm}$ ) with:
    - 2 reed sensors assembled directly on it with relative terminals identified by  $e_2$  and  $e_3$ , and
    - 2 micro flow unidirectional regulators, assembled on the cylinder.
  - ◆ 1 photoelectric sensor [Power supply  $10 \div 30$  Vdc, Switching distance adjustable  $0 \div 50$  cm with trimmer for sensing range, Output type DC/PNP/NO, Light source IR, Max. output current 200 mA, Yellow LED for operation indicator], identified by  $e_0$ .
- **DL 8115EP04** with:
  - ◆ 1 double acting magnetic cylinder ( $\varnothing 20\text{mm}$ ,  $l=100\text{mm}$ ) with:
    - 2 reed sensors assembled directly on it with relative terminals identified by  $f_2$  and  $f_3$ , and
    - 2 micro flow unidirectional regulators, assembled on the cylinder.
  - ◆ 1 proximity capacitive sensor [Power supply  $10 \div 30$  Vdc, Switching distance adjustable  $0 \div 10$  mm with trimmer for sensing range, Output type DC/PNP/NO, Max. output current 200 mA, LED for operation indicator], identified by  $f_0$ .
  - ◆ 1 proximity inductive sensor [Power supply  $10 \div 30$  Vdc, Switching distance  $0 \div 6,5$  mm, Output type DC/PNP/NO, Max. output current 200 mA, Yellow LED for operation indicator], identified by  $f_1$ .
- **DL 8115EP05** (*this module needs to be supplied by AC single phase  $90 \div 260\text{V}$* ) with:
  - ◆ 1 DC stabilized fixed output 24Vdc/2,7A,
  - ◆ 1 DC variable output  $0 \div 10\text{V}$  through a potentiometer,
  - ◆ 1 bipolar switch with red LED for the power supply.



**DL 8115EP06** with:

- ◆ 3 green control push buttons with 1NO/1NC contacts each, identified by S0, S2, S4,
- ◆ 3 red control push buttons with 1NO/1NC contacts each, identified by S1, S3, S5.
- **DL 8115EP07 (X2)**, each with:
  - ◆ 3 relays 24Vdc, with 4 NO/NC changeover contacts each, identified by X, Y, Z.
- **DL 8115EP08** with:
  - ◆ 4 pilot lamps 24Vdc identified by H1, H2, H3, H4,
  - ◆ 2 selectors with 1NO/1NC contacts each,
  - ◆ 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.

## 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 manuals including a service manual and two practical manuals for both the student and the teacher.



## ACCESSORIES SUGGESTED (NOT INCLUDED)

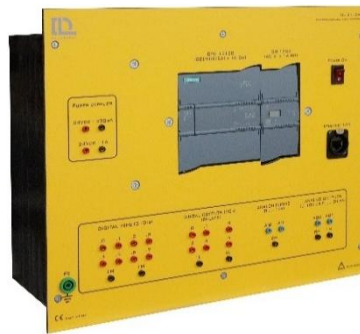
1. To perform the practices, we suggest the compressor

**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.



2. The electronic modules/parts 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 2110ATN**.



## OPTION (DL 8115EPA)

This basic configuration can be enhanced by adding other modules including important components in the electro-pneumatic field such as pressostats adjustable and pressure controlled, and a proportional electronic regulator with digital pressostat.

For more information regarding these advanced modules, please refer to catalogue **DL 8115EPA**.