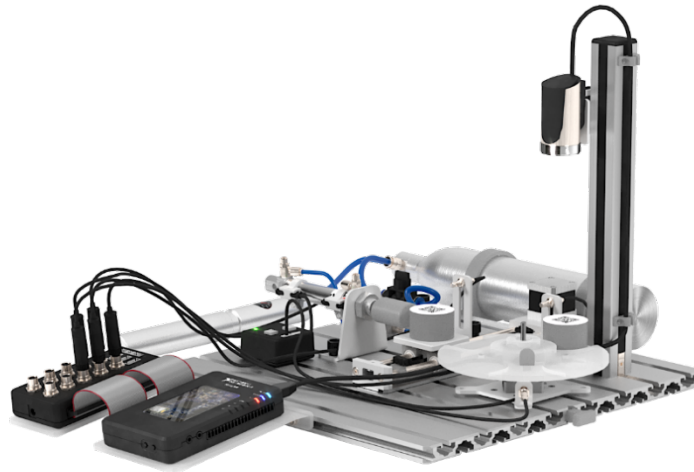


Basic Electropneumatics Training Kit



Overview

The Basic Electropneumatics training kit is designed as a base for the construction solutions of complexes and systems intellectual management.

The training kit is equipped with pneumatic components, various sensors, linear movement system, turntable etc. For the configuration of electronic components connector block is designed.

The project is first implemented in manual mode. Further, developed an algorithm to carry out a project repeatedly in automatic mode. Similar problems are solved by engineers in production.

Functionality

The functionality of the training complex is provided by pneumatic cylinders, a stepper motor, a set of sensors and a camera.

The pneumatic system consists of modules designed for the production, distribution, regulation and consumption of compressed air.

The elements of the system are connected by pneumatic tubes and form a pneumatic circuit for passing the signal from the compressed air source to the executive part.

The training kite allows to solve the following tasks in real time:

- adjustment of electronic components;
- the use of sensors in production automation;
- development and creation projects on their own;
- algorithms development for control of various systems.

The training kit gives students the opportunity to gain the following skills:

- automation and control of production processes;
- production line balancing;
- modular development of various systems;
- realization of independent projects.

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List of Exercises


1. Direct control of a single-acting cylinder with 3/2 hand-operated valve
2. Direct control of a double-acting cylinder with two 3/2 hand-operated valves
3. Implementing the logic AND function with two 3/2 hand-operated valves
4. Direct control of a double-acting cylinder
5. Product coding
6. Control workpieces movement direction
7. Moving the workpieces along rectilinear trajectory
8. Moving the workpieces along production section

The Basic Electropneumatics training kit is based on the NI myRIO control-measuring equipment.

Course software has been developed in the NI LabVIEW Graphical Programming Environment.

The course software has a simple user interface. The exercises include mechanical assembly and software implementation of the production task.

The training kit guidelines have been developed with theoretical material and step-by-step instructions for each experiment.

The *Basic Electropneumatics* training kit is delivered in a plastic container .



The training kit is designed for high school and college students.

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