



## **An Electro-Pneumatic Programmable Logic Controller Application Training System**

The 650A-MPC Machine Process Control System replicates an electro-pneumatic automated material handling process typically found in industry. The 650A-MPC introduces students to real world inputs and outputs in an application-oriented setting controllable by a Programmable Logic Controller (PLC).

With the included courseware package, students will gain hands-on experience using valves, actuators, industrial sensors, and conveyors within a range of activities demonstrating real life manufacturing control situations.

The 650A-MPC can be controlled by TII's series of PLC training systems, other PLCs using banana jack interconnections, or as a stand-alone training system using the built-in internal power supply and switches.

The system includes a student activity manual and instructor's guide that provide a thorough knowledge of the practical use of an electro-pneumatic control system. Practice exercises begin with basic control concepts progressing to more comprehensive process sequencing activities involving the entire training apparatus.

## SPECIFICATIONS

The Machine Process Control System is mounted upright on a metal frame with stainless steel front panel for easy learner access to hardware and convenient interfacing to other TII training systems. All features on the front panel have been silkscreened for easy identification. The 650A-MPC is designed for use on a table, bench, or as part of a desktop flexible manufacturing system. There is a large work space in front of the panel making the MPC system configuration appear “L-shaped”. The conveyor is mounted to this L-shaped work space.

All control panel valves, actuators, lights, and switches can be accessed through banana jacks. This system design flexibility enables the user to easily interface the 650A-MPC with other control devices.

The 650A-MPC application consists of an electro-pneumatically actuated parts dispenser, which dispenses parts onto a bi-directional belt conveyor. As parts are conveyed, sensors check for various part characteristics. Based on the sensor inputs and programming logic, parts are processed per requirements. Parts can be sorted, counted, stamped, or correct orientation determined. The entire process is controllable by a PLC.

As an option, the parts can be sorted at the end of the conveying process into three separate trays via a three-station solenoid operated electro-pneumatic parts ejection process. Model number: EM600-AIR3. Although this is a popular option to enhance the student’s learning experience, this is not a necessary requirement to gain a full understanding and appreciation of electro-pneumatic PLC control.

### Control Panel:

- Three double-acting tie rod cylinders with three, two, and one inch strokes
- Three pneumatic three-way, two position electric solenoid directional control valves
- Infrared sensor
- Limit switch
- Internal power supply (24 VDC)
- Parts dispenser (see-through)
- Target parts – clear, black, metallic
- Four port air distribution manifold
- Air regulator
- Air pressure gauge
- Reversible motorized belt conveyor with approximate dimensions: 3 in. x 27 in.
- Part alignment guides
- I/O interface strip with a series of banana jacks for external electrical interfacing
- On/off toggle switch
- Power indicator
- Fuse protected

### Curriculum

- Instructor and student manuals
- Six activities for stand-alone mode
- Six activities for PLC mode
- Two challenger activities

### System Dimensions:

Frame Size: 20.5" x 14.5" x 4"  
Front Tray: 20.5" x 10"  
Shipping Weight: 40 lbs.

*For more information, customer service, or technical assistance please call 800-451-2169*

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