

## INSPECTION & SORTING PROCESS STATION



*PHOTO: Inspection & Sorting Process Station  
(image for reference only, actual product may differ)*

### SYSTEM OVERVIEW

The **Inspection & Sorting Process Station** is an integrated smart-factory training platform designed for automated inspection, decision-making, and product sorting operations. The system is configured to simulate commercially viable manufacturing processes while maintaining the robustness and operational stability required for industrial-grade training equipment.

By integrating IoT-based software, PLC control, smart vision systems, pneumatic actuators, and industrial communication technologies, the station enables centralized management of inspection and sorting functions. Process data acquired during operation can be stored, monitored, and analyzed in real time.

The system supports supervision, maintenance, and workplace safety management while allowing performance upgrades. Dedicated software enables equipment layout configuration, control design, process simulation, and real-time operational monitoring within a unified package.

The station is enclosed in a protective housing with structured routing of electrical wiring and pneumatic hoses through ducts and cable chains. All supplied components are brand-new and unused.

*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*



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**TECHNICAL SPECIFICATIONS**

Sl. No.	Item Name	Technical Specifications	Qty
1	<b>Index Table</b>	DC 24 V motor-driven index table for part positioning and inspection sequencing.	<b>1 ea</b>
2	<b>IoT Sensor Device On/Off Control Cylinder (Type 1)</b>	Diameter $\geq 16$ mm; stroke $\geq 60$ mm; operating pressure 1.0 MPa; forward-on/reverse-off mode; 2 flow control valves; 2 magnetic sensors (NO with LED); operating voltage 12–27 V DC/AC.	<b>1 ea</b>
3	<b>IoT Sensor Device On/Off Control Cylinder (Type 2)</b>	Diameter $\geq 20$ mm; stroke $\geq 50$ mm; operating pressure 1.0 MPa; 2 flow control valves; 2 magnetic sensors (NO with LED); operating voltage 12–27 V DC/AC.	<b>1 ea</b>
4	<b>IoT Sorting Up/Down Cylinder</b>	Diameter $\geq 20$ mm; stroke $\geq 50$ mm; operating pressure 1.0 MPa; 2 flow control valves; 2 magnetic sensors (NO with LED); 12–27 V DC/AC.	<b>1 ea</b>
5	<b>IoT Sorting Rotary Cylinder</b>	Internal volume $\geq 51$ cm <sup>3</sup> ; effective rotation 90°; operating pressure 1.0 MPa; 2 flow control valves; 2 magnetic sensors (NO with LED); 12–27 V DC/AC.	<b>1 ea</b>
6	<b>IoT Sorting Sensors</b>	Proximity sensor $\varnothing 18$ mm, sensing distance 8 mm, DC 12–24 V; photo sensor (diffuse reflective) $\varnothing 18$ mm, sensing distance 100 mm, DC 12–24 V.	<b>1 set</b>
7	<b>5/2-Way Double Solenoid Valves</b>	Aluminum anodized sub-base; operating pressure 0.05–1.0 MPa; flow rate 700 L/min (0.5 MPa); response $\leq 18$ ms; spring & internal pilot return; 24 VDC $\pm 10\%$ ; built-in LED & surge protection; manual override push-button.	<b>5 ea</b>
8	<b>Pneumatic Air Preparation Unit</b>	Regulator, filter, lubricator, pressure gauge, hand valve; proof pressure 1.5 MPa; operating 0–1.0 MPa; set range 0.05–0.85 MPa; rated flow 800 L/min (0.6 MPa); filtration 10 $\mu$ m; aluminum anodized base.	<b>1 ea</b>
9	<b>PLC Control System</b>	Mitsubishi MELSEC compatible or equivalent; PSU 100–240 VAC; outputs 5 VDC / 24 VDC (3 A / 0.6 A); 5-slot base; cyclic CPU; ladder/SFC/function/ST/list; USB & Ethernet; 30k steps; I/O devices 8192; I/O points 4096; internal relays 9216; input modules 2 $\times$ 16 pt; output modules 2 $\times$ 16 pt; dummy cover.	<b>1 set</b>
10	<b>GOT Touch Monitor (HMI)</b>	8.4" TFT LCD; 640 $\times$ 480 resolution; 65,536 colors; LED backlight; resistive touch; 57 MB storage / 128 MB runtime; RS232, RS422/485, Ethernet, USB, SD; AC 100–240 V; SCADA real-time monitoring & control.	<b>1 ea</b>
11	<b>Device Operation Control Section</b>	Power switch; Auto/Manual selector; 2 push buttons; emergency stop; 2 pilot lamps; buzzer.	<b>1 set</b>
12	<b>Real-Time Monitoring IP</b>	1/2.8" CMOS ( $\sim 2$ MP); 3.8 mm lens; H.264/MJPEG; RJ45 & BNC; 1920 $\times$ 1080 resolution; 10/100Base-T; dual streaming; PoE	<b>1 ea</b>

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	<b>Camera</b>	(IEEE 802.3af).	
<b>13</b>	<b>Station Enclosure</b>	800×810×1500 mm aluminum profile frame; transparent protective cover; double doors; blue-coated panels; 4 lockable casters; 3-color tower light; control shelf; built-in SMPS DC 24 V ≥2 A; cable ducts & chains.	<b>1 ea</b>
<b>14</b>	<b>Vision Cameras &amp; Lighting</b>	Smart vision cameras with onboard processor; 1/3" CMOS color; M12 lens (6.2 mm auto-focus or 8 mm manual); 640×480 & 800×600 modes; diffused LED ring; up to 40 fps mono / 24 fps color; tools: pattern, edge, circle, pixel count, brightness, OCR, blob; outputs pass/fail & numeric values; protocols TCP/IP, UDP, FTP, Telnet, RS232C; industrial protocols OPC UA, EtherNet/IP, PROFINET Class B, Modbus TCP, SLMP, CC-Link IE; IP65 aluminum housing; 24 VDC ±10%, max 48 W.	<b>2 ea</b>
<b>15</b>	<b>Emulation Tools</b>	Spreadsheet-based no-code interface; networking discovery; inspection tools; geometry/math/text/coordinate transform functions; SDK (C#); Ethernet/serial I/O; runtime data monitoring; clock data storage; VDA extraction functions.	<b>2 ea</b>
<b>14</b>	<b>Accessories</b>	Power cable (1 ea); communication cable set (1 set); setup software (1 copy); Ethernet & PoE M12 cables (2 ea each); emulation license (2 copies).	<b>1 lot</b>

**RANGE OF EXPERIMENTS**

- Automated index-table based inspection sequencing
- IoT-based sensor on/off control logic
- Pneumatic sorting with rotary and vertical actuation
- PLC-based inspection and sorting programs
- Vision-based inspection (pattern, edge, OCR, blob detection)
- SCADA-based monitoring and control
- Industrial communication protocol implementation
- Data acquisition and monitoring for smart manufacturing
- Integration of pneumatic actuators and IoT sensors
- Real-time inspection validation and sorting decision logic

**FEATURES**

- Smart-factory compatible inspection and sorting platform
- Integrated PLC, vision, IoT and pneumatic control
- Industrial protocol communication support
- DC motor-driven index table for accurate positioning
- Multiple sorting cylinders and smart sensor integration
- SCADA-based monitoring via GOT touch interface
- Real-time IP camera monitoring

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- Fully enclosed safety housing with structured cable routing
- Supports mobile-based monitoring and training
- Suitable for Industry 4.0 training environments

**SERVICES REQUIRED**

- Standard **230 V AC** power supply
- Proper earthing/grounding required

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