DESCRIPTION

The S1-RT-102 Robotics Trainer is a comprehensive educational and training platform designed for teaching and learning automation and robotics principles. This trainer simulates a real-world robotic work-cell environment, complete with a variety of components, allowing users to develop hands-on skills in robotics control, automation processes, and PLC programming. It is equipped with an industry-standard robotic arm, conveyor system, and sensors, making it ideal for both academic and vocational training programs in industrial robotics and control systems.

FEATURES

- Realistic robotic work-cell with integrated baseboard, conveyor belt, and sensors.
- Includes robotic arm, infra-red light gate, component dispenser, and component bin for simulating industrial tasks.
- Comprehensive training manual covering robotic control, programming, and automation workflows.
- Siemens PLC with Step 7 software for advanced automation control and program simulation.
- Software simulation of the Industrial Control Trainer for enhanced practical learning.
- USB to parallel adapter for easy data transfer between the robotic trainer and external devices.
- Access to a digital curriculum, including simulation exercises, problem-solving tasks, and pre-programmed sequences.
- Suitable for both beginner and advanced robotics learning levels.

SPECIFICATION

- **Robotic Arm:** Industrial-grade with multi-axis control
- **Conveyor System:** Includes light gate and sensor for automatic object detection
- **Accessory Kit:** Complete set for hands-on training activities
- **Power Supply:** Includes necessary power adapters for global voltage ranges.

UTILITY REQUIREMENTS

Power: 100-270V AC, 50 Hz

Social Value: Opportunity for guest speakers and educational classroom displays to supplement learning.

DIMENSIONS

Overall Dimensions Lx W x H: 800 mm x 275 mm x 550 mm.

Weight: 16kg Approx

STANDARDS COMPLIANCE

The SYP Technologies S1-RT-102 Robotics Trainer, complies with the following standards:

- **ISO 12100:** Safety of machinery — General principles for design
- **IEC 61131:** Programmable Controllers, covering the PLC standards
- **ISO 9283:** Industrial Robots — Performance criteria and related test methods

ACCESSORIES

- **Baseboard:** For stable and secure setup of the work-cell environment
- **Conveyor Belt:** Automated transport system within the robotic work-cell
- **Infra-red Light Gate:** For object detection and processing within the conveyor system
- **Component Dispenser and Bin:** For practicing robotic component handling and sorting tasks
- **Accessory Kit:** Includes essential tools and materials for various training modules
- **USB to Parallel Adapter:** Allows easy connection to external devices
- **Robot Control Software:** Industry-standard software for controlling the robotic arm and automation processes.

SOFTWARE & DATA LOGGING

- **Step 7 Software License:** Industry-standard software used for PLC programming and control.
- **Simulation Software:** Allows the user to simulate and visualize robotic control processes before implementation.
- **Data Logging:** Real-time data monitoring and logging capabilities for analyzing robotic task performance and making adjustments as necessary.
- **Robot Control Software:** Software to control the robot

PRACTICAL ACTIVITIES

- Manual Control of a Robot
- Flowcharts and Programs
- Sensing, Decisions, and Counting
- Open and Closed Loop Control
- Transportation Around the Work-cell
- Manipulating Parts
- Industrial Robots
- Pre-programmed Sequences
- Problem-Solving Scenarios

DELIVERY, INSTALLATION AND COMMISSIONING

Delivery:
The S1-RT-102 will be delivered directly to the specified laboratory location. Delivery will be completed under **Delivered At Place Unloaded (DPU)** terms, ensuring that SYP Technologies will handle all aspects of transportation, including insurance. Our courier services will provide the necessary offloading and transportation equipment, such as tailgate ramps and trolleys, to ensure smooth delivery.

Installation:
The **installation** of the S1-RT-102 will be conducted by skilled technicians from SYP Technologies. The process includes:

a. **Unpacking and positioning** the system in the laboratory.
b. Ensuring all **components, cables, and interfaces** are properly connected for immediate operation.
c. **Calibrating the equipment** for initial setup, ensuring the system is ready to function as per the university's requirements.
d. Handling any **special installation requirements**, such as electrical or utility connections, in compliance with the latest UK/international wiring and safety regulations.

Commissioning:

After installation, SYP Technologies will fully **commission the equipment** to verify its operation according to the specified performance parameters. Commissioning includes:

a. **Functional testing** of all system components.
b. **Calibration verification** to ensure precise readings across the full thermal conductivity range.
c. Demonstrating **data logging** and **software functionality** to the satisfaction of the university's research and technical staff.
d. **Testing under operating conditions**, ensuring the equipment meets all performance criteria outlined in the tender, including temperature, pressure, and sample type testing.

Training and Demonstration:

As part of the commissioning process, **comprehensive training** will be provided to staff. This includes :

a. Training on equipment operation.
b. Data management training, covering data logging, interpretation, and exporting test results.
c. Instructions on equipment maintenance, dismantling, and reassembly to ensure safe handling and operation in different laboratory settings.
d. Customization training, allowing the university's technical staff to adapt the equipment's software and hardware for future research needs.
e. **Training:** Minimum of one-day hands-on training included, covering all key aspects of the robotics trainer.

Delivery, installation and commissioning must be carried out during normal University hours and must not affect the day-to-day operations of the University or its students.

Documentation and Support:

Upon installation, SYP Technologies will provide full **documentation** of the S1-RT-102, including:

a. **User manuals** with step-by-step operating instructions.
b. **Maintenance guides** for scheduled servicing and calibration.
c. **Electrical schematics** and system diagrams for further technical reference.
d. Detailed documentation in English of delivered equipment (incl. schematics and circuit descriptions); iits operation, maintenance and service must be included and supplied on delivery. SYP Technologies will also offer **ongoing support** and be available for any questions or additional services following installation and commissioning.

WARRANTY, AND AFTER-SALES SERVICE

Warranty:

The S1-RT-102 comes with a **comprehensive 1-year full warranty** from the date of final acceptance testing. This warranty includes:

a. **Full coverage** for all parts, labor, and service costs related to equipment malfunctions or defects, excluding consumable items.
b. **Free technical support** during the warranty period, ensuring swift resolution of any operational issues.
c. **On-site repairs** and service, when required, with response times aligned with the university's operational needs.
d. The option to extend the warranty beyond the 1-year period, with **cost transparency** provided for extended coverage.

After-Sales Service:

SYP Technologies provides robust **after-sales support** to ensure the long-term performance of the S1-RT-102:

a. **Technical support**: Our dedicated support team is available to troubleshoot any issues or answer operational questions.

b. **Remote diagnostics**: The equipment's software allows remote access for troubleshooting and system diagnostics, enabling rapid identification and resolution of issues without requiring on-site visits.
c. **Spare parts availability**: We maintain a readily available stock of critical components, ensuring quick replacement and repair.