



Mechanical Platform & Structure

- **Overall Dimensions (W × D × H):** $\geq 840 \times 720 \times 1660$ mm
- **Load Capacity:** Desktop vertical static load ≥ 850 kg
- **Structure Type:** EK-II profile frame for modular expansion
- **Material:** High-strength magnesium-aluminum industrial alloy profiles
- **Features:**
 - Accommodates power/signal screens and dual-layer plugin modules
 - 4× heavy-duty adjustable feet for floor stability
 - Modular EK insertion interface for teaching modules

Mobile Teaching Computer Desk

- **Dimensions:** $630 \times 450 \times 850$ mm
- **Material:**
 - Frame: Aluminum oxide magnesium alloy
 - Surface: High-density board with 0.8 mm HPL thermoset resin laminate (fire/scratch-resistant)
- **Features:**
 - 4× mobile casters
 - Adjustable PC clamp for varying CPU sizes
 - 1× PC mount space for classroom flexibility

Business Desktop Computer (User-provided)

- **Suggested Brands:** Dell / Lenovo
- **Specifications:**

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



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- CPU: $\geq$ Intel 4-core 3.3 GHz, L3 Cache 12 MB
- Memory: $\geq$ 8 GB DDR4 (supports 64 GB)
- Storage: 256 GB SSD + 1 TB SATA
- Display: $\geq$ 21.5" widescreen monitor
- Connectivity: Integrated Intel graphics, sound, 1 Gbps LAN
- Power: 300W PSU, Windows 10/Linux
- Accessories: Keyboard, mouse
- Warranty: 1-year on-site

Siemens S7-200 SMART PLC System

- **Power Supply:** AC 220V / DC 24V 2A, fuse protection, power-on indicator
- **Core Modules:**
 - **CPU ST:** 18 DI / 12 DO with PROFINET
 - **EM AM03:** 2 AI / 1 AO
 - **BUS Module:** With SCSI cable and emergency stop
 - **Switch Module:** 6× RJ45 industrial switch
- **Experiment Boards:**
 - PLC_16DI (sink input, opto-isolated)
 - PLC_16DO (source output with LED indication)
 - PLC_4AI/2AO (0–10V or 0–5V analog)

DC Speed Control System Module

- **Power:** DC 24V, 130W, Max 10A
- **Input:** 10–50k Ω / 0.5–25V / 100Hz–10kHz
- **Output:** PWM, 18 kHz, resolution 1/1000
- **Communication:** RS485 Modbus-RTU, 03H/06H/10H, 1–128 slave address
- **Features:**
 - Built-in PID speed control
 - I/O simulation terminals
 - Protection: Overcurrent, reverse polarity, stall
 - Placement: EK profile slot-compatible
 - 4mm safety sockets

Button & Signal Box (10S/8P)

- **Voltage:** AC 380V / DC 24V

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- **Panel:** Aluminum alloy with high-precision printed symbols
- **Switches:**
 - 8× self-reset buttons
 - 1× self-locking knob
 - 1× emergency stop (self-locking)
 - 8× signal lights
- **Mounting:** Vertical or horizontal, EK platform compatible

Process Control Simulation Components

Water Tank & Fluid Units

- **Upper & Lower Tank Units:**
 - 13L stainless steel (304) tanks
 - Pipe Diameter: DN15
 - Integrated overflow, level indicators, and anti-dry burn heating (lower tank)
 - PT100 sensor, 2.5kW heater, liquid level indicators (4–20mA output)
- **Ultrasonic Level Detection:**
 - Sensor Range: 0–500 mm, Accuracy: 0.3%
 - Display: 4-digit LED
 - Output: 4–20mA & RS485 (Modbus)
 - IP65 protection, includes SUS304 limit sensor
- **Pressure Detection Unit:**
 - Range: 0–1.0 MPa / 0–0.25 MPa
 - Constant pressure tank, analog gauge, and non-return valve
 - Dual-control electric ball valve: AC220V / 5VA
- **Booster Pump Unit:**
 - Flow: 2300 L/h, Lift: 6.5 m
 - Power: DC 24V / 5A
 - Noise ≤35dB, Operating Temp: up to 120°C
 - Anti-dry run and impurity filtering

Modular & Safety Systems

- **Fast Pipe Connectors:**
 - 20+ PPR quick-connect pipe components for flexibility
 - Corrosion and heat-resistant fittings
- **For quick reconfiguration of experimental piping**

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• Relay & Safety Interfaces:

- Emergency stop system
- 4-channel photoelectric isolation relays
- 13-channel DC motor control relay
- 35-channel I/O interface board
- Modular design for easy expansion

• Junction Terminal Blocks:

- 24VDC rated, 1–2A/channel
- Accepts 3mm–4mm plugs
- Max: 12 inputs / 12 outputs

Accessories & Documentation

- Power cables (silicone test leads)
- Communication/data cables
- Spare parts and consumables
- Teaching manual, quality certificate, warranty card
- 1× absorbent sponge, 1× pigment pack

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