

[Changsha Fanli Edusupports Co.,Limited](http://www.edusupports.com/)

Add:No.137, Yuelu Street, Changsha City, 410000, Hunan, China

Tel: 0086-,731-82201784 Fax: 0086-731-82201784

Email:sales@edusupports.com Web:<https://www.edusupports.com/>

Wind and Solar Hybrid Generation System Trainer



Wind and Solar Hybrid Generation System Trainer is an integrated tool allows students to monitor, control and hands-on learning about the principles and operation of both a solar photovoltaic harvesting system and a wind energy harvest system. The Solar Photovoltaic System to simulate the operation of solar photovoltaic system to transform solar energy into power electric through silicon cells under direct sunlight as well as to simulate the sunlight using electric lamp. The Wind Energy System should be able to simulate the operation of real wind energy harvest system which transform wind kinetic energy into power electric through a converter & generator. wind energy system trainer can operate outdoor by wind turbine and indoor using synchronous generator.

Wind and Solar Hybrid Generation System Trainer Specification

Name	Nos	Standard Type Wind and Solar Hybrid Generation System Trainer	Advance Type Wind and Solar Hybrid Generation System Trainer
Wind Generation System Trainer	1 Set	Adopt quality aluminum alloy precision die casting parts and stainless steel accessories, light weight machine. Material of blades: three carbon fiber compounds; fan blade diameter / Rotor diameter (m):> 1; Blade quantity / Blades, (pcs): 3; Power: 300W; rated voltage (DCV): 12/24; start up wind speed: 3m / s;; rated wind speed: about 13 m / s; transmission: wind wheel direct drive generator. Temperature range: - 40 ~ 60 °C. When blade stall, take electromagnetic or hydraulic brake; blades rotating angle adjustable to realize accompany wind direction.	The same as the standard type
Wind Source	1set	Simulate real wind condition, power: 3Kw axial-flow fan; 1450r/min rated speed, air flow 24500m ³ / h, total pressure 350Pa.	Increase the frequency control function compare standard type
Monocrystalline silicon solar cells	1set	Monocrystalline silicon, low-carbon tempered glass protection, EVA laminate, aluminum alloy frame, and overall aluminum frame, fixed or placed on the ground, easy movable, the any angle can be adjustment. Power 15W, 2 pcs.	The same as the standard type
Polycrystalline silicon solar cell energy	1set	Polycrystalline silicon components, 2 pcs,each 50W. with base structure, installed outdoors, can be fixed in the wall or on the ground.	The same as the standard type
Simulation light	1set	Adopt high brightness of mercury lamp	Adopt Xenon headlights, the spectrum close to sunlight.
Wind and solar	1set	1,Reliability,intelligent, modular design, simple structure, and powerful. 2,PWM charging mode, pressure limiting and current limiting charge	The same as the standard type

<p>hybrid controller</p>		<p>mode: when the battery power is low, limiting charge mode;when battery power at high, voltage limited charging mode; the same time, the controller will discharge the excess energy through PWM mode.</p> <p>3,Two DC output: Each had a variety of output control form to be chose, including: normally on; normally off; often half-power; light control on, light-control off; light control on, time control off; light control on,time control half-power, light control off; light control on, time control half-power,time control off. With function LCD controller, LCD buttons can be set to three output control mode: normally on; light control on, light-control off; light control on, time control off.</p> <p>4,LCD display features: intuitive digital and graphic displays system status and parameters.Such as battery voltage, fan voltage, PV voltage, fan current, photovoltaic current, fan power, photovoltaic power,load current, output control mode, time control output turn-off time,light-control on, light-control off voltage, day and night indicator, battery, load status indication, overvoltage, undervoltage, overload, short circuit fault condition.</p> <p>5,Perfect protection function: solar cells anti-recoil, solar cells anti-reverse, battery overcharge, battery over-discharge, battery anti-reverse, load short circuit, overload, lightning, fan-limiting, fan automatic braking and manual braking.</p>	
<p>Inverter</p>	<p>1 set</p>	<p>Modified sine wave: output power is 1000W; sine wave output; output frequency, and switch select: 50/60Hz; input and output fully adopted isolation design; load controlled cooling fan; advanced microprocessor control system design; overvoltage / undervoltage / short circuit / overload /over-temperature protection.</p>	<p>Pure sine wave.:output power is 1000W; sine wave output; output frequency, and switch select: 50/60Hz; input and output fully adopted isolation design; load controlled cooling fan; advanced microprocessor control system design; overvoltage / undervoltage / short circuit / overload /over-temperature protection.</p>

Lead-acid battery	2set	12V100ah, maintenance-free deep-cycle lead-acid batteries	The same as the standard type
Experimental system	1set	Adopt overall color aluminum anodizing, wind and solar hybrid power generation color schematic, test terminal; junction boxes, terminals; digital voltmeter, digital ammeter, real-time display PV. Load contains 12V/24V LED lighting, 220V lighting, 12V/24V fan, 220V fan. Wind and solar power system design on-hand for trainees.	The same as the standard type
Training Bench	1set	Input Power: 380V ± 10% 50HZ, including emergency stop switch, circuit breaker, DC power supply (output current: 2A,input voltage: 220V, output voltage:32V, output power: 64W, frequency range: 50/60HZ. With under voltage / short circuit /overload / overtemperature protection). The whole steel frame structure, the desktop adopt 1mm thick steel plate from folding, the framework is 40 * 60 * 2 square tubes by heated spray acid phosphate processing. Size is 1200 * 600 * 1650mm.	The same as the standard type
Solar Automatic Tracking System	1set	None	The solar automatic tracking system. Horizontal turning angle: 360 °, tilt angle: 180 °; transmission weight: 12Kg, Max Load: 80Kg; controller Power supply: DC 12V motor, power supply: DC 12V.
Environmental Testing System	1set	None	wind speed sensor, wind direction sensor, solar radiation sensor, PLC control, touch screen display, PC monitoring function.
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