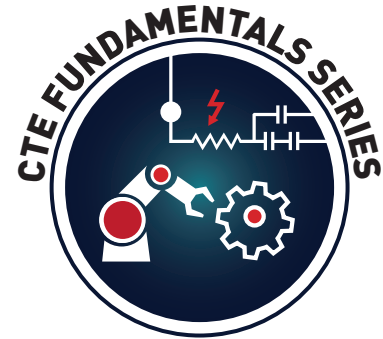
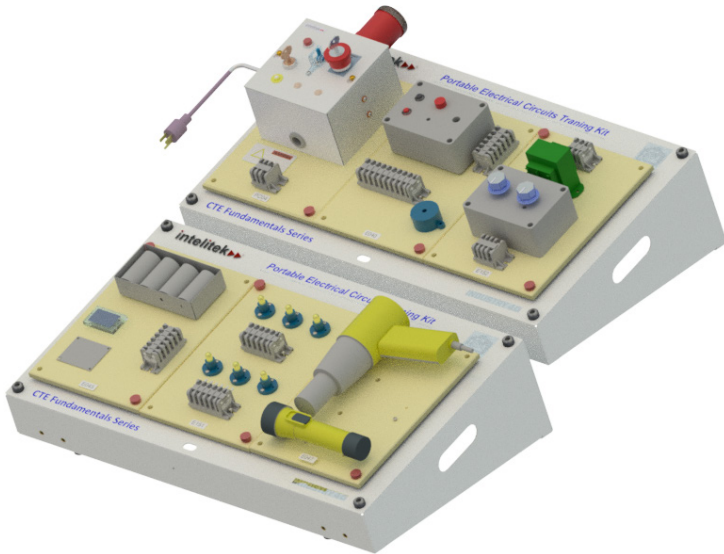


INTRO TO INDUSTRIAL ELECTRICAL

PORTABLE ELECTRICAL CIRCUITS TRAINER



**Integrate Electrical Systems in a Comprehensive STEM & CTE Education Program**

*About the Electrical System Trainer*

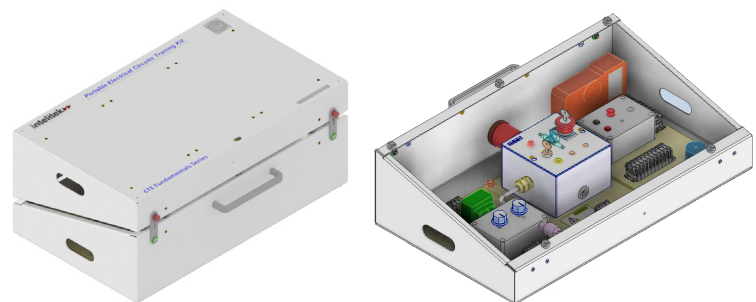
Electrical Systems are the backbone of all industrial systems. The training gives students a solid foundation of knowledge in electricity and its practical applications.

This course provides hands-on introduction to industrial electrical system with experiments involving the theory and construction of power supplies and circuits. The course is skill-based, using exercises that reproduce essential tasks performed by maintenance technicians, equipment operators, and machine repairmen.

Students design and simulate circuits using real industrial components connected with jumper wires like they will see in industrial settings.

Students learn safety procedures, and how to use a multimeter to practice in-circuit measurements. While wiring circuits, students learn how to read schematic diagrams and practice basic electrical techniques like testing power sources.

- Channel students from STEM to CTE and to jobs or college readiness
- Real industrial equipment just like in the real-world (no banana plugs!)
- Skills-base learning with work orders and documentation exercises
- Pathway to advanced training and NIMS Industrial Technology Maintenance credentials



Blended learning solution to introduce STEM and CTE students to industrial skills

- Portable for ease of use in the classroom
- Scalable from small to large classes
- Expandable to more advanced electrical
- Full pedagogic package with curriculum, instructor guidance, evaluations, and hands-on lab hardware with detailed activity instructions

## Curriculum: Electrical Circuits

Electrical Circuits introduces students to concepts including lockout/tagout and safety; connecting circuits and measuring electrical quantities like voltage and current.

### Course Outline

- Performing Lockout/Tagout
- Connecting a Basic Circuit
- Identifying Switches
- Connecting a Momentary Switch
- Connecting a Toggle Switch
- Identifying Sources of Electricity
- Measuring DC Voltage
- Constructing a Series Circuit
- Constructing a Parallel Circuit
- Applying DC Voltage Principles
- Testing an Electrolytic Cell
- Testing a Battery
- Testing a Thermocouple
- Testing a Photovoltaic (PV) Cell

### Materials Included

#### Electrical Circuits Curriculum

1 yr subscription for unlimited students  
Teachers' Guide

#### Portable Electrical Circuits Trainer:

Trainer base desktop mounted unit  
Power Control Panel: (120V)  
(5) lab panels:  
Panel E040: Switch, Lamp and Buzzer  
Panel E045: Sources of Electricity  
Panel E047: Heat and Light Source  
Panel E151: Series/Parallel Lamp Circuits  
Panel E152: Adjustable Power Supply  
Digital Multimeter

### Ordering Information

Electrical Circuits Trainer	CFS-ELEC-001
Transport Carry Case	CFS-ELEC-CASE
Extended Curriculum subscription (additional 3yrs)	CFS-ELEC-CURR3



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## Hardware Specifications: Portable Electric Circuits Trainer

### Trainer Base

2 tabletop mounting frames  
Aluminum mounting frame for up to 3 panels  
Frames fold into storage case  
Panels stored inside frame when not in use  
Frame Dimensions: 26"x15.5"x7.5"  
Storage Dimensions 26"x15.5"x 11"  
Weight: Approx 15lbs

### Panel E040: Switch, Lamp and Buzzer

1 87dB Piezo pulse buzzer  
1 12V jumbo lamp  
1 SPST toggle switch  
1 DPDT toggle switch  
1 NO pushbutton switch  
1 NC push button switch

### Panel E045: Sources of Electricity

1 Encapsulated PV cell  
1 J-type surface thermocouple  
1 Battery box  
4 D-cell batteries

### Panel E047: Heat and Light Source

1 Heat gun  
1 Flashlight

### Panel E151: Series/Parallel Lamp Circuits

6 Miniature bulb sockets  
3 3.7V@0.30A bulbs  
3 6.3V@0.30A bulbs

### Panel E152: Adjustable Power Supply

1 8V/16V/24V transformer  
1 1000uF 50V 20% axial-lead electrolytic capacitor  
1 4A 50PIV bridge rectifier  
1 100-ohm rheostat

### Digital Multimeter

True-rms  
CAT III 600 V safety rated  
AC/DC volts, millivolts, amps  
Continuity  
Resistance  
Diode test  
Capacitance  
Hz (V or A input)



Optional rugged transportation case available to store and transport the trainers safely