

iron horse

Industrial Training Equipment



Equipment Catalog

IndustrialTrainingEquipment.com



“We build the most effective industrial classroom trainers at the best price. Guaranteed.”

-Rod Alzman, President and CEO

Our Mission

Iron Horse is committed to providing the best industrial training equipment at the best price. We have done extensive research to make sure that the components used to build our training equipment are of the best quality and the lowest price. Iron Horse then passes those savings to our customers. Our training equipment, as well as the savings opportunity, is appropriate for educational use in either a school or corporate setting.

iron horse Industrial Training Equipment



The priorities we place on building all Iron Horse Trainers are:

- Make the trainer as safe as possible for the students to operate.
- Make the trainer unit high quality, with realistic industrial-grade components – a trainer that will last for years.
- Make the trainer as simple to operate, and as economical for the customer to buy, as possible.
- Make the trainer as compact, secure, and as convenient to use as possible, while still making the unit realistic in operation and large enough so that multiple students can work at the trainer together.
- Have excellent resources (workbooks, instructor presentation materials, etc.) available for the instructor and the student to gain the most from our trainers.
- Continually improve and develop better resources.

With this in mind, we firmly believe our trainers are the best value you will find when searching for training equipment to teach Industrial Technology concepts.

Table of Contents

Hydraulic Training Equipment.....	4
Electro-Hydraulic Training Equipment.....	6
Pneumatic Training Equipment.....	7
Electro-Pneumatic Training Equipment.....	8
Basic Electricity Trainer.....	10
Three or Single Phase Motor Module Trainer.....	11
Electrical Motor Controls Trainer.....	12
Mechanical Trainer.....	14
Positive Displacement Pump Cut-Away Trainer.....	15
Valve Cut-Away Trainer.....	16
Precision Measurement Trainer.....	16
Bearing Installation/Removal Trainer.....	17
Packing Installation/Removal Trainer.....	17
Hydraulic Á La Carte Menu.....	18
Pneumatic Á La Carte Menu.....	20
Basic Electricity Á La Carte Menu.....	22
Electrical Controls Á La Carte Menu.....	24



Hydraulic Training Equipment

The Iron Horse Hydraulic Trainer uses industrial-grade components to allow students to take an in-depth look at how hydraulics works in the real world.

Each component is separated into individual modules and mounted on durable plastic enclosures.

Our hydraulic training equipment utilizes an A-Frame design that allows two trainers to exist back-to-back. Each side is capable of accepting up to ten modules. This design allows you to construct the trainer with the components that you desire.

The modulated design allows you to start with a base unit and add additional components as funds arise.

The hydraulic workbook will identify each component in detail and provide safe operational practices. Students will build and troubleshoot several circuits including:



- Extend/retract with closed center
- Extend/retract with open center
- Extend/retract with tandem center
- Addition of gage and pressure relief valve
- Motor actuator with closed center
- Cylinders in parallel
- Cylinders in series
- Sequencing the operation of the motor and cylinder with a sequence valve
- Double sequence valves
- Meter-in controlling extend stroke
- Meter-out controlling extend stroke
- Accumulator used for auxiliary power or emergency operation
- Counterbalance valve
- Pressure reducing valve
- Valves in series
- Valves in parallel
- Regeneration
- Pilot operation
- Automatic reciprocation

Pricing Information for Hydraulic Trainers

	Deluxe		Intermediate		Basic	
	2-Sided	1-Sided	2-Sided	1-Sided	2-Sided	1-Sided
Pressure Reducing Valve Module	2	1	2	1	-	-
Directional Control Valve Module	4	2	4	2	2	1
Direct Acting Valve Module	4	2	4	2	-	-
Pilot Operated Valve Module	2	1	-	-	-	-
Flow Control and Cylinder Combo Module	2	1	2	1	2	1
Tee's	4	2	4	2	2	1
Crosses	2	1	2	1	-	-
Check Valve	2	1	2	1	1	1
Gages	2	1	2	1	-	-
Hydraulic Motor	2	1	1	1	-	-
Accumulator	2	1	2	1	-	-
Hoses	2	1	2	1	2	1
Flow Meter	1	1	-	-	-	-
Power Supply	1	1	1	1	1	1
A-Frame Cart Combo	1	1	1	1	1	1
Total List Price	\$16,156.35	\$9,942.10	\$13,752.55	\$8,740.20	\$7,995.45	\$5,806.65
Savings	\$1,260.40	\$546.15	\$956.60	\$444.25	\$399.50	\$310.70
Selling Price	\$14,895.95	\$9,395.95	\$12,795.95	\$7,595.95	\$7,595.95	\$5,495.95

* For more information about specific modules, please see our Hydraulic à la carte menu beginning on page 18.

Electro-Hydraulic Training Equipment

The Iron Horse Electro-Hydraulic Expansion trainer uses industrial-grade components to allow the student to understand open loop systems. This trainer is an excellent way to augment the Iron Horse Hydraulic Training System or may serve as a valuable stand-alone hands-on trainer.

Like the hydraulic trainer; each component is separated into individual modules. The modulated design allows you to purchase the exact components that you want now and buy additional modules later.

The workbook will identify each component in detail and provide safe operational practices. Students will build and troubleshoot several circuits using Relay Logic, Solenoid Operated Directional Control Valves, and Proportional Valves. A partial list of the hands-on exercises includes:

- Hydraulic Motor start/stop using solenoid operated valve
- Two button circuit for extend and retract using solenoid operated valve
- Two button reversing motor using solenoid operated valve
- One button circuit for extend and retract using solenoid valve
- Hydraulic motor jog and run using solenoid valve
- Proportional valve circuits

The Instructor manual provides you with the materials to conduct a class. The manual provides a detailed description of the function for each circuit and outlines troubleshooting techniques.

Equipment included: Hydraulic Power Supply, A-Frame, directional Control Solenoid Operated Module, Proportional Valve Module, Limit Switch/Cylinder Combo Module, 24 VAC Transformer Module, Ice Cube Relay Module, Normally Open / Normally Closed Push Button Module, Hydraulic Motor module, Hydraulic Hoses, and Wiring Assembly.

Total List Price	\$7,354.25
Savings	\$ 158.30
Selling Price	\$7,195.95

* For more information about specific modules, please see our Hydraulic à la carte menu beginning on page 18.

Pneumatic Training Equipment

Our comprehensive hands-on pneumatic training system uses industrial-grade control components that allow the student to thoroughly understand pneumatic circuitry. Like most other Iron Horse training equipment, each component is part of an individual module. This design allows you to purchase the exact components that you need now and purchase additional modules later.

The workbook will identify each component in detail and provide safe operational practices. Students will build and troubleshoot over 30 circuits including:

- On/Off circuit
- And circuit
- Or circuit
- Timing circuits
- Two hand – no tie down
- Sequential on
- Latching/unlatching
- Exclusive Or
- Flip-Flop
- Sequencing circuits
- Pulse circuits
- Speed control with meter-in and meter-out
- Safety inhibitor
- Signal decay
- Binary redirect
- Selector
- Many more



1-Sided Pneumatic Trainer (includes all available modules)

Total list price	\$5,606.40
Savings	\$ 110.45
Selling price	\$5,495.95

2-Sided Pneumatic Trainer (includes all available modules)

Total list price	\$11,212.80
Savings	\$ 316.85
Selling price	\$10,895.95

* For more information about specific modules, please see our Pneumatic à la carte menu beginning on page 20.

Electro-Pneumatic Training Equipment

The devices which compose the Electro-Pneumatic trainer include the following:

1. Two solenoid operated directional control valves that may be used as either Normally Closed – Energize to Open, or Normally Open – Energize to Close.
2. Two air pressure amplifiers.
3. One air operated vacuum generator which can be configured to be electrically actuated.
4. One vacuum gage.
5. One pneumatic proximity sensor.
6. One pneumatic gap sensor.
7. One low-voltage DC power supply with lockable main on-off switch.
8. Two normally open push-button switches.
9. One pneumatic flow control valve with check bypass.
10. Two potentiometers for control of the proportional valves.
11. The electric terminals are easily connected with plain wires or alligator clip leads – both types of which are supplied with trainer.
12. One squeeze bulb which is used to feed a low pressure air signal to the air pressure amplifiers.
13. An ample supply of multi-colored polyurethane tubing to connect the pneumatic circuits.
14. A suction cup to use with the vacuum generator.

All of the above listed components are mounted on four rugged plastic boxes, which may be easily mounted and rearranged to best suit your needs. The tubing, vacuum cup, squeeze bulb, wires, and alligator clip leads are loose – not mounted to a box. A 16 ga. Galvanized A-Frame is included with the Electro-Pneumatic Trainer Package. The A-frame unit has spaces for a maximum of nine modules to mount on each side, so there is a large amount of space to utilize the Electro-Pneumatics trainer with modules from our Pneumatics trainer. This A-frame module is that the two sides of the A-frame may be used by two Lab Groups at the same time. If you wish we have several different Work Benches that feature locking drawers, and/or storage compartments to keep the trainers in a compact, neat, secure unit, which has the ability to keep loose components locked, organized, and protected.

Also available is a compressor/air power supply unit which is mounted on a compact cart that easily moves to where it is needed, and easily stored. Like all of our various Power Supply Units, the compressor features a lockable master switch to prevent unauthorized operation of the unit. One compressor can power up to two double-sided trainers, thus up to eight students can work with one air compressor unit.



**1-Sided Electro-Pneumatic Trainer
(includes all available
Electro-Pneumatic modules)**

Total list price	\$2,143.80
Savings	\$ 47.85
Selling price	\$2,095.95

**Pneumatic & Electro-Pneumatic Combo
(includes all available Pneumatic & Electro-
Pneumatic modules)**

Total list price	\$7,354.25
Savings	\$ 158.30
Selling price	\$7,195.95

**Call (812) 696-0880 for a
FREE quote today!**

iron horse

Industrial Training Equipment



Gain skills today...apply them for life!

Basic Electricity Trainer

Iron Horse Basic Electricity Training Equipment is designed to be a tool for learning basic electrical principles and circuitry. Using low voltage components, the equipment reinforces basic AC and DC electrical characteristics. This Basic Electricity trainer allows you the opportunity to use a wide variety of electrical components. Available modules include: DC Motor, Potentiometers, Momentary Pushbuttons, Latching Pushbuttons, Regulated Variable Power Supply, Lamps, DC Relay, Transformer and Fuses. This trainer in combination with our student workbook and instructor manual represents a total Basic Electricity training course.

The Basic Electricity Training workbook will identify each component in detail and provide safe operational practices. Students will build and troubleshoot several circuits, including:

- On/Off Circuit
- Basic Relay Circuits
- Series Circuit Multiple Resistors
- Series-Parallel Circuit
- Controls in Or
- Nor Circuit
- Multiple loads in Series
- Basic Relay Circuits
- Series Circuit
- Parallel Circuit
- Controls in And
- Not Circuit
- Nand Circuit
- Using a potentiometer to vary the speed or intensity of a load
- Transformer Exercises

1-Sided Basic Electricity Trainer (includes all available modules)

Total list price	\$2,853.55
Savings	\$ 157.60
Selling price	\$2,695.95

2-Sided Basic Electricity Trainer (includes all available modules)

Total list price	\$5,707.10
Savings	\$ 811.15
Selling price	\$4,895.95

* For more information about specific modules, please see our Basic Electricity à la carte menu beginning on page 22.

Three or Single Phase Motor Module Trainer

3-Phase Motor Module.....\$3,049.95

The 3-Phase Motor Module is designed to be used with the 3-Phase Motor Starter Module, which is controlled by 24 VAC, however, the trainer can be manually operated. Input power is supplied by 120 volt wall outlet to a 3-phase converter. All 3-phase connections are made through pre-wired heavy duty cords with twist-lock connectors and reversing of the industrial duty motor is accomplished by a pre-wired reversing switch. The trainer is fused to protect against accidental damage of components, and it comes with a portable GFCI safety outlet to ensure safety of participants.

Single-Phase Motor Module.....\$3,049.95

The Single-Phase Motor Module is similar to the 3-Phase Motor Module, except it uses a 120 VAC capacitor start electric motor. Instructions are included, and a reversing switch is mounted to the module to enable students to easily reverse the direction of rotation of the motor, and a single-phase motor starter is included to allow low voltage (24 VAC) control of the motor. Unlike the 3-Phase Motor Module, the rotating speed of the motor is fixed at approximately 1750 rpm, there is also a guard around the motor's shaft end to protect students from coming into contact with the rotating parts.

While the Single-Phase Motor Module is built to be an addition to our Electrical Controls Trainer, it can function separately. The Motor Starter comes ready to operate on your 24 VAC power source. If you do not already have a power source, or you wish to have your equipment appear uniform, you may purchase the Iron Horse 24 VAC Power Supply Module separately.



* For more information about specific modules, please see our Electrical Controls à la carte menu beginning on page 24.

Electrical Motor Controls Trainer

This Electrical Controls training device allows for training in the operation, application, correct wiring and troubleshooting of motor controls found in industry. Students will understand how electrical controls provide power, control and protection for equipment and personnel. The components are separated into individual modules and mounted on durable, non-conductive enclosures. This design allows you to easily customize and interchange modules on your trainer by selecting only the modules you need. You can add more modules as your needs change, or additional resources become available. Modules may be added or moved on the sturdy two-sided A-frame. This design allows you to construct two separate trainers making it possible for two lab exercises to be built simultaneously. Quick connections are made by inserting standard 22-18 AWG wire into spring loaded terminals.

The Electrical Controls workbook will identify each component in detail and provide safe operational practices. Students will build and troubleshoot several circuits, including:

- On/Off circuit
- And circuit
- Or circuit
- Not circuit
- Nor circuit
- Nand circuit
- Multiple outlets
- On/Off using relay contacts
- Timing circuit – pulse from momentary
- Or maintained
- Two hand – no tie down
- Sequential On
- Latching/Unlatching with relay
- Jog/Run
- Exclusive Or
- Flip-Flop
- Sequencing
- Timed on – held while timing
- Timed on with momentary contact
- Timed off – held while timing
- Timed off with momentary contact
- Timing circuit – pulse from maintained
- Many Motor Control circuits

The instructor manual provides you with the materials to conduct a class. The manual provides a detailed description of the function for each circuit and outline troubleshooting techniques. You will also find instructions on how to enter faults into the circuits.

Pricing Information for Electrical Controls Trainers

	Deluxe		Intermediate		Basic	
	2-Sided	1-Sided	2-Sided	1-Sided	2-Sided	1-Sided
Power Supply Module	2	1	2	1	2	1
Push Button Module	2	1	2	1	2	1
Push Button / Selector Switch Module	2	1	2	1	2	1
Relay Module	2	1	2	1	-	-
Timing Relay Module	2	1	2	1	2	1
Switch Module	2	1	2	1	-	-
Motor Starter Module	2	1	-	-	-	-
Multi-Meter Module	2	1	2	1	2	1
3-Phase / Single-Phase Motor Module	2	1	-	-	-	-
Sensor Module	2	1	2	1	-	-
A-Frame	1	1	1	1	1	1
Alligator Clip Assortment and Terminal Inserts	2	1	2	1	2	1
Total List Price	\$13,256.85	\$6,826.40	\$7,483.05	\$3,939.50	\$4,817.35	\$2,606.65
Savings	\$860.90	\$530.45	\$687.10	\$343.55	\$321.40	\$110.70
Selling Price	\$12,395.95	\$6,295.95	\$6,795.95	\$3,595.95	\$4,495.95	\$2,495.95

* For more information about specific modules, please see our Electrical Controls à la carte menu beginning on page 24.

Mechanical Trainer

The Iron Horse Mechanical Trainer has been designed to provide the Industrial Mechanic Apprentice with all of the tools to help develop the skills that are necessary to succeed in their career. This trainer allows for precision measuring, proper removal and installation of belts and chains as well as examining mechanical components. This trainer will also allow for belt tensioning and precision coupling alignment. When you look at all of the equipment and tools included with this trainer, you will see that there is no better value on the market!

Included equipment:

- Sprockets for mounting chain
- Belt alignment and tensioning trainer
- Belt assortment
- Chain breaker
- 20 ft. of roller chain and six master links for mounting on sprocket shafts and practice at making chain lengths
- Bearings – including ball, roller, tapered roller and thrust
- Gears – including spur, helical and worm
- Feeler gauge
- Telescoping gauges
- Precision and non-precision coupling sets
- Set of shafts with locking collars for mounting sheaves, sprockets and couplings
- Set of micrometers (0-3")
- Six inch scale
- Straight edge / square
- Ball peen hammer
- Set of combination wrenches
- Hex key wrench set
- Dial indicator
- Two student manuals
- One instructor's manual



Purchase Price.....\$5,995.95

Positive Displacement Pump Cut-Away

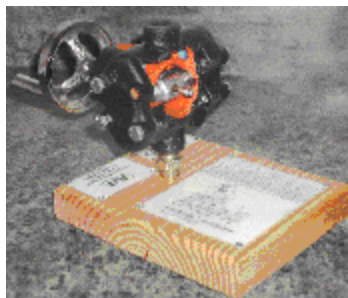
Component cutaways are the best way to show students the internal working parts of various industrial devices. Large windows are machined and polished. Internal surfaces are painted with a contrasting color making viewing as easy as possible. Each component comes with a descriptive booklet, assembly drawing and parts list. Additionally, each component is mounted on a rigid base that allows for easy display. In addition to our standard cutaways, we can custom machine any component to your specifications.

Available components include:

Piston Pump.....	\$1,495.95
Centrifugal Pump.....	\$1,495.95
Geroter Pump.....	\$1,095.95
Worm Gear Pump.....	\$1,495.95
Gear Pump.....	\$1,095.95
Complete Set (All 5 Pumps).....	\$4,995.95

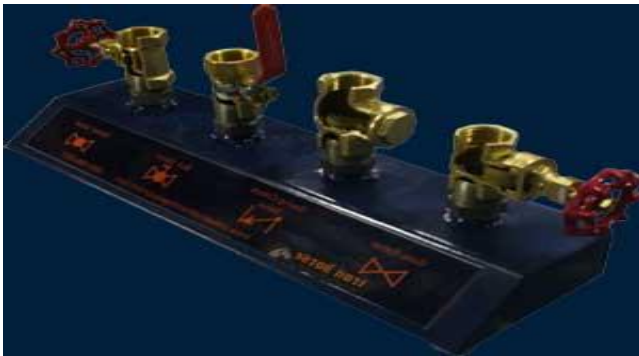
Features:

- Industrial grade piston pump with cut-outs allowing for easy viewing of internal parts
- Hand crank allowing for easy pump operation
- Attractive high-contrast color scheme enhances the visualization of pump parts
- The pump can be easily removed from base
- An exploded view of the pump parts is included on the base, with all pump parts identified



Valve Cut-Away Demonstrator

Our valve cut-away's show the internal working parts of four of the most commonly used valves in industry – globe valve, gate valve, ball valve and swing check valve. We have machined large openings into the valves to show the inner workings of the valves while maintaining enough structural integrity to keep the valves operational. These brass body valves come on a compact stand that will sit easily on a shelf or table surface.



Set of four, 3/4 " Valves.....\$549.95

Precision Measurement Trainer

Our Precision Measurement Trainer is used to develop and/or improve student's skills in fine measurement. They will learn to measure items as precise as the fourth decimal (.0001 of an inch). A flat step piece with five different diameters are included in this package. This precision measurement trainer comes in a case with a master key drawing that shows the correct measurements. A set of outside micrometers (0-3 inches), set of snap gauges, a dial caliper, depth gauge, a six-inch scale and rings for internal measurement (five piece set of rings) are also included.

Precision Measurement Trainer.....\$1,295.95

Bearing Installation / Removal Trainer

The Iron Horse Bearing Installation Trainer teaches students the proper way to remove and install bearings. This trainer includes a shaft-end* supported by a heavy angle iron, which can be bolted onto your bench top, or you may purchase the optional bench from us. A cone style bearing heater, temp sticks for 250 and 300 degrees F, a bearing puller, a pair of “hot” gloves, and adjustable hook style spanner wrench, snap gauges and a micrometer set (0-3 inches) are also included with this trainer.

*Shaft measures 25 mm

Bearing Installation / Removal Trainer.....\$1,695.95
Optional Bench.....\$695.95

Packing Installation / Removal Trainer

Our Packing Installation / Removal Trainer provides a hands-on training experience for students to gain a common skill needed in the maintenance field. A stuffing box that consists of a shaft and water pressure charged housing unit is included. This trainer also comes to you with a box of cold water packing, packing pullers (2 sizes), lantern ring, lantern ring pullers and a 25' tape measure. You may choose to use this trainer with any vise. You can cut packing to the proper length using the included wooden mandrel or you may choose to use the available heavy angle iron to mount this trainer to your bench or ours.

Packing Installation / Removal Trainer.....\$1,649.95
Optional Bench.....\$695.95

Hydraulic À La Carte Menu

As we continue to offer fully customized training and training equipment, we are pleased to offer a complete á la carte menu. Combine the following items with any other menu items and an A-frame or work bench to create a trainer that fits all of your training needs.

Pressure Reducing Valve Module.....\$435.95



The Pressure Reducing Valve Module contains one adjustable pressure control valve mounted on a durable box. These valves close when downstream circuit pressure has exceeded the valve setting causing flow to other parts of the circuit.

Directional Control Valve Module.....\$545.95

This module contains one of four available types of directional valves from which you may choose. You may pick from the following types of manually operated 3 position valves: Closed center valve, Open center valve, Tandem center valve, And Float center valve.



Direct Acting Pressure Control Valve Module.....\$325.95



The direct acting pressure control valve module contains one adjustable pressure relief valve mounted on a durable plastic box. These valves open when a circuit pressure has been reached, causing flow to other parts of the circuit. Module can be used for pressure relief and sequencing circuits.

Pilot Operated Directional Control Valve Module.....\$875.95

The pilot operated directional control valve is a two position, four-port valve which is shifted with hydraulic pressure. This valve is useful for demonstrating remote controlled circuits or automatic reciprocating circuits.



Check Valve Module.....\$215.95



The Check Valve module contains two check valves mounted on a durable box. Each check valve can be inserted anywhere in the hydraulic circuit. Check valves are used to permit flow in one direction while prohibiting flow in another.

Cylinder/Flow Control Valve Module.....\$825.95

The cylinder module consists of two double acting cylinders mounted across two enclosures. The footprint of this module is the same as any other two-box modules, thus allowing for easy installation and removal.



Hydraulic Gage Assembly.....\$215.95



The gage assembly is sold in a two pack. Each gage assembly has been constructed to connect anywhere in the hydraulic circuit. The gage connects with quick couplers and measures 0-500 psi.

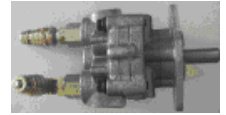
Hydraulic Hose Assembly Package.....\$655.95



Iron Horse hydraulic hose assemblies are available in packs of twelve consisting of six 24-inch hoses and six 36-inch hoses. You may also choose to purchase packs of two 60-inch Hose Assemblies for \$195. Each hose is equipped with female quick couplers on both ends. This allows for quick disconnect with little leakage.

Hydraulic Motor.....\$325.95

The hydraulic motor will be one of two types of hydraulic motors available. It will be either a gear motor or a geroter motor. Both motors are commonly used in industry.



Hydro-Pneumatic Accumulator.....\$435.95



Our accumulator is a diaphragm type. It has a nitrogen charge on one side and accepts an oil charge when the oil pressure is greater than the gas pressure.

Tee and Cross Assemblies.....\$160.95

The tee and cross fittings are needed to build all but the most basic circuits. Both come in a two pack. All ends have quick coupler ends.



A-Frame Cart Combo.....\$1,755.95



The A-frame is constructed out of rugged 16 ga. galvanized steel. The A-frame allows two trainers to be mounted back-to-back, so that two trainers can essentially utilize the space of one. The cart has a galvanized top drain tray to help contain drips. The cart has two drawers for storage and a bottom tray for storing hoses. The cart is mounted on rubber swivel casters, two of which are lockable. The cart and A-frame are very compact, will fit through any doorway, and are easily stored in a storage closet.

Hydraulic Power Supply.....\$1,645.95

The Hydraulic power supply stands upright and takes up little space. The power supply is mounted on a compact cart that rolls easily to where it is needed. There are two supply ports and two return ports on the top shelf that are easily connected to. The 10 micron filter is very easy to access, making maintenance of the unit a simple task. The unit is powered by 115 Volts AC, and multiple units can run on a 15 amp circuit. The pump produces approximately 1.5 GPM and there is an internal pressure relief valve which is preset at 400 psig. Another nice feature of the power unit is a pressure-dump lever that minimizes the potential for trapped pressure in a circuit. The cart features two storage shelves, and one of the shelves makes a perfect place to mount a compact drawer tower when you choose to add it.



Pneumatic À La Carte Menu

As we continue to offer fully customized training and training equipment, we are pleased to offer a complete à la carte menu. Combine the following items with any other menu items and an A-frame or work bench to create a trainer that fits all of your training needs.

Binary Redirect/Multiple Pilot Directional Control Valve Module.....\$545.95



This module contains one 4-way, 2-position binary redirect pilot operated directional control valve. This valve is useful for important circuits such as "one button flip-flop". Also included in this module is one 3-way, 2-position valve that features multiple pilots for one position, and a single pilot for the other position. This valve is useful for demonstrating "OR" logic without the use of shuttle valves.

The valve modules are contained in a box that easily installs on the A-frame.

Spring Return Directional Control Valve Module.....\$490.95

This module contains one 4-way, 2-position spring returned pilot operated directional control valve. Pneumatic connections are made by inserting a tube into a push-in quick-release fitting. The valve is mounted on a box that easily installs on the A-frame.



Detented Directional Control Valve Module.....\$490.95



This module contains one 4-way, 2-position detented pilot operated directional control valve. Pneumatic connections are made by inserting a tube into a push-in quick-release fitting. The valve is mounted on a box that easily installs on the A-frame.

Flow Control Valve Module.....\$405.95

This module contains two flow control valves with check bypass. The valve offers speed control in one direction while allowing full flow in the other direction. Pneumatic connections are made by inserting a tube into a push-in quick-release fitting. The valve is mounted on a box that easily installs on the A-frame.



Shuttle Valve Module.....\$415.95



This module contains four 3-port shuttle valves. This valve allows for the "OR" circuits, automatic resets, latching, and many more advanced circuitry options. Pneumatic connections are made by inserting a tube into a push-in quick-release fitting. The valve is mounted on a box that easily installs on the A-frame.

Gauge Package\$435.95



The gauge package consists of 2 gauges. Each gauge assembly has been constructed to connect anywhere in the pneumatic circuit. The gauge connects with push-in fittings and measures 0-100 psi.

Air Pressure Indicator/Pushbutton Module.....\$655.95

This module contains 3 air pressure indicators. These indicators provide additional outputs and a means for visually monitoring circuit operations. Also included in this module are 4 pushbutton valves. The pushbutton valves are 2-position 3 way valves that provide "inputs" for operating almost all of the circuits built with the trainer.



Air Inlet/Filter Regulator Module.....\$435.95



This module is used to control and condition the air coming from the compressor. Another feature of this module is that it protects your investment by filtering out debris and contamination down to 5-micron which exceeds requirements. The module is pre-plumbed and toggle valve controlled to provide convenience and hassle free operation. This module easily installs on the A-frame.

Power Supply.....\$545.95

Our compressor has been selected to provide trouble free service for powering the pneumatic trainer, and to be quiet and safe. The pressure delivery has been preset at 50 PSI and locked. The compressor has been equipped with a ball valve which allows for quick shutoff, 20-micron filter, and quick connecting fittings to run between the compressor and the Air Inlet Module.



A-Frame Console.....\$395.95



This sturdy bench top 16-Gauge A-Frame Console is constructed to place a maximum of nine modules per side. This design provides you the ability to construct two separate trainers making it possible for two lab exercises to be built simultaneously. The A-frame has four slip resistant non-scratching feet so you can use it on any surface. The A-frame is predrilled allowing you to easily attach, add, or interchange modules. Overall size 20" L x 18"W x 21½"

Pneumatic Tubing and Assorted Fittings Package.....\$325.95

This package contains 50 ft. of polyurethane pneumatic tubing. Also included are 10-Tees, 8 replacement push-in quick-release fittings, 2- single acting cylinders, replacement 20-micron and 5-micron filter elements.

Basic Electricity

À La Carte Menu

Variable Regulated DC Power Supply Module.....\$435.95



The Power Supply Module is powered by a standard 120 volt wall outlet and supplies low voltage regulated power ranging from 1.5-12 VDC. The power supply is internally protected against accidental circuit damage. In addition, we supply a Ground Fault Circuit Interrupter (GFCI) on the input power side to ensure the safety of trainees. A fuse block is also provided to allow for proper fuse measuring techniques.

DC Relay Module.....\$435.95

The Relay Module includes two 12 VDC double pole relays. The relays provide a basic understanding of the relationship between electricity and magnetism. Relay contacts will be examined in their resting state and energized state to show switching points. The module is labeled to show the schematic symbol and connection points of the components.



Multiple Tap Transformer Module.....\$325.95



The transformer runs on 120 VAC. The output or “taps” range from 2.5, 8, 12, 16 and 24 volt AC. All taps are made by inserting standard solid 22 to 18 AWG wire into spring loaded terminals. This configuration demonstrates how the turns ratio at different points yields different values. The module is labeled to show the connection points of the transformer.

Potentiometer Module.....\$415.95

This module contains four 0-1K Ω potentiometers which are used for various functions. The potentiometers are more user friendly than inserting resistors into a breadboard; therefore potentiometers will be used to construct series, parallel, and combination circuits. Potentiometers will also be used to vary the intensity of the current supply to the lights and motor. The module is labeled to show the schematic symbol and connection points.



Output Module.....\$325.95



The output module contains two pilot lights and one 9-18VDC motor. The module is labeled to show the schematic symbol and connection points of the components.

Input Module.....\$325.95

This module contains two momentary pushbuttons and two latching style pushbuttons to be used as inputs for a wide variety of circuits.



Digital Multimeter Module.....\$95.95



This module contains a digital multimeter that measures resistance, AC or DC voltage, and DC Current. The meter is accompanied by a warning statement directing the students to check to ensure the meter is correctly set. The fuse has also been relocated to provide for easy removal and installation.

A-Frame Console.....\$395.95

This sturdy bench top 16-Gauge A-Frame Console is constructed to place a maximum of nine modules per side. This design provides you the ability to construct two separate trainers making it possible for two lab exercises to be built simultaneously. The A-frame has four slip resistant non-scratching feet so you can use it on any surface. The A-frame is predrilled allowing you to easily attach, add, or interchange modules. **Overall size 20" L x 18"W x 21½" H**



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Industrial Training Equipment



Electrical Controls

À La Carte Menu

Power Supply Module.....\$545.95



The Power Supply Module plugs into 120 volt wall outlet, and supplies 24 volt AC power for operating the trainer. It comes with a GFCI to ensure that it is safe for personnel, and is circuit breaker protected to prevent accidental damage to components. There are three pilot lights on the panel to be used as outputs for the circuits. The power supply module also includes 50 ft. of wire.

Pushbutton Module.....\$435.95

The Pushbutton Module includes two industrial duty multiple contact pushbuttons. One of the pushbuttons is “mushroom” style, commonly used as an e-stop in industry. Both pushbuttons include two sets of normally open (NO), and two sets of normally closed (NC) contacts to add to their versatility. The module is labeled to show the schematic symbol and connection points of the components.



Pushbutton/Selector Switch Module.....\$435.95



The Pushbutton/Selector Switch Module is used to provide additional inputs for control circuits. The pushbutton is the same industrial duty type used in our Pushbutton Module. This module also includes a selector switch, making it possible to build “jogging”, and other circuits. The module is labeled to show the schematic symbol and connection points of the components.

Fault Box.....(included with timing relay module)

The Fault Box is a standard feature in the relay modules below. Each module has 4 toggled faults that can be introduced into the circuits by the Instructor. This is a useful tool that can enhance the troubleshooting skills of your students. Fault switches are labeled and outlined in the instructor manual.



Relay Module.....\$405.95



The Relay Module includes two – 24VAC 8 pin pilot duty ice cube relays. The relays serve many functions such as outputs and switching and control circuits. Switching functions make it possible to build many realistic industrial circuits with the trainer, including latching, AND, OR, and Flip-Flop. The module is labeled to show the schematic symbol and connection points of the components. Includes Fault Box above.

Timing Relay Module.....\$600.95



The Timing Relay Module includes the same 24VAC 8 pin pilot duty ice cube relay as in the Relay Module above. It also includes an 8 pin timing relay. This relay combination greatly increases the versatility of the trainer, making it possible to build timing circuits. The module is labeled and includes Fault Box .

Switch Module.....\$380.95

The Switch Module includes a limit switch with NO and NC contacts, and a pressure switch with NO and NC contacts. Included are instructions and hardware to operate the pressure switch. These components increase student awareness of industrial electrical devices. The module is labeled to show the schematic symbol and connection points of the components.



Sensor Module.....\$545.95

The Sensor Module contains an inductive proximity sensor with NO and NC contacts. It also contains a photoelectric sensor with NO and NC contacts. This provides students the opportunity to understand how non-contact devices operate. The module is labeled to show the schematic symbol and connection points of the components

Motor Starter Module : 1-Phase or 3-Phase.....\$625.95



The Iron Horse 3-phase motor starter module consists of an authentic Industrial duty 3-phase motor starter complete with one set of N.O. and one set of N.C. of Auxiliary contacts. The coil voltage is 24VAC. Also included are adjustable overload contacts, from approximately 2.7 amps to 4.3amps. The Motor Starter Module comes with quick connectors to make it extremely easy to hook up. The connections are conveniently labeled to make easy to identify as well as easy to connect.

3-Phase or 1-Phase Motor Module\$2,195.95

The 3-Phase Motor Module is designed to be used with the 3-phase Motor Starter Module which is controlled by 24 VAC. However, the trainer can be manually operated. Input power is supplied by 120 volt wall outlet to a 3-phase converter. All 3-phase connections are made through pre-wired heavy duty cords with twist-lock connectors and reversing of the industrial duty motor is accomplished by a pre-wired reversing switch. The trainer is fused to protect against accidental damage of components, and it comes with a Portable GFCI Safety outlet to ensure safety of the participants. (DOES NOT INLCUDE MOTOR STARTER MODULE LISTED ABOVE)



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Industrial Training Equipment



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Please note that all prices and specifications are subject to
change without notice .