

QUAKELOGIC

PORTABLE HYDRAULICS LEARNING SYSTEM

Mobile electro-hydraulic trainer with reconfigurable circuit components, 24 VDC controls, application booklets and digital training videos.

PORTABLE HYDRAULICS



WITH GLOBALLY
SUPPLIED MATERIALS



QL PORTABLE HYDRAULICS

LEARNING SYSTEM — MOBILE ELECTRO-HYDRAULIC TRAINER



HANDS-ON HYDRAULICS, READY TO ROLL INTO ANY LAB

The QL Portable Hydraulics Learning System is a complete, cart-mounted trainer for teaching hydraulic and electro-hydraulic circuits. Students build working circuits on an aluminum-profile panel from quick-connect valves, cylinders, gauges and sensors, powered by an on-board hydraulic power unit and controlled through a 24 VDC relay, timer and counter cabinet. Application booklets and 12 months of 3D-animated training videos complete the curriculum.

- Two-sided mobile cart on four lockable casters moves between classrooms and supports two student groups at once.
- Check-valved quick-connect couplings on every component allow fast, clean circuit changes with minimal oil loss.
- Safe 24 VDC control circuits with 4 mm sockets, short-circuit protection and a mushroom-head emergency stop.
- Covers basic and advanced hydraulics, electrical control, and maintenance and troubleshooting in one system.

STANDARD FEATURES »

- Mobile two-sided training cart
- Aluminum-profile mounting panel
- Hydraulic power unit, 1 HP
- Control & monitoring cabinet
- 24 VDC protected power supply
- Emergency-stop button
- Pushbutton unit with lamps
- Four-relay unit
- Digital timer and counter
- Audible/visual indicator
- Two double-acting cylinders
- Manual & solenoid 4/3 valves
- Pressure & flow-control valves
- Three pressure gauges
- Inline flowmeter
- Limit switches & magnetic sensors
- 10 hydraulic hoses + hose rack
- Lockable drawer cabinet
- Booklets + training videos

KEY FEATURES

- Laminate-finished mobile cart, 48.8 × 27.6 × 74.0 in, accepts the power unit and a rear-mounted panel for two-sided use.
- 41.7 × 30.7 in aluminum-profile panel mounts circuit components on the cart or as a stand-alone workstation.
- On-board hydraulic power unit delivers approx. 0.8 gpm at 725–2,175 psi, with relief valve, suction filter and level indicator.
- Two magnetic-piston cylinders with 3.94 in stroke, rated to 2,320 psi, for sequencing and position-sensing exercises.
- Manual and 24 VDC solenoid-operated NG4 4/3 directional valves demonstrate both manual and electrical actuation.
- Pressure-sequence, pressure-reducing, pressure-relief, flow-control, throttle and check valves teach complete circuit design.
- Relay, timer, counter and pushbutton units wired through labeled 4 mm sockets teach electro-hydraulic control logic.
- Three glycerin-filled gauges and a 24 V inline flowmeter let students measure and verify circuit performance.
- Two application booklets and 24 training videos with 3D animations, with 12 months of access.

PRODUCT FEATURES

Electrical Supply

220 VAC input with fused cabinet entry; 24 VDC control power with short-circuit protection.

Hydraulic Power

Approx. 0.8 gpm (3 L/min) pump; 725–2,175 psi (50–150 bar); ≥ 2.6 gal (10 L) reservoir; 1 HP (0.75 kW), 1450 rpm motor.

Actuators

Two cylinders: 0.79 in (20 mm) piston, 0.47 in (12 mm) rod, 3.94 in (100 mm) stroke, up to 2,320 psi (160 bar).

Valves

NG4 4/3 manual and solenoid directional valves; sequence, reducing, relief, flow-control, throttle and check valves.

Control Logic

Four 24 VDC relays, digital timer and up/down counter (PNP/NPN selectable), pushbuttons, lamps, buzzer.

Sensing & Measurement

Four roller limit switches, two PNP magnetic cylinder sensors, three 0–2,320 psi gauges, inline flowmeter.

Connections

Check-valved quick-connect hydraulic couplings; 4 mm electrical sockets and a 24-cable patch-lead set.

Curriculum

Hydraulic and electrical-control application booklets; 24 videos covering basic, advanced and maintenance topics.

For more information about the features, specifications, and available configurations of the QL Portable Hydraulics Learning System, please contact QuakeLogic.

SYSTEM AT A GLANCE

220 VAC	24 VDC	0.8 GPM	725–2,175	≥ 2.6 GAL
INPUT	CONTROL	PUMP FLOW	PSI PRESSURE	RESERVOIR
fused entry	short-circuit protected	approx. 3 L/min	50–150 bar	min. 10 L

TRAINING PLATFORM & ELECTRICAL CONTROLS

COMPONENT	QTY	CONFIGURATION
Mobile training cart	1	48.8 × 27.6 × 74.0 in (1240 × 700 × 1880 mm); 4 lockable swivel casters
Aluminum mounting panel	1	41.7 × 30.7 in (1060 × 780 mm); cart-mounted or stand-alone
Control & monitoring cabinet	1	42.9 × 7.1 × 9.4 in (1090 × 180 × 240 mm); gasketed, fused input
DC power supply	1	220 VAC in / 24 VDC out; short-circuit protected
Emergency-stop button	1	Normally closed, mushroom-head pushbutton
Pushbutton unit	1	3 momentary + 1 latching; NO/NC contacts on 4 mm sockets
Relay unit	1	Four 24 VDC relays, three contact sets each
Digital timer unit	1	24 VDC; up/down; ≥ 2 outputs; PNP or NPN selectable
Digital counter unit	1	24 VDC up/down; digital display; ≥ 2 outputs; PNP/NPN
Audible/visual indicator	1	24 VDC buzzer with visual signal; 4 mm connections
Signal lamp unit	1	Four LED lamps in pushbuttons; 24 VAC or 24 VDC
Power cable	1	4.9 ft (1.5 m), 220 VAC input
Lockable drawer cabinet	1	≥ 3 sliding drawers; cart-mounted or independent

HYDRAULIC POWER UNIT

SPECIFICATION	VALUE
Pump flow	Approx. 0.8 gpm (3 L/min)
Working pressure	725–2,175 psi (50–150 bar)
Reservoir capacity	≥ 2.6 gal (10 L)
Motor	1 HP (0.75 kW), 1450 rpm, 220 VAC
Included	Motor switch, adjustable relief valve, suction filter, level indicator, fill/drain plugs

TECHNICAL SPECIFICATIONS — CIRCUIT COMPONENTS

COMPONENT (QTY)	DESCRIPTION
ACTUATORS & DIRECTIONAL VALVES	
Hydraulic cylinders(2)	0.79 in piston, 0.47 in rod, 3.94 in stroke; to 2,320 psi; magnetic piston
Manual directional valve (1)	NG4, 4/3 hand-operated; panel mount; 4 quick couplings
Solenoid directional valve (1)	NG4, 4/3; 24 VDC coil with LED; 4 quick couplings
PRESSURE & FLOW CONTROL	
Pressure-sequence valve (1)	Adjustable cartridge type; 2 check-valved couplings
Pressure-reducing valve (1)	Adjustable 3-way cartridge type; 3 couplings
Pressure-relief valve (1)	Adjustable cartridge type; 2 check-valved couplings
Flow-control valve w/ check (1)	Micrometric setting ring; sealed inlet/outlet
Two-way throttle valve (1)	Micrometric setting ring; sealed inlet/outlet
Check valves(2)	Approx. 14.5 psi (1 bar) cracking pressure
SENSING	
Roller limit switches(4)	NO or NC; three 4 mm terminals
Cylinder magnetic sensors (2)	24 VDC PNP; brackets; three 4 mm sockets

COMPONENT (QTY)	DESCRIPTION
MEASUREMENT	
Pressure gauges(3)	Glycerin-filled, 2.5 in (63 mm); 0–2,320 psi (0–160 bar)
Flowmeter (1)	24 V inline; electrical jacks; inlet/outlet couplings
CONNECTIONS & ACCESSORIES	
Hydraulic hoses, 27.6 in (6)	700 mm; thermoplastic; ≤ 0.47 in dia.; check-valved ends
Hydraulic hoses, 39.4 in (4)	1000 mm; thermoplastic; ≤ 0.47 in dia.; check-valved ends
T-connectors(3)	Three-port; sealed, check-valved couplings
Distributor (1)	Combined P and T lines; 1 inlet, ≥ 3 outlets each
Electrical cable set (1)	8 × 39.4 in + 16 × 19.7 in leads, 4 mm plugs
Hydraulic hose rack (1)	Cart-mounted; 12 hose positions
Oil collection tray(1)	Removable; collects leakage
INSTRUCTIONAL MATERIALS	
Hydraulic application booklet (1)	Hydraulic training exercises
Electrical-control booklet (1)	Electrically controlled hydraulic exercises
Training videos(24)	12-month access; 3D animations

TRAINING CURRICULUM

BASIC HYDRAULICS

Pressure, flow and force; pumps, cylinders and directional valves; reading and building basic circuits.

ELECTRO-HYDRAULIC CONTROL

Solenoid valves, relays, timers, counters, limit switches and sensors in 24 VDC control circuits.

ADVANCED HYDRAULICS

Sequence, reducing and relief valves; speed control; multi-actuator and pressure-dependent circuits.

MAINTENANCE & TROUBLESHOOTING

Measuring pressure and flow, diagnosing faults, and safe maintenance practice on a working system.

PORTABLE HYDRAULICS

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About QuakeLogic:

QuakeLogic Inc. is a California-based engineering and technology company providing innovative, reliable, high-quality solutions to customers worldwide.

Our Commitment

We are committed to quality, innovation, and customer satisfaction — building lasting partnerships through reliable solutions and dependable support.

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