

QUAKELOGIC

BACKHOE LOADER SIMULATOR



QL-BH300

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MASTER BACKHOE LOADER OPERATION IN AN IMMERSIVE TRAINING ENVIRONMENT

QuakeLogic's QL-Backhoe Loader Simulator System with 3DOF Motion Platform is a high-fidelity virtual reality operator training system designed to deliver realistic, hands-on backhoe loader experience for training centers, vocational schools, and construction equipment operators. Equipped with authentic controls, immersive VR technology, and a dynamic 3DOF motion platform, the simulator provides a safe, efficient, and highly realistic environment for developing professional operating skills

- Improves training efficiency by providing real-time performance assessment, automated scoring, and comprehensive training records to accelerate operator learning and skill development.
- Reduces training costs by eliminating fuel consumption, machine wear, maintenance expenses, jobsite preparation, and the operational costs associated with live equipment training.
- Enhances safety by allowing operators to practice excavation, loading, transportation, and site operations in a fully simulated environment without exposing personnel or equipment to operational risks.
- Supports comprehensive hands-on training through multiple operating modes, realistic construction scenarios, immersive VR simulation, and detailed performance evaluation to improve operator proficiency and jobsite readiness.

What's Included »

- QL-Backhoe Loader Simulator with Integrated 3DOF Motion Platform
- Industrial Control Computer (32GB Memory, Dedicated Graphics Card, Windows 11 Pro)
- VR Headset with Interactive Controllers
- Triple 43" Full HD LED Display (Non-VR Training Mode)
- Authentic SAE-Standard Backhoe Loader Control Console
- Original Dual Joysticks, Steering Wheel, Pedals, and Function Switches
- Adjustable Operator Seat with Seat Belt Sensor
- Training Record Management System (TRMS)
- Automatic Performance Assessment and Reporting System
- Built-in Training Modules with Practice & Examination Modes
- Integrated LMS Learning Platform with Student Progress Dashboard, Instructor Management, Curriculum & Assessment Resources

KEY FEATURES

- High-fidelity VR simulation with an integrated 3DOF motion platform delivers realistic machine movement and construction site interaction.
- Authentic SAE-standard controls, including dual joysticks, steering wheel, pedals, and function switches, accurately replicate real backhoe loader operation.
- Supports Practice Mode with guided instructions and Examination Mode with automatic performance evaluation and permanent training record storage.
- Automatically evaluates operator performance based on operating time, productivity, collision events, bucket filling rate, fuel consumption, and task completion.
- Features a 900 × 900 m deformable construction environment for excavation, loading, transportation, trenching, backfilling, and lifting operations.
- Dynamic 3DOF motion feedback simulates driving, steering, terrain response, equipment vibration, bucket interaction, and slope operation.
- The Training Record Management System (TRMS) generates detailed assessment reports and supports student management, score analysis, and report printing.
- Includes built-in training modules covering machine inspection, control familiarization, driving, trench excavation, material handling, lifting, backfilling, and comprehensive construction site tasks.
- The integrated LMS learning platform provides interactive courses, instructional resources, theoretical exams, and student progress tracking.
- Supports both immersive VR training and non-VR operation using a triple 43-inch Full HD display.

PRODUCT FEATURES

Operating Modes

Practice Mode

Examination Mode

Training Modules

Machine Safety Inspection

Control Familiarization

Driving, Steering & Braking

Trench Excavation with Stabilizers

Heavy Lifting & Material Transportation

Fixed-Point Placement

Trench Backfilling

Comprehensive Construction Site Training

Motion System

3DOF Motion Platform (Pitch, Roll, Lift)

Static Mode (Motion Disabled)

Dynamic Motion Feedback

Simulation Environment

900 × 900 m Deformable Construction Site

Realistic Terrain Interaction

Excavation, Loading & Transportation Operations

Assessment & Management

Automatic Performance Evaluation

Training Record Management System (TRMS)

Integrated LMS Learning Platform

Student Progress & Instructor Management

Languages

English or Customized

For more information on the benefits of the QL-Backhoe Loader Simulator System with 3DOF Motion Platform, please contact QuakeLogic.

TRAINING MODULES

Training Modules	Description	Practice Mode	Exam Mode
Machine Inspection	Whole Machine Safety Inspection	X	X
Control Familiarization	Operator Control Training	X	X
Driving Operations	Driving, Steering & Braking	X	X
Trench Excavation	Excavation with Stabilizer Deployment	X	X
Material Handling	Heavy Lifting & Transportation	X	X
Fixed-Point Placement	Precision Material Placement	X	X
Trench Backfilling	Backfilling Operations	X	X
Construction Site Training	Comprehensive Multi-Task Training	X	X

SIMULATION MODES

Training Modules	Description	VR Mode	Display Mode
Visual System	VR Headset Operation	X	
Visual System	Triple 43" Full HD Display		X
Motion Platform	Dynamic 3DOF Motion	X	X
Motion Platform	Static (Motion Disabled)	X	X

MACHINE CONTROLS

Type	Description	Practice Mode	Exam Mode
Steering Control	Steering Wheel & Direction Control	X	X
Joystick Control	Original Dual Control Joysticks	X	X
Pedal Control	Accelerator & Service Brake Pedals	X	X
Stabilizer Control	Left & Right Stabilizing Legs	X	X
Drive Functions	Automatic Shifting & All-Wheel Drive	X	X
Machine Functions	Throttle, Parking Brake & Engine Ignition	X	X
Safety Functions	Hazard Lights, Turn Signals & Boom Lock	X	X

SIMULATION FEATURES

Type	Description	Practice Mode	Exam Mode
Training Mode	Practice Mode	X	X
Training Mode	Examination Mode	X	X
Motion System	Dynamic 3DOF Motion Platform	X	X
Motion System	Static Mode (Motion Disabled)	X	X
Assessment	Automatic Performance Evaluation	X	X
Training Records	TRMS Performance Reporting	X	X
Learning Platform	LMS Course & Progress Management	X	X

ANALYSIS AND DIAGNOSTICS

Type	Practice Mode	Exam Mode
Real-Time Performance Evaluation	X	X
Automatic Performance Scoring	X	X
Training Record Management (TRMS)	X	X
Student Progress Tracking	X	X
Assessment Report Generation	X	X
Instructor Management Dashboard	X	X
LMS Learning & Course Management	X	X
Printable Performance Reports	X	X

INTEGRATED TRAINING, ASSESSMENT & LEARNING SYSTEMS

3DOF MOTION PLATFORM

The detachable 3DOF Motion Platform enhances training realism by simulating pitch, roll, and lift movements during machine operation. Operators experience realistic driving, steering, terrain interaction, equipment vibration, and slope simulation, while static mode is also available when motion feedback is not required.

VR IMMERSIVE TRAINING SYSTEM

The VR training system includes a high-resolution VR headset and interactive controllers, providing a fully immersive 360° operating environment. Combined with QuakeLogic's realistic simulation technology, operators can safely practice construction equipment operation with enhanced depth perception and situational awareness.

TRAINING RECORD MANAGEMENT SYSTEM (TRMS)

The integrated TRMS provides comprehensive student management, automatic performance scoring, assessment reports, and long-term training record storage. Instructors can monitor trainee progress, customize evaluation criteria, and generate printable performance reports.

LMS LEARNING PLATFORM

The integrated LMS platform complements simulator training with interactive courses, instructional videos, operation diagrams, quizzes, theoretical examinations, instructor resources, and student progress dashboards, supporting both classroom instruction and remote learning.

TECHNICAL SPECIFICATIONS

Specification	Description
Product	QL-Backhoe Loader Simulator System with 3DOF Motion Platform
Dimensions	2000 × 1250 × 1750 mm
Load Capacity	>200 kg
Power Supply	100–250V AC, 50/60Hz, Suitable for U.S. Power Supply
Operating System	Windows 11 Professional x64
Memory (RAM)	32 GB
Graphics Card	Dedicated Graphics Card
Display System	Triple 43" Full HD LED Display
Vision Technology	Virtual Reality (VR)
VR Headset	Oculus Quest 2
Motion Platform	3DOF (Pitch, Roll, Lift)
Motion Platform Type	Detachable Electric Actuator System
Simulation Environment	900 × 900 m Deformable Construction Site
Operating Modes	Practice Mode & Examination Mode
Training System	TRMS & LMS Learning Platform
Language	English or Customized
Warranty	1-Year HW/SW Warranty; 3-Year Technical Support & Curriculum Updates

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About QuakeLogic:

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

Our Commitment

- At QuakeLogic, we are committed to quality, innovation, and customer satisfaction. We build lasting partnerships by delivering reliable solutions and dependable support.

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