



## QuakeLogic QL-RouteMaster EDU-Pro

☆ EDUCATIONAL GRADE

🔒 SAFETY CERTIFIED

Educational 48" × 96" CNC Router System



# CNC Router Specifications

1

## Working Envelope & Capacity

- Cutting Area (X × Y): **Minimum 48 in × 96 in (1,219 × 2,438 mm)**
- Z-Axis Travel: **≥ 6 in (150 mm)**
- Table Type: T-slot or vacuum-ready spoilboard surface
- Maximum Workpiece Load: **≥ 150 kg distributed**

2

## Spindle System

- Spindle Power: **3.0 kW (minimum)** high-speed routing spindle
- Spindle Speed Range: **6,000 – 18,000 RPM variable**
- Collet Type: **ER20 precision collet system**
- Cooling Method: **Air-cooled or equivalent maintenance-free system**
- Runout Accuracy: **≤ 0.01 mm**

3

## Motion Performance

- Maximum Rapid Traverse Rate: **≥ 15 m/min (590 ipm)**
- Maximum Cutting Feed Rate: **≥ 10 m/min (394 ipm)**
- Positioning Accuracy: **±0.05 mm (±0.002 in)**
- Repeatability: **±0.03 mm (±0.001 in)**

These values meet or exceed **typical educational CNC routing tolerance requirements.**



## CNC Control & Software

- CNC Controller: Industrial DSP-based or PC-based motion controller
- Functions:
  - Manual jog control
  - Program execution & storage
  - Feed/speed override
  - Diagnostics & fault protection
- Software Compatibility:
  - **Fully compatible with VCarve and VCarve Pro**
  - Includes configured post-processor for QL-RouteMaster EDU-Pro
- File Transfer: USB and/or Ethernet connectivity

## Electrical Requirements

- Input Power: **120V or 220V, single-phase, 50/60 Hz**
- Installed Power Consumption: **≤ 4.5 kW**
- Electrical Protection: Grounded and fused per recognized safety standards
- Control Cabinet: Enclosed, dust-protected industrial design

## Safety & Educational Compliance

- Emergency Stop: Latching E-stop with manual reset
- Motion Limits: Software and hardware travel limits on all axes
- Dust Collection Interface: Integrated dust-shoe connection port
- Noise Level: **≤ 75 dB(A) at operator position**
- Compliance: Designed in accordance with **applicable OSHA, ANSI, and recognized electrical safety practices for educational equipment**

## Included Accessories

- Starter CNC tooling set
- Collets and tool holders
- Spoilboard surface
- Connection cables and standard accessories
- Operation, maintenance, and safety documentation



The **QuakeLogic QL-RouteMaster EDU-Pro** is a precision-engineered CNC routing platform specifically designed for **secondary-level educational environments**, delivering safe, reliable, and repeatable routing, engraving, and carving performance under supervised classroom operation. This advanced educational tool transforms theoretical design concepts into tangible student projects while maintaining the highest standards of safety and operational reliability.

Built from the ground up with educational institutions in mind, this system addresses the unique challenges faced by STEM programs and technical education departments. Unlike industrial-grade equipment that can be overwhelming or dangerous in classroom settings, the QL-RouteMaster EDU-Pro strikes the perfect balance between professional capability and student-friendly operation. Every design decision prioritizes instructor control, student safety, and long-term reliability under the demanding conditions of daily educational use.

### **RFQ Compliant**

Meets or exceeds all technical specifications

### **Education-First Design**

Purpose-built for classroom environments

### **Complete Solution**

No substitutions or exceptions required

The system is configured to **meet or exceed all RFQ technical, electrical, software compatibility, safety, delivery, training, warranty, and documentation requirements**, with **no deviations, substitutions, or exceptions**. This comprehensive compliance ensures seamless procurement approval and immediate deployment capability, eliminating the administrative burden often associated with specialized educational equipment acquisitions.



# Working Capacity & Performance

The QL-RouteMaster EDU-Pro delivers **industrial-grade precision in an education-optimized package**, featuring a generous 48" × 96" cutting area that accommodates full-sheet material processing while maintaining classroom-appropriate footprint efficiency. The rigid welded frame construction provides the structural stability essential for repeated daily use across multiple class periods, semester after semester, ensuring consistent performance that won't degrade under the intensive demands of active student learning environments.

At the heart of the system lies a **precision linear motion system** engineered to deliver smooth, accurate routing paths that translate digital designs into physical reality with exceptional fidelity. Whether students are creating intricate artistic engravings, precise mechanical components, or large-scale architectural models, the high-speed routing spindle handles wood, plastics, composites, and soft non-ferrous materials with equal proficiency. This versatility empowers instructors to develop comprehensive curricula spanning multiple disciplines and skill levels.

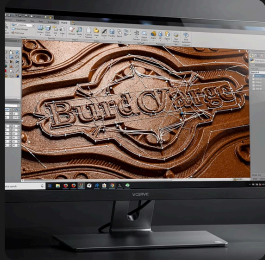
Designed to provide **durable, long-term performance in STEM and technical education programs**, every component has been selected for reliability and longevity. The system maintains stable, repeatable cutting accuracy appropriate for instructional fabrication, allowing students to learn proper CAM workflow principles while producing professional-quality results that build confidence and demonstrate real-world manufacturing capabilities.

## Technical Specifications

- **Minimum Cutting Area:** 48" × 96" (RFQ compliant or greater)
- **Frame:** Rigid welded construction
- **Motion System:** Precision linear rails
- **Spindle:** High-speed routing capable
- **Materials:** Wood, plastics, composites, soft metals
- **Build Quality:** Educational-grade durability

# Control, Software & Electrical

The QL-RouteMaster EDU-Pro features a **fully programmable CNC control system** that balances sophisticated capability with intuitive operation, making advanced manufacturing technology accessible to students while providing instructors with comprehensive management tools. The control interface includes essential functions for jogging, file management, and real-time diagnostics, enabling efficient troubleshooting and optimal classroom workflow management without requiring specialized technical expertise.



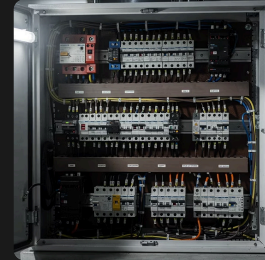
## VCarve Pro Compatible

Full compatibility with VCarve and VCarve Pro software, including required post-processor support for seamless design-to-production workflow



## Student-Friendly Interface

User-friendly operator interface specifically designed for supervised student environments with clear visual feedback



## Safe Electrical Design

Enclosed and protected electrical components aligned with recognized safety practices and educational facility standards

The electrical configuration supports both **120V and 220V single-phase operation**, providing flexibility to accommodate diverse school facility electrical infrastructures without requiring costly facility modifications. This dual-voltage capability ensures the system can be installed in existing classrooms, maker spaces, or technical labs regardless of available power configurations, significantly reducing total implementation costs and timeline.

All electrical components are properly enclosed and protected, following industry best practices and educational safety guidelines. This design approach minimizes exposure to electrical hazards while maintaining easy access for authorized maintenance personnel. The result is a system that ensures **seamless classroom integration and safe instructional workflow** from day one, allowing educators to focus on teaching rather than managing technical complications.

# Educational Safety & Usability

Safety stands as the paramount design principle underlying every aspect of the QL-RouteMaster EDU-Pro. Recognizing that secondary education environments present unique challenges—where student skill levels vary widely and supervision ratios must accommodate classroom realities—this system incorporates multiple layers of protective features that work together to create a comprehensively safe learning environment without compromising educational value or limiting legitimate instructional activities.



## Emergency Stop Controls

Strategically positioned emergency stop controls accessible to operators and supervising instructors, enabling immediate machine shutdown in any situation requiring instant response



## Dust Collection Ready

Dust collection compatibility and protective guarding support designed to integrate with standard shop vacuum systems, maintaining clean air quality and visibility



## Defined Safe Zones

Clearly defined safe operating zones for supervised instruction, with visual markers and physical design elements that guide proper student positioning



## Classroom-Appropriate Noise

Noise and operational characteristics suitable for indoor classroom use, allowing normal instruction and communication during machine operation



## Comprehensive Training

Instructor-focused training and documentation included, covering operation, maintenance, safety protocols, and effective curriculum integration strategies

The system is engineered to support **safe, confident student use in educational settings** while empowering instructors with the tools and knowledge needed to maintain rigorous safety standards. Comprehensive training materials address not only machine operation but also classroom management strategies specific to CNC equipment use, helping educators establish effective protocols that balance student autonomy with appropriate supervision. This holistic approach to safety extends beyond hardware features to encompass the human factors that ultimately determine real-world safety outcomes in active learning environments.

# Delivery, Warranty & Support

The QL-RouteMaster EDU-Pro represents a **complete, turnkey educational CNC solution** that eliminates the uncertainty and complexity often associated with specialized equipment procurement. From initial delivery through years of operational service, QuakeLogic provides comprehensive support structures designed specifically for the unique needs of educational institutions, where technical resources may be limited and equipment uptime is critical to curriculum delivery and student success.

## Complete Installation & Training

Delivered as a ready-to-operate system with installation support, commissioning guidance, and comprehensive instructor training. Our team works directly with your technical staff to ensure proper setup, calibration, and initial operation, then provides hands-on training covering all aspects of safe operation, routine maintenance, and effective curriculum integration.

## Comprehensive Warranty Coverage

Protected by an extensive warranty covering mechanical, electrical, motion, and control systems. This comprehensive coverage provides peace of mind and budgetary predictability, with parts, labor, and technical support included during the warranty period. Coverage terms are structured to align with educational purchasing cycles and multi-year program planning requirements.

## Long-Term Technical Assistance

Long-term technical assistance and post-warranty service availability ensure your investment continues delivering educational value year after year. Our support team understands educational environments and provides responsive assistance during critical periods like the beginning of school terms when equipment reliability is most essential.

01

### Delivery & Installation

Professional delivery, unpacking, positioning, and initial setup in your facility

02

### Commissioning & Calibration

Complete system commissioning with precision calibration and performance verification

03

### Instructor Training

Comprehensive hands-on training covering operation, safety, maintenance, and curriculum integration

04

### Ongoing Support

Responsive technical assistance, parts availability, and service support throughout the equipment lifecycle

This comprehensive support structure provides **reliable lifecycle performance and long-term educational value**, ensuring your investment in advanced manufacturing education continues delivering student success stories for years to come. By partnering with QuakeLogic, your institution gains not just equipment but a committed ally in STEM education excellence.



# Connect with QuakeLogic — Your Partner in Advanced CNC Cutting & Routing Solutions

## Corporate Headquarters

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Direct access for advanced technical  
consultations and priority instrument  
support.

Available Monday - Friday, 9 AM - 5 PM  
PST

## Strategic Inquiries

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For strategic collaborations, enterprise-  
level instrumentation solutions, and  
comprehensive technical inquiries.

## Our Unwavering Commitment to Operational Excellence



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technologies that ensure  
precision, repeatability, and ease  
of use.



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Providing responsive technical  
support, calibration guidance,  
and complete after-sales  
assistance for every system  
delivered.

## Explore Our Complete Product Portfolio



### Scan to Access Cutting-Edge Solutions

Discover how QuakeLogic's advanced CNC solutions modernize  
machining workflows, strengthen operational capability, and deliver  
accurate, repeatable performance across Government, institutional,  
laboratory, and applied production environments.

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