

## RDC6445GT5

# Ruida RDC6445GT5 CO2 Laser Controller User Manual

Model: RDC6445GT5

## 1. PRODUCT OVERVIEW

The Ruida RDC6445GT5 is a CO2 laser engraving and cutting control system. This system is designed with enhanced hardware stability, offering improved resistance to high voltage and static electricity. It features a 5-inch color touch screen Human Machine Interface (HMI) for intuitive operation and advanced functionalities.



Image: The Ruida RDC6445GT5 CO2 Laser Controller mainboard and its accompanying 5-inch touchscreen display.

### Key Features:

- Standalone operation with 128MB onboard memory.
- Supports USB, Ethernet communication, and U disk for data transfer.
- Features a 5-inch color touch screen HMI (7-inch optional). Startup logo can be customized via software.
- Allows mainboard and touch screen program upgrades using a U disk.
- Provides 4-axis motion control and 2-channel laser control.

- Supports fixed single and double-head cutting, double-head shift processing, and over-breadth cutting.

## 2. PACKAGE CONTENTS

Verify that all items listed below are included in your package. If any items are missing or damaged, please contact your supplier.

# Package list

RUIDA RDC6445GT5



1. Panel (optional)



2. Mainboard (optional)



3. Adapter&Screws



4. USB cable



5. Network cable



6. USB adapter cable



7. USB adapter cable



8. Network cable



9. Five-core cable

Image: A visual representation of the items typically included in the Ruida RDC6445GT5 package.

1. Panel (Optional)
2. Mainboard (Optional)
3. Adapter & Screws
4. USB Cable
5. Network Cable
6. USB Adapter Cable (various types)
7. Five-core Cable

## 3. SETUP AND WIRING DIAGRAM

Proper connection of the controller to your laser machine and power supply is crucial for safe and correct operation. Refer to the wiring diagram below for detailed connection points.

# Software RDworks V8<sup>(Free)</sup>

RUIDA RDC6445GT5

Support PLT,DXF,AI,DST and other file formats import, display and edit functions, support image file import and processing.

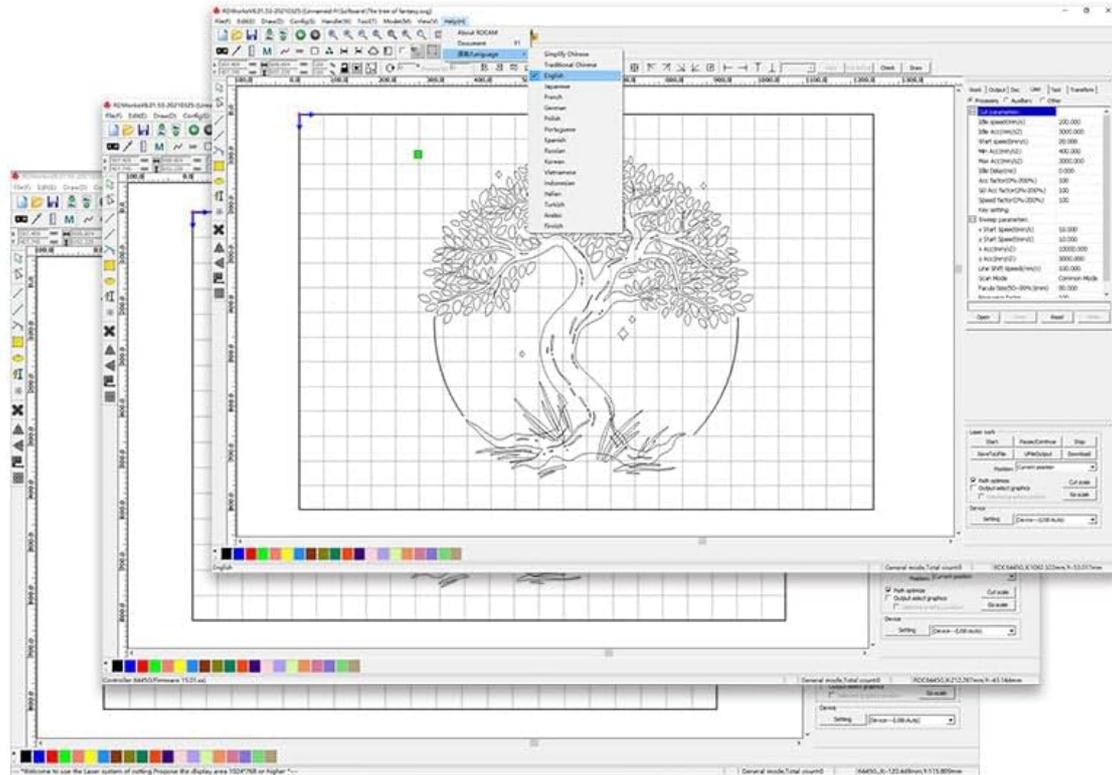


Image: Detailed wiring diagram illustrating connections for DC power, laser outputs, axis drives, input/output interfaces, and communication ports.

## Connection Points:

- **DC Power:** Connect 0V and +24V DC power to the designated terminals.
- **Laser 1 & Laser 2:** Connect your CO2 laser tubes to these outputs.
- **X, Y, Z, U Axis Drive Interface:** Connect the stepper or servo motor drivers for each axis.
- **X, Y, Z, U Limit Switch:** Connect limit switches for each axis to prevent overtravel.
- **Input Interface:** For external control signals.
- **Output Interface:** For controlling external devices.
- **Communication Interface (Reserved):** For future expansion or specific communication modules.
- **PC Connection:** Connect to a computer via USB or Ethernet for software control.
- **Machine:** General connection to the laser engraving/cutting machine.
- **Optional Components:** Includes connections for an RD-WIFI wireless router and a BWK301R wireless operation box.

## 4. SOFTWARE: RDWORKS V8

The Ruida RDC6445GT5 controller is compatible with RDworks V8 software, which is provided free of charge. This software enables design, file import, and control of your laser machine.

# Multiple languages

RUIDA RDC6445GT5

Support simplified Chinese, traditional Chinese, English, Japanese, German, Russian, Spanish, Portuguese, Korean, French and other 16 languages.

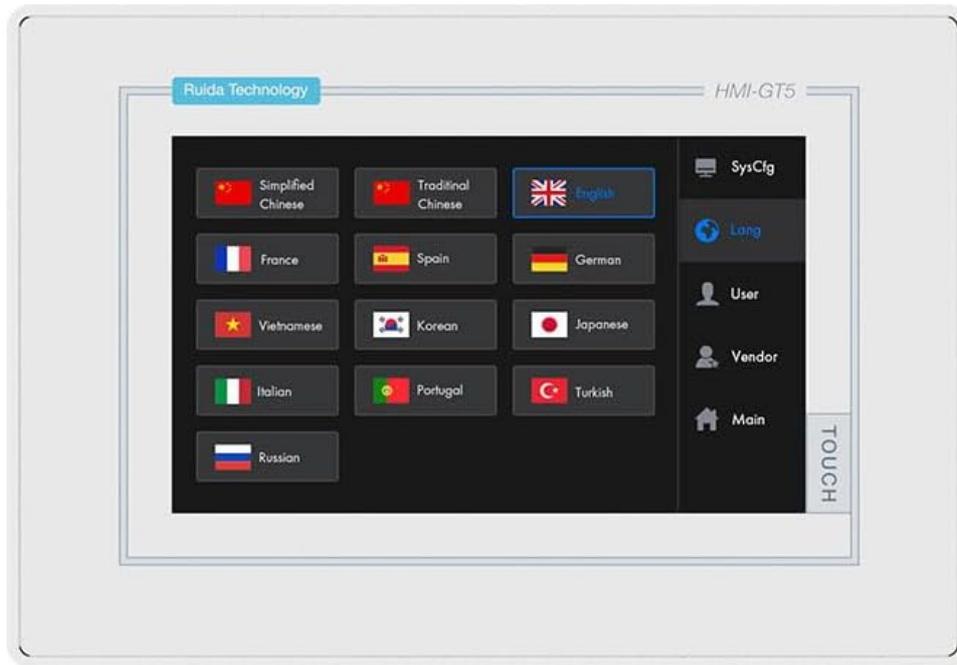


Image: A screenshot of the RDworks V8 software interface, showing design and control options.

## Software Capabilities:

- Supports import, display, and editing of various file formats including PLT, DXF, AI, and DST.
- Enables import and processing of image files.
- Provides tools for creating and modifying designs for laser engraving and cutting.

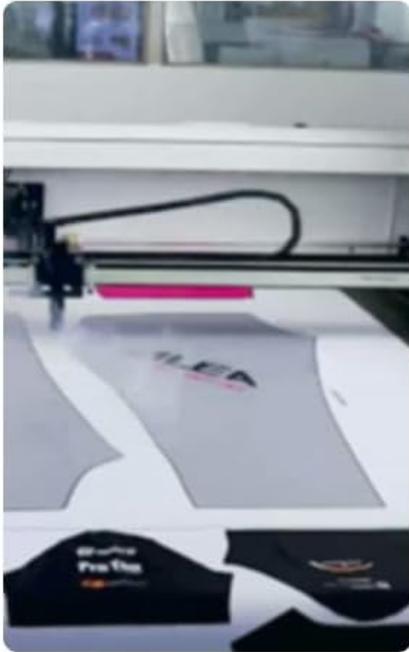
## Multi-language Support:

The controller and software support multiple languages, enhancing usability for a global audience.

# Application area

RUIDA RDC6445GT5

Focus on non-metal cutting, suitable for leather, fabric, sign and 3C application fields.



Fabric



Sign



3C

Image: The language selection screen on the HMI, showing support for Simplified Chinese, Traditional Chinese, English, Japanese, German, Russian, Spanish, Portuguese, Korean, French, Vietnamese, Italian, and Turkish, among others.

## 5. OPERATING INSTRUCTIONS

The RDC6445GT5 controller is operated primarily through its 5-inch color touch screen HMI. Basic operations include:

- **Power On/Off:** Ensure all connections are secure before powering on the controller. Use the designated power switch.
- **File Loading:** Load design files via USB, Ethernet, or U disk using the HMI interface.
- **Parameter Setting:** Adjust laser power, speed, and other cutting/engraving parameters directly on the touch screen.
- **Job Start/Stop:** Initiate and pause/stop laser jobs using the controls on the HMI.
- **Manual Control:** Use the HMI to manually move the laser head for positioning or focusing.

## 6. MAINTENANCE

To ensure the longevity and optimal performance of your Ruida RDC6445GT5 controller, follow these maintenance guidelines:

- **Keep Clean:** Regularly clean the controller's exterior and touchscreen with a soft, dry cloth. Avoid abrasive cleaners or solvents.
- **Ventilation:** Ensure the controller is installed in a well-ventilated area to prevent overheating. Do not block ventilation openings.
- **Connection Checks:** Periodically inspect all cable connections for looseness or damage. Secure any loose connections.

- **Firmware Updates:** Check for official firmware updates from Ruida Technology to ensure the controller operates with the latest features and bug fixes.
- **Environmental Conditions:** Operate the controller within its specified temperature and humidity ranges to prevent damage.

## 7. TROUBLESHOOTING

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This section provides general troubleshooting tips for common issues. For complex problems, contact technical support.

- **Controller Not Powering On:**
  - Verify the power supply is connected correctly and providing the specified voltage (24V DC).
  - Check the power cable for damage.
- **No Communication with PC:**
  - Ensure USB or Ethernet cables are securely connected.
  - Check network settings if using Ethernet.
  - Reinstall or update the controller drivers on your PC.
- **Laser Not Firing/Moving:**
  - Confirm all axis motor and laser connections are correct as per the wiring diagram.
  - Check for error messages on the HMI.
  - Verify laser parameters (power, speed) are set appropriately in the software.
- **HMI Unresponsive:**
  - Perform a power cycle (turn off, wait 10 seconds, turn on).
  - Ensure the HMI cable is properly connected to the mainboard.

## 8. SPECIFICATIONS

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Feature	Specification
Model Number	RDC6445GT5 (Item model number: SEC-015)
Product Dimensions	5 x 3 x 1 inches
Display Type	5-inch Color Touchscreen (HMI)
Onboard Memory	128MB
Motion Control Axes	4 Axes (X, Y, Z, U)
Laser Control Channels	2 Channels
Communication Interfaces	USB, Ethernet, U Disk
Supported Software	RDworks V8
Manufacturer	KD-tec
UPC	765133473373

## 9. APPLICATION AREA

The Ruida RDC6445GT5 CO2 Laser Controller is designed for non-metal cutting applications. Its versatility makes it suitable for various industries and materials.

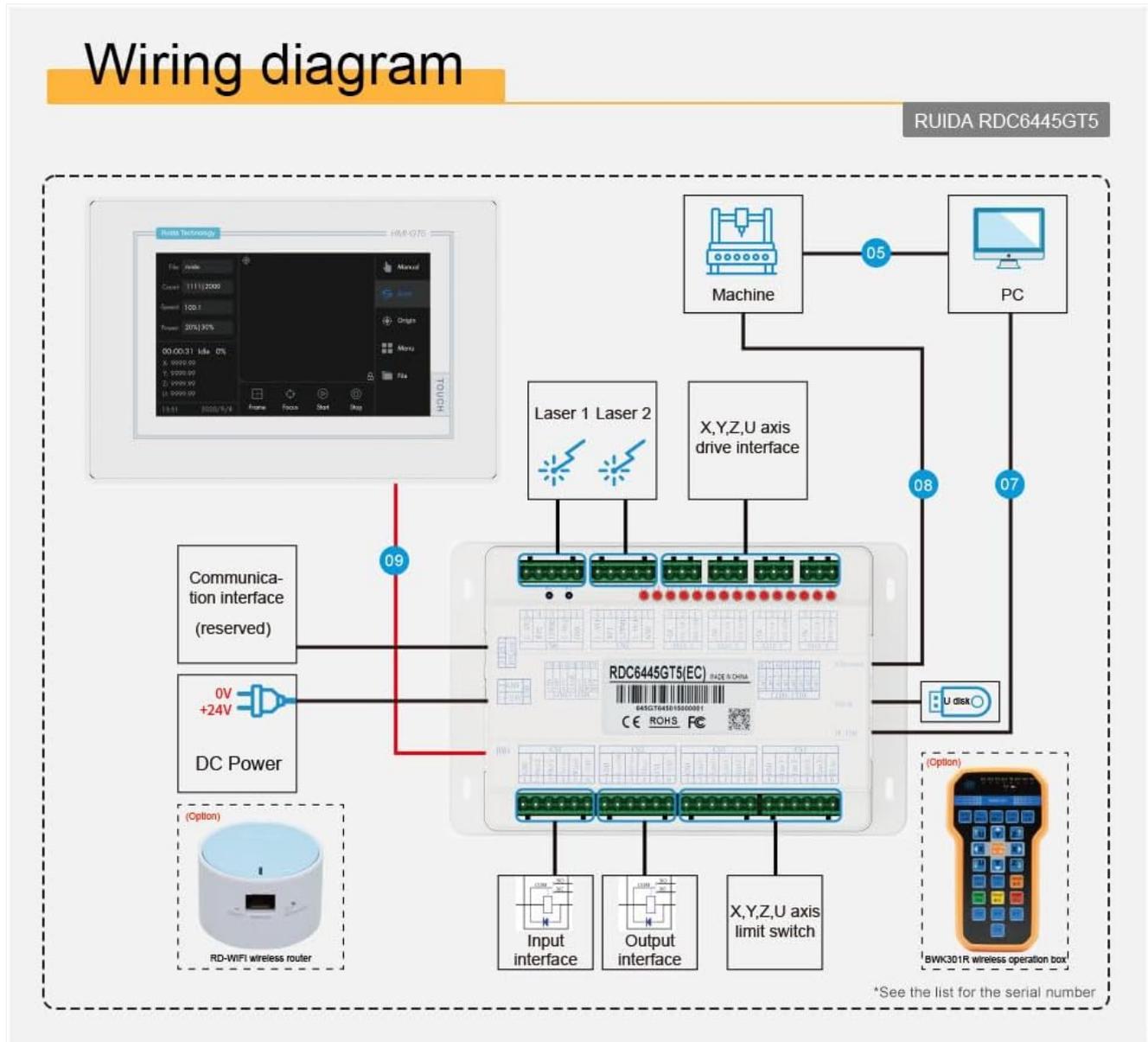


Image: Visual examples of the controller's application in cutting materials such as fabric, signs, and components for 3C (Computer, Communication, Consumer Electronics) products.

### Typical Applications Include:

- **Fabric Cutting:** Precision cutting of textiles for apparel, upholstery, and other fabric-based products.
- **Sign Making:** Engraving and cutting various materials for indoor and outdoor signage.
- **Leather Processing:** Detailed cutting and engraving of leather for fashion, accessories, and crafts.
- **3C Application Fields:** Manufacturing and prototyping components for consumer electronics, computers, and communication devices.

## 10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries regarding your Ruida RDC6445GT5 CO2 Laser Controller, please contact the manufacturer or your point of purchase.

**Manufacturer:** KD-tec

Please retain your purchase receipt for warranty claims.