JQ LASER

Handheld Fiber Laser Marking Machine

User Manual • 20W / 30W / 50W

Jining Junqi Intelligent Technology Co., Ltd.

Original JQ Laser edition — prepared for customer operation, installation and routine service.

Website: https://fiberlasermarking.com/

Important: Read the complete safety section before powering on or emitting laser radiation.

Document Control

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This edition has been rewritten and reorganized by JQ Laser for its handheld laser marking equipment. Product configuration, laser source, optical components, software version and optional accessories can vary by order. Always use the confirmed machine specification supplied with your equipment.

About JQ Laser

Jining Junqi Intelligent Technology Co., Ltd. (JQ Laser) manufactures industrial laser marking equipment and provides application testing, machine configuration, installation guidance and technical support. The company’s product range includes fiber, UV, CO_2 and other marking systems for metal, plastic, electronics, automotive, hardware, jewelry, medical and industrial applications.

For application-specific information, sample testing and support, visit JQ Laser.

Contents

1. Safety and Responsible Use

Laser marking is an industrial process. The operator must understand the laser classification, local workplace requirements, machine labels, protective equipment and interlock arrangements before operation. The supplied source manual warns that improper controls or procedures can expose the operator to hazardous laser radiation. □filecite□turn1file3□

Never direct the marking beam toward a person or animal. Keep eyes and skin away from the laser aperture and never bypass protective or interlock functions. Use laser protective eyewear appropriate to the wavelength and risk assessment of the installed laser source.

Electrical and environmental precautions

Power must be switched off before connecting or disconnecting machine modules. Keep the equipment dry and away from conductive or corrosive liquids. Avoid operation in rain, prolonged high humidity, strong static fields or strong magnetic-field environments. Keep ventilation openings free from dust so heat can leave the enclosure.

The source manual also specifies temperature limits for its battery-version equipment and gives special battery charging, storage and transport precautions. Those limits should not be assumed for every JQ Laser configuration; use the temperature and battery instructions supplied with the actual machine.

Workplace setup checklist

- Establish a controlled laser work area.
- Use suitable wavelength-rated eyewear where required.
- Prevent unauthorized access during laser emission.
- Remove reflective objects from the beam path.
- Provide appropriate fume extraction when the material or process can generate smoke or hazardous fumes.
- Confirm the workpiece is stable before marking.
- Keep the operator interface, emergency controls and power isolation accessible.

2. Product Overview

The JQ Laser handheld fiber marking platform is intended for portable or flexible marking work where the operator needs to position the marking head over a workpiece rather than rely on a fixed enclosed workstation. The supplied manual covers 20W, 30W and 50W configurations. □filecite□turn0file0□L2-L6□

Typical applications include permanent text, serial numbers, dates, logos, barcodes, QR codes and simple graphics on suitable metal workpieces. The exact result depends on material, surface condition, focal position, laser source, lens, scan settings and marking parameters.

Core workflow

1) Prepare the work area and workpiece.
2) Power the machine and confirm system status.
3) Load or create the marking file.
4) Use the guide/red-light preview and establish the correct working position.
5) Run a low-risk preview or test according to your machine configuration.
6) Mark a sample and inspect contrast, dimensions and depth.
7) Save the proven parameters before production.

The source manual describes an integrated control system with an 8-inch capacitive display, Linux operating system, high-precision two-dimensional scanning, 1064 nm wavelength, optional 70×70 mm or 100×100 mm marking area, and a stated maximum marking speed below 7000 mm/s. These are source-document values and should be checked against the purchased configuration before publication as a machine specification. □filecite□turn1file6□

3. Installation and First Start

Before the first start, inspect the housing, marking head, power cable, display, optical window and supplied accessories. Do not operate the machine if a component appears damaged. Place the unit on a stable surface or position the handheld head so it cannot fall or move unexpectedly.

Connect only the accessories and cables intended for the actual machine configuration. After power-on, wait for the control system to complete startup and verify that the status area reports a ready condition. The supplied manual describes the Home screen as the main operating interface and uses a system-status prompt to indicate ready, marking or alarm conditions. filecite turn0file0 L243-L255

Administrator access

The source manual documents an administrator login and a default password of 123. For a production deployment, the machine administrator should change or protect access according to the software version and the organization’s security procedure rather than relying on a factory credential. filecite turn0file0 L246-L250

1. Home

The main interface is shown in Figure 1-1:

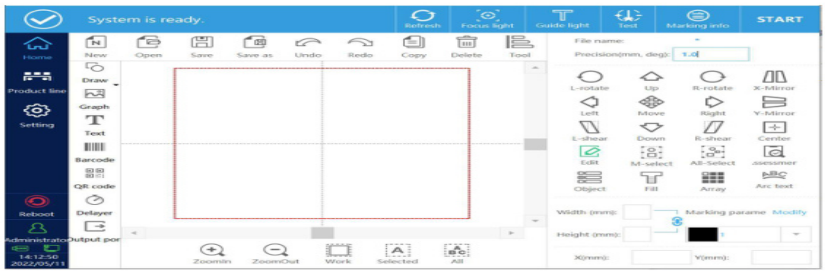

Figure 1-1

1.1. Login

Click the login button,a password input interface pops up, login password: 123 (administrator, you can log in to the system with different permissions)

1.2. System status bar

As shown in Figure 1-2

Figure 1-2

System status prompt:Prompt that the coding system is ready, marking,or some error alarm information, etc.
Refresh:During the flight marking process, the information can be updated online. There are two situations for online update. One is to update the marking after performing the system cache

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Reference: original supplied manual Home screen. The JQ Laser edition should use the actual interface shown on the delivered controller.

4. Home Screen and Status Information

The Home screen combines the marking workspace, object controls, parameter area and production status. The interface may change between controller software revisions, so the labels on the delivered machine take priority.

Status and production information

The system can display the current file, marking time, total quantity, current count, trigger count and line speed where production-line functions are enabled. The source manual also describes online editing/update behavior for flight marking; on high-speed lines, real-time changes can introduce missed marks, so changes should be validated before production. □filecite□turn0file0□L272-L291□

Recommended operator habit

Before pressing Start, verify the file name, object content, workpiece position, marking area, parameter set and count/reset status. A two-person verification is useful when the mark is a regulated identifier, serial number or customer-specific code.

5. Creating Marking Content

Use the Edit area to build the marking job. The controller described in the supplied manual supports text, serial numbers, dates and times, file-based data, plans, external data, random codes and graphical objects. filecite turn1file1

Object order matters when several objects overlap or when different parameter groups are assigned. Add only the objects needed for the job, then review the complete preview before saving the file.

Text properties commonly include font, character height, width factor, character spacing, line spacing and alignment. The source interface also provides controls for moving objects up or down in the object list and for editing or deleting selected content. filecite turn0file0 L295-L306

6. Text, Serial Numbers and Date/Time

Fixed text is appropriate for product names, model codes, logos converted to vector objects, instructions and other information that remains unchanged from one workpiece to the next.

Serial-number objects are intended for traceability. The source controller provides start/end values, current value, step value, digit count, repeated marking, cycling, reset behavior and output controls. filecite turn0file0 L342-L401

For production, define the numbering rule before the first mark. Confirm whether the number should advance after every trigger, after repeated marks, or through an external signal.

Date/time objects can use system time or a customized format. The supplied software supports date/time formatting, separators and time offsets. Validate the controller clock before a production run so traceability data is correct. filecite turn0file0 L425-L445

7. Files, Plans and External Data

Text and spreadsheet files can be used as data sources. The supplied manual describes selecting files from internal storage or USB and selecting a row/line or column for marking. filecite turn0file0 L452-L475

Plan functions allow different marking content to be scheduled by time. For example, a production shift can use one code during one time interval and another code during a later interval. The operator should test the schedule before connecting it to a live line.

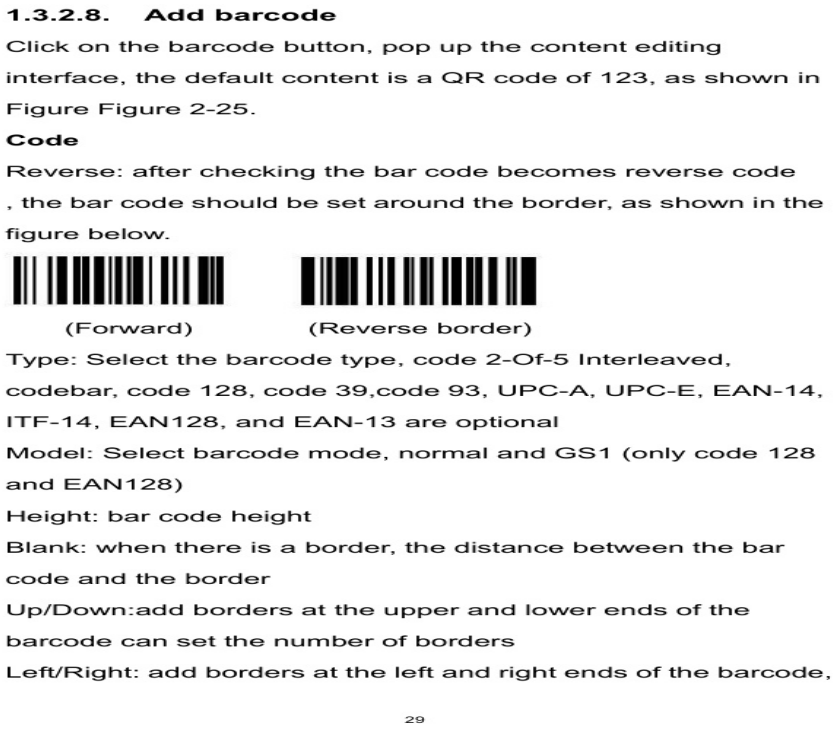
External communication and machine integration depend on the actual controller and I/O configuration. Where the interface requires engineering or wiring changes, JQ Laser recommends confirming the electrical interface with technical support rather than changing connections experimentally.

8. Graphics, Barcodes and QR Codes

The drawing tools described in the source manual include points, straight lines, dotted/tear lines, circles, rectangles and imported graphics. Supported imported formats in the source documentation include DXF, PLT, JPG, PNG and BMP. filecite turn0file0 L574-L577

Barcode settings include barcode type, height, border/blank space and optional human-readable text. The source manual lists common formats including Code 128, Code 39, Code 93, UPC, EAN and ITF families. filecite turn0file0 L581-L619

Always verify code readability with the customer’s scanner or verification process. A visually clear mark is not necessarily a machine-readable code.



1.3.2.8. Add barcode

Click on the barcode button, pop up the content editing interface, the default content is a QR code of 123, as shown in Figure Figure 2-25.

Code

Reverse: after checking the bar code becomes reverse code , the bar code should be set around the border, as shown in the figure below.

(Forward) (Reverse border)

Type: Select the barcode type, code 2-Of-5 Interleaved, codebar, code 128, code 39,code 93, UPC-A, UPC-E, EAN-14, ITF-14, EAN128, and EAN-13 are optional

Model: Select barcode mode, normal and GS1 (only code 128 and EAN128)

Height: bar code height

Blank: when there is a border, the distance between the bar code and the border

Up/Down:add borders at the upper and lower ends of the barcode can set the number of borders

Left/Right: add borders at the left and right ends of the barcode,

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Reference: barcode configuration screen from the supplied manual.

9. Object Editing, Fill and Arrays

Use object editing to change dimensions, coordinates, rotation and other properties. Keep a clean master file and save proven production versions separately.

Fill settings determine how closed graphics are scanned. The source interface includes spot, line, circle and multipoint fill options and allows line spacing or indentation to be adjusted. □filecite□turn0file0□L634-L645□

Arrays are useful when multiple identical marks must be produced in a controlled layout. Confirm pitch and origin carefully before marking a valuable workpiece.

10. Production-Line and Flying Marking

The controller documentation separates static marking from production-line/flying marking. Static marking can use jog or sensor/foot-trigger modes. Flying marking uses encoder or simulated conveyor speed and can be configured for normal, pipeline and continuous modes. □filecite□turn1file0□

Before connecting a live production line, define the trigger source, encoder direction, mark position, product spacing and expected conveyor speed. Start at a conservative speed and confirm that the mark stays within the intended location.

Online changes

The supplied controller supports online update of marking content. The source documentation warns that real-time updating on high-speed production lines can result in missed marking. For production-critical identifiers, pause the line when practical and validate the first pieces after a change. □filecite□turn0file0□L258-L287□

11. Marking Parameters and Focus

Mark quality is controlled by the interaction of laser power, speed, frequency, pulse behavior, hatch/fill strategy, focus and material response. Do not copy a parameter set from one material to another without testing.

Focus procedure

1. Place the workpiece securely.
2. Use the machine’s guide/red-light function where provided.
3. Adjust the working distance to the specified focal position for the installed lens.
4. Preview the marking boundary at low risk.
5. Mark a small test pattern and inspect the result.
6. Record the proven parameter set with the material and surface condition.

The source manual describes a red-light guide and, on certain configurations, a focus-light function. It also provides area calibration and red-light calibration functions in the Settings section. □filecite□turn0file0□L264-L267□

Parameter note

The supplied safety section lists example laser-source pulse widths and frequency ranges for several MFPN source models, but these values should not be treated as universal settings for all JQ Laser machines. Use the laser-source label and confirmed machine configuration as the controlling technical reference. □filecite□turn0file0□L52-L74□

12. Calibration and Red-Light Alignment

Calibration affects the relationship between the software preview and the physical marking position. Calibration should be performed after relevant optical changes, major mechanical movement, or when the preview no longer corresponds to the actual mark.

The supplied controller includes galvanometer/area calibration, forced-light functions and red-light guide calibration. These are engineering functions; inexperienced operators should not change calibration values simply to correct a single bad sample. First check focus, workpiece position, lens cleanliness and file dimensions. filecite turn1file0

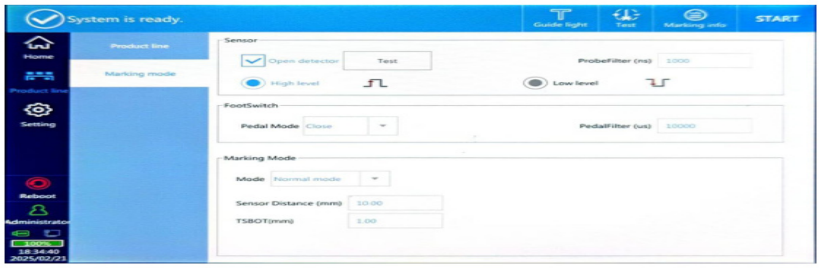

Figure 3-9

2.2.2. Pipeline mode

Marking mode select the pipeline mode, as shown in Figure 3-10.

Starting position: Starting from the moment you click to start coding, the assembly line will start coding after covering this distance.

Mark Distance: the distance between the last marking and the next marking.

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Reference: calibration-related interface from the supplied controller documentation.

If calibration is required, use a known reference target and record the original values before making changes.

13. Laser and System Configuration

The Settings area contains marking parameters, area functions, laser configuration, user rights, font management, system settings, I/O, communications and system information. filecite turn1file0

User rights

Separate operator and administrator responsibilities are recommended. Operators should normally be able to select approved files and start jobs, while calibration, laser configuration, I/O and system-level changes should be restricted to trained personnel.

System update and logo

The source software includes procedures for updating the startup image and the small logo shown in the interface. Because software packages are controller-specific, do not load an update intended for another hardware revision. Confirm the correct package with JQ Laser technical support first. filecite turn1file6

14. I/O and Communication

I/O functions can connect the marker to sensors, start/stop controls, serial-number reset, interlocks and production-line signals. The supplied manual describes configurable outputs for marking completion, fault states and manual control, plus inputs for serial-number reset and start/stop processing. filecite turn1file9

Electrical integration must follow the actual interface-board wiring diagram. Never connect a PLC, relay or sensor by trial and error. If an external device is being integrated, provide JQ Laser with the controller model, I/O requirement, voltage level and wiring diagram before changing the machine.

15. Maintenance and Troubleshooting

Routine care

Keep ventilation openings clean. Wipe the housing and display with a suitable dry or screen-safe cloth. Do not allow water or cleaning fluid to enter the machine. Inspect the optical window and work area for contamination before production.

The source manual recommends regular dust removal from heat-dissipation openings and gives a cleaning approach for the display. It also states that a machine exposed to water should not simply be powered back on; service assessment is recommended. □filecite□turn1file2□

Troubleshooting sequence

No mark: check power, laser status, safety/interlock condition, file selection, focus and start trigger.
Weak mark: verify focus, lens condition, laser settings and material surface.
Mark position shifted: check workpiece placement, lens/fixture movement and calibration.
Uneven fill: inspect focus, hatch settings and material flatness.
Production-line miss: check trigger timing, conveyor speed, encoder signal and online-update behavior.
Unexpected alarm: record the exact alarm message before restarting or changing parameters.

16. Technical Parameters

The following table consolidates the technical information explicitly documented in the supplied manual. It is not a substitute for the specification of the individual machine delivered to the customer.

Item	Source-document information
Applicable power	20W / 30W / 50W
Laser wavelength	1064 nm
Marking area	70×70 mm or 100×100 mm (optional, according to source manual)
Scanning system	High-precision two-dimensional scanning
Focus lens	130 mm
Maximum marking speed	<7000 mm/s (source-document value)
Controller	Integrated motherboard with 8-inch capacitive screen
Operating system	Linux
Marking method	Dot-matrix and vector
Packaging, 20W/30W	525 × 423 × 310 mm
Packaging, 50W	525 × 420 × 340 mm
Packed weight, 20W/30W	8–10 kg
Packed weight, 50W	10–12 kg

The source manual states that laser output power depends on the purchased model. Confirm the actual laser source model, output power, lens, scan field and controller configuration on the delivered machine before using this table for procurement, compliance or engineering calculations. filecite turn1file6

17. Packaging and Transport

The supplied manual gives different carton dimensions for 20W/30W and 50W configurations and lists corresponding packed-weight ranges. These values can help with preliminary logistics planning, but the final shipping package should be measured for the actual order. filecite turn1file4

Protect the marking head, optical window, controller and cables from impact. Keep the package dry and prevent heavy objects from being placed on the machine. If the delivered configuration contains a battery, follow the battery-specific transport and carrier requirements applicable to the destination.

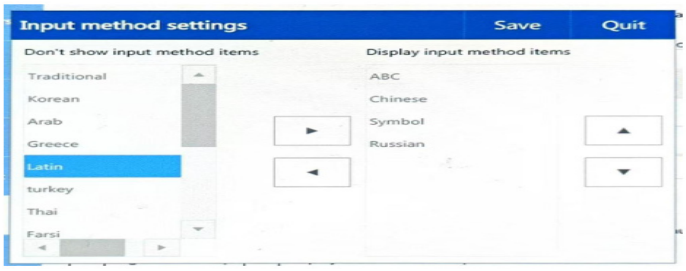
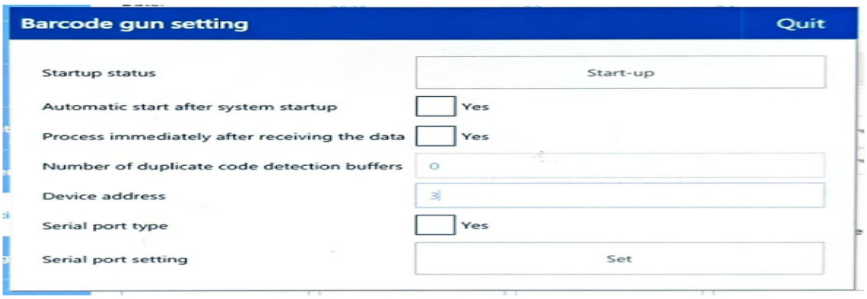


Figure 4-28

Bar code gun: Set the barcode gun input before using the scanning gun, set the start state to start, and automatically start the system after the start.



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Reference: packaging-content section in the supplied manual.

18. Support and Warranty Workflow

When contacting JQ Laser, provide enough information for the engineering team to reproduce the problem. The most useful package normally includes the machine model and power, material, marking file, current parameters, photo/video of the result, workpiece position, alarm message and a description of what changed.

JQ Laser’s support process covers application evaluation, sample testing, machine preparation, installation guidance, operator training, troubleshooting and after-sales communication. cite turn0search1

Contact JQ Laser

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Before ordering or replacing a component, confirm the machine configuration with JQ Laser. JQ Laser’s website states that final configurations can vary by laser source, power, marking area, optical components, scanner, control system and optional automation. cite turn0search0

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