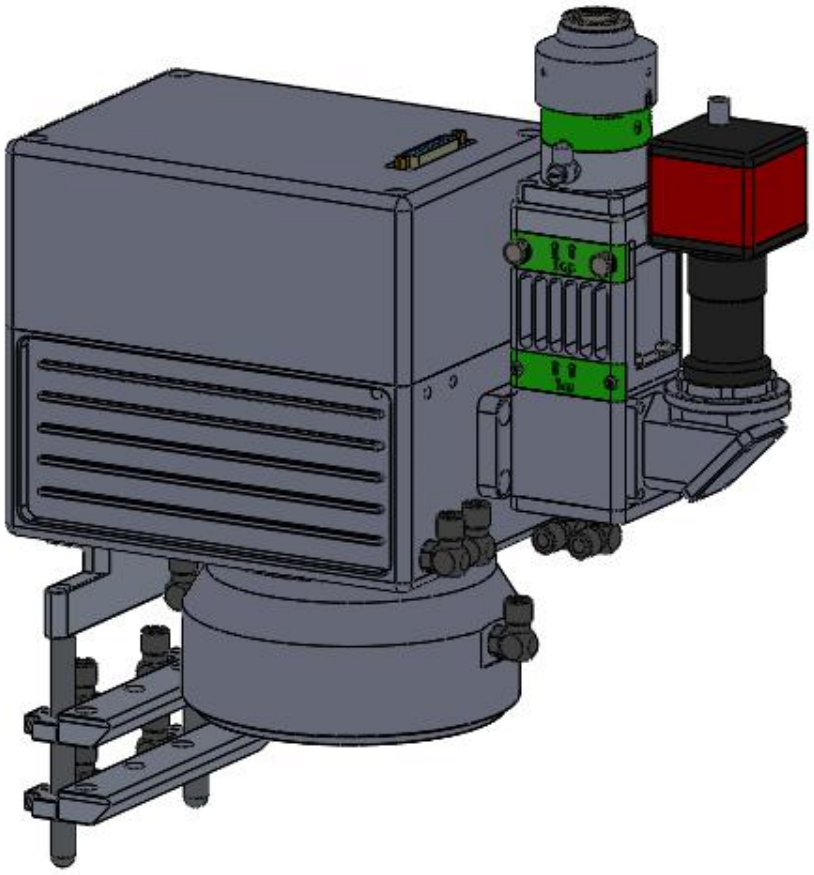
Shenzhen Ruifa Intelligent Technology Co., LTD

Welding Instruction Manual for FWF40-F10 Galvanometer



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Preface

Thank you for choosing our company's products!

To give you an overall understanding of our company, this manual provides a detailed introduction to the features, structural characteristics, technical parameters, usage instructions, maintenance and upkeep of this product. Before using this product, please read this manual carefully. This will help you use it better.

Due to the continuous update of product functions, the product you receive may differ from the statements in this manual in some aspects. We sincerely apologize for this. If you have any questions during the usage, please call us in time for consultation. We will serve you wholeheartedly.

Directory

Chapter One Overview

1.1 Product Parameters

Optical fiber interface	QBH
Wavelength range	1070±20nm
Rated power	≦4000W
Collimated focal length	100mm
Focal length	F330
Scanning range	160*160mm
Auxiliary gas pressure	＜1Mpa
Weight	8.0KG

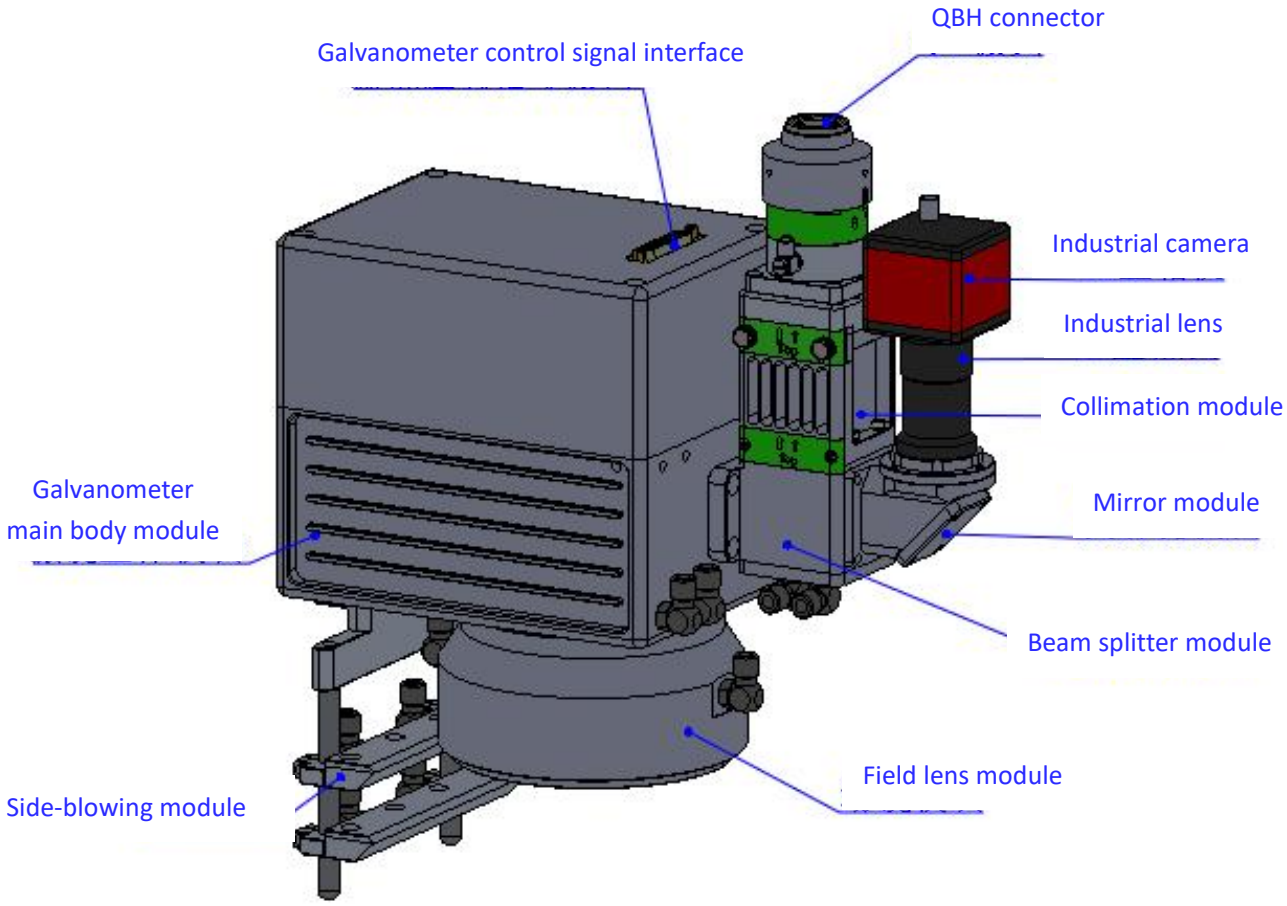
1.2 Precautions

For personal safety, please wear special fiber laser protective glasses before operation.

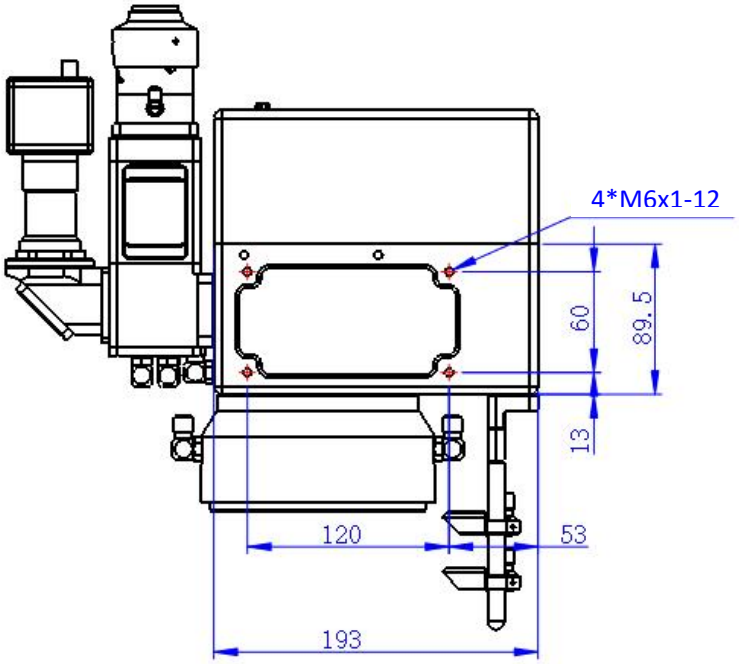
Keep the product clean to prevent coolant, condensate water or other foreign substances from entering the cavity, otherwise it will cause functional contamination and functional impact on the related parts.

Chapter Two Structural Features

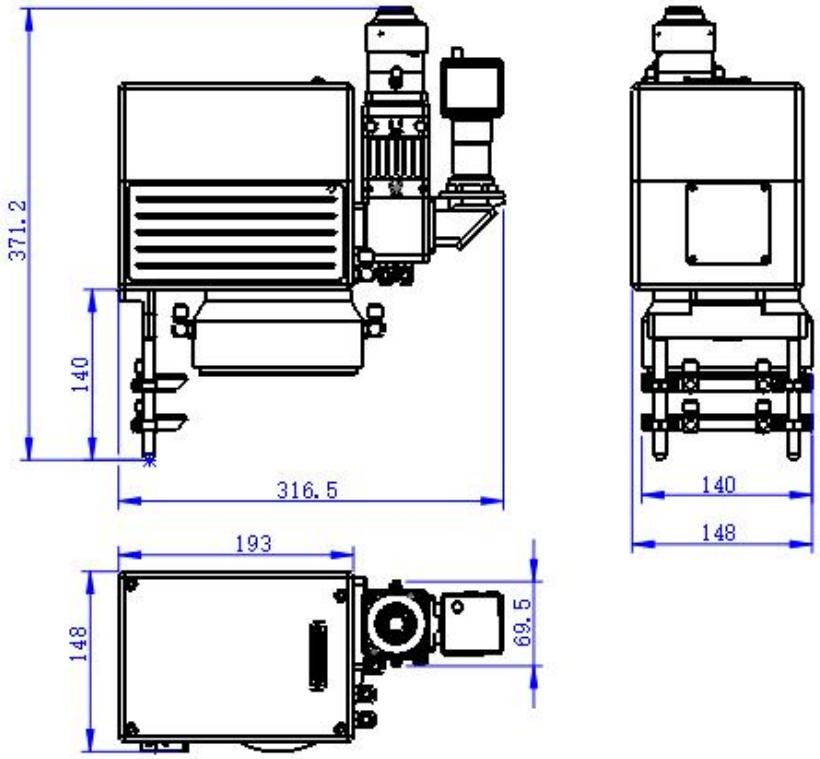
2.1 Product Structure



2.2 Installation Dimensions



2.3 External dimensions

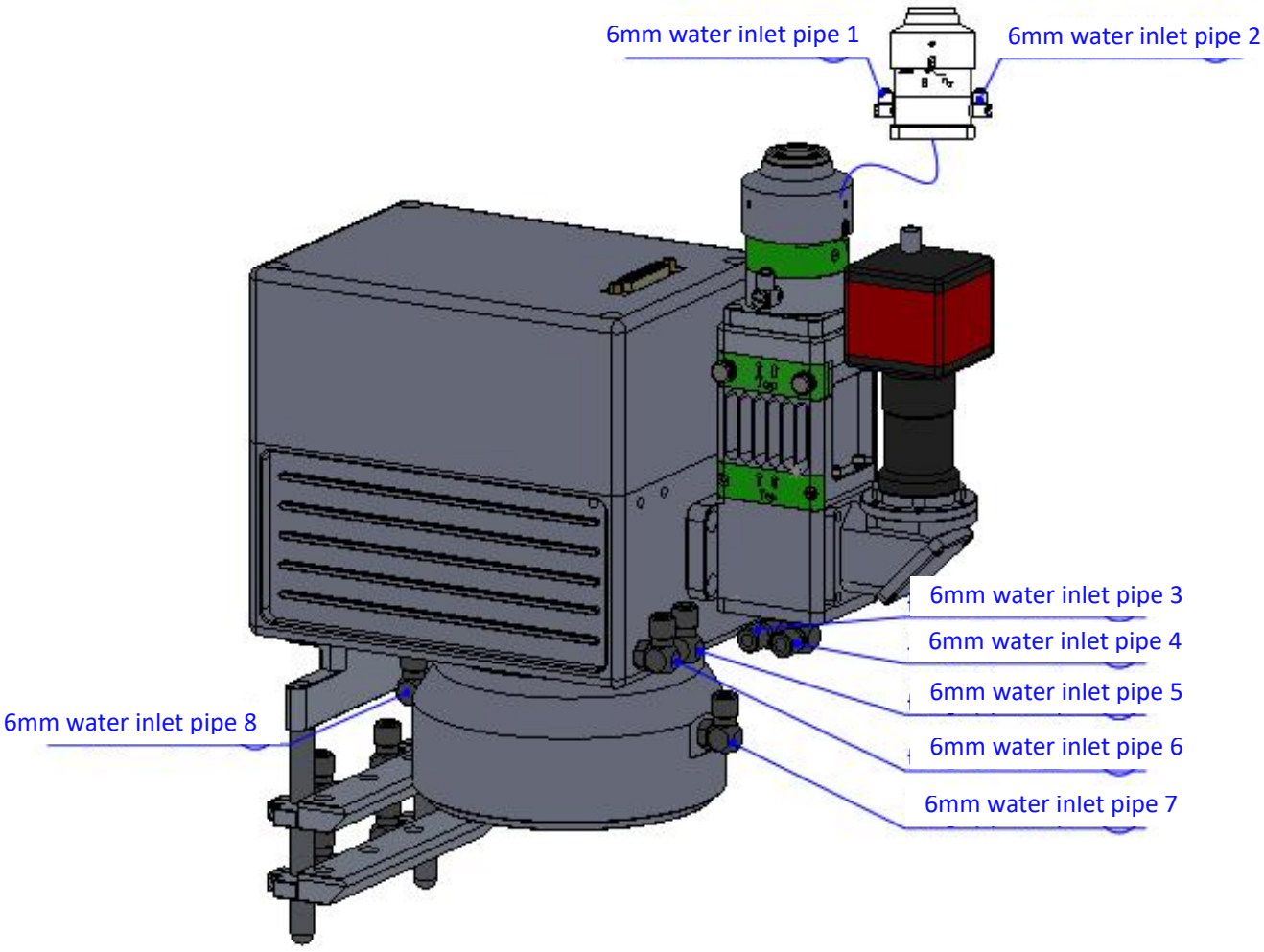


Chapter Three Product Installation

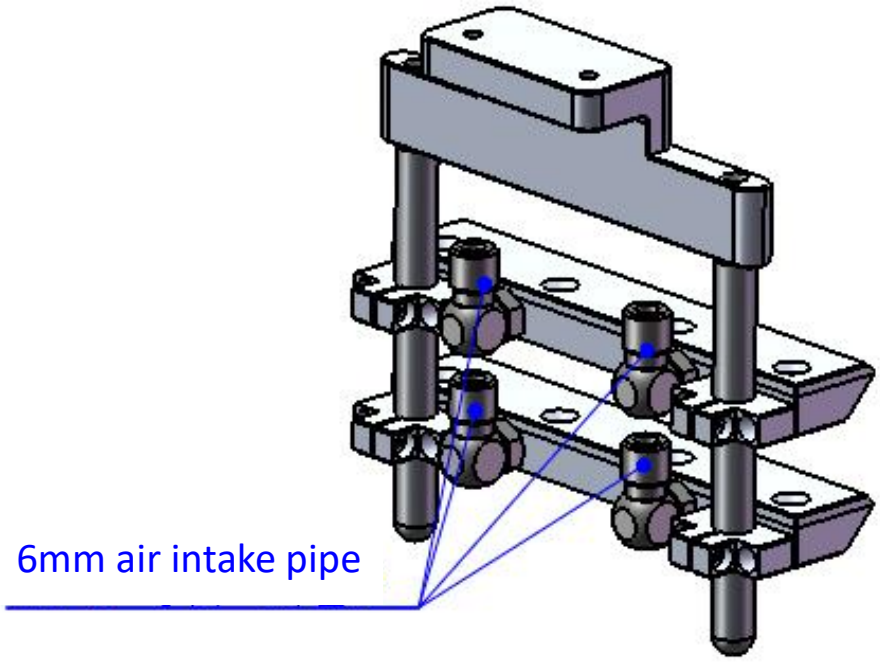
3.1 Pipeline Connection

Cooling water circuit connection and usage requirements:

3.1.1 Waterway connection: Connect a 6mm air pipe. Its main function is to cool and remove the excess heat generated by the optical path inside the cavity through the waterway of the internal structural components, ensuring the welding performance. The cooling water pipelines should be connected in series, with one inlet and one outlet water circulation connected. Refer to the sequence from 1 to 8 for connection.



3.1.2 Gas connection



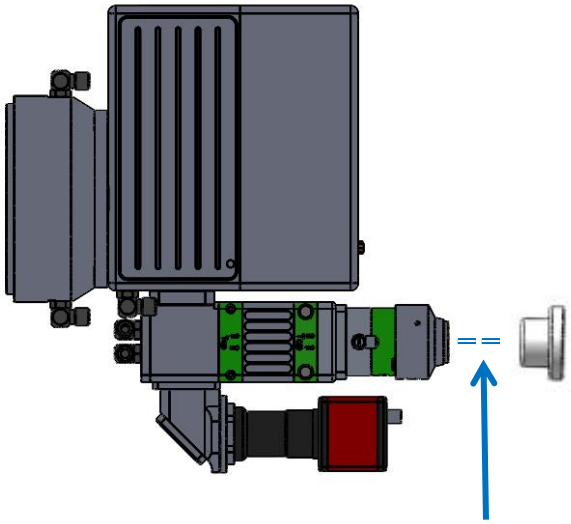
Gas connection: Connect to a 6mm air pipe. The gas pressure output is less than 1Mpa. The horizontal blowing is to prevent splashes from damaging the protective lens.

Note: Commonly used gas: Compressed air (oil-water filtration is required)

The commonly used gases are: argon, nitrogen, compressed air, and oxygen (oil-water filtration is required).

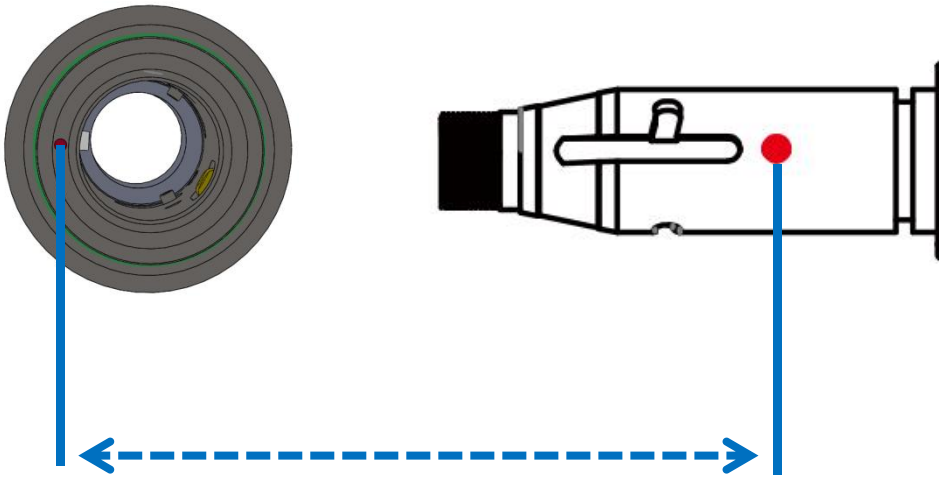
3.2 Optical Fiber Input Installation

※ Place the QBH horizontally and remove the dust-proof sealing cover.



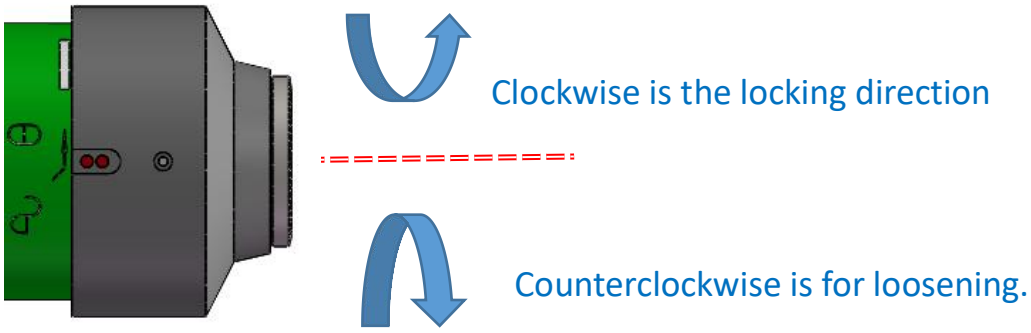
Remove the dust cover

Align the red dot on the optical fiber head with the red dot on the QBH, and slowly insert the optical fiber head into the QBH.



Align the two center red dots and insert for installation

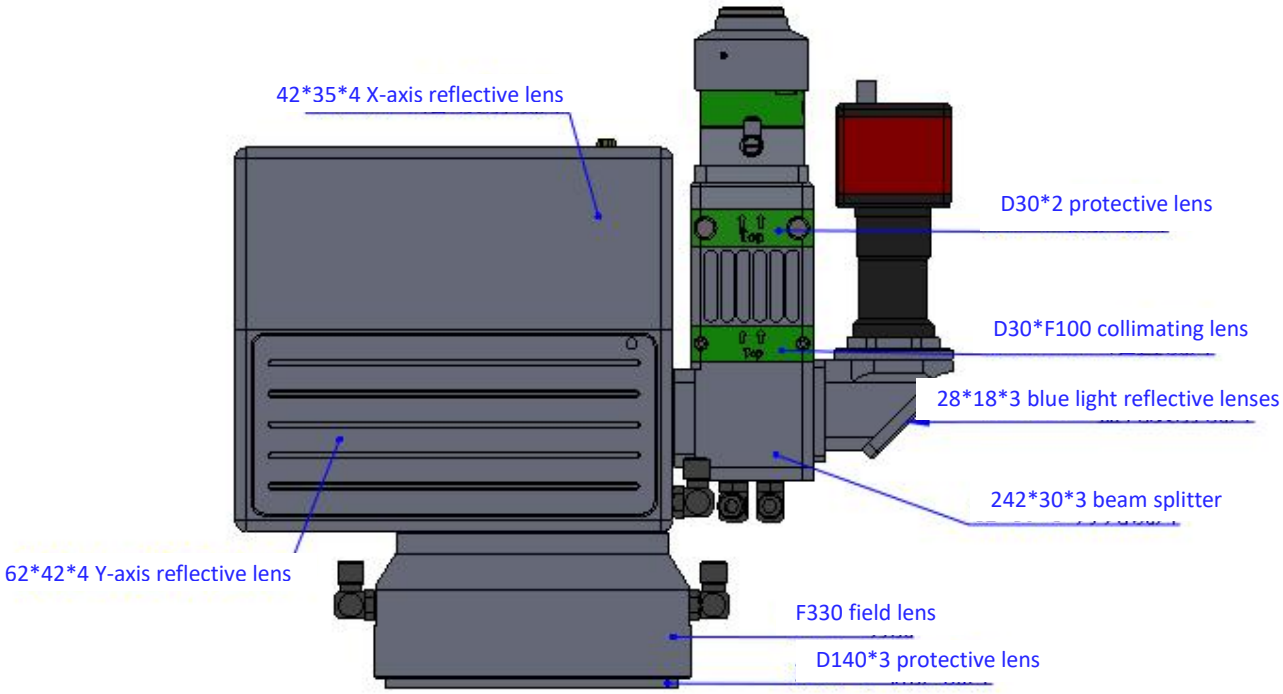
※ Tighten the QHB to the locked position: Turn it clockwise to the limit position (you can feel a "click" sound), lift the rotating jacket upwards, and then turn it clockwise again until the optical fiber head is pressed tightly.



Chapter Four Maintenance and Upkeep

4.1 Optical Lens structure

All replacement parts are assembled in a dust-free workshop. Except for the protective mirror drawer which can be disassembled, other modules are generally prohibited from being disassembled. If it is necessary to inspect the collimating lenses, please remove the product in a clean environment

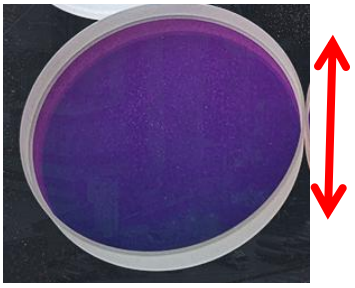


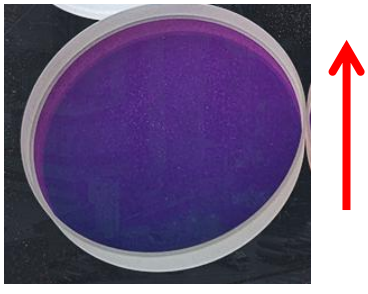
4.2 Optical lens cleaning

※ Clean optical lenses, operation methods and key points to note:

※ Tools: Dust-free gloves or dust-free finger cots, dust-free wiping cotton swabs, isopropyl alcohol, and filled dry and pure compressed air. Spray isopropyl alcohol onto a dust-free cotton swab. With the lens facing your eyes, gently pinch the side edge of the lens with your left thumb and index finger. Hold the dust-free cotton swab with your right hand and gently wipe both sides of the lens from bottom to top or from left to right in a single direction. (Do not wipe back and forth to avoid secondary contamination of the lens.) Then, blow dry and pure compressed air onto the surface of the lens. Make sure there are no foreign objects on the surface of the lens after

cleaning.





4.3 Disassembly and assembly of optical lenses

4.3.1 Disassembly and assembly of protective lenses

Tools: Dust-free cotton swabs, alcohol, masking tape.

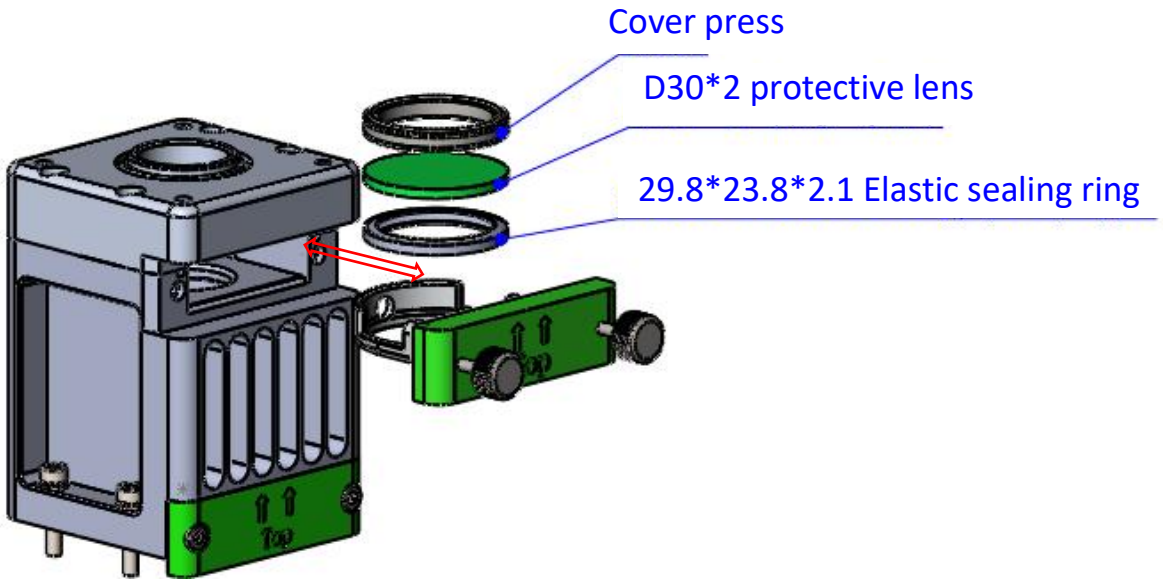
The disassembly and assembly process must be carried out in a clean place. When disassembling and assembling the lenses, dust-free hand dust or dust-free finger cots must be worn.

※ Disassembly and assembly steps:

First, loosen the locking studs. Hold the green handle on both sides and pull out the protective lens horizontally. When replacing the protective lens, seal the exposed window on the cavity with masking tape to prevent dust from entering.

Step 2: Remove the cover from each one and replace the protective

lens.



4.3.2 Collimation lens disassembly and assembly

Tools: 2.5mm Allen wrench, dust-free cotton swab, alcohol, masking tape.

The disassembly and assembly process must be carried out in a clean place. When disassembling and assembling the lenses, dust-free finger cots must be worn.

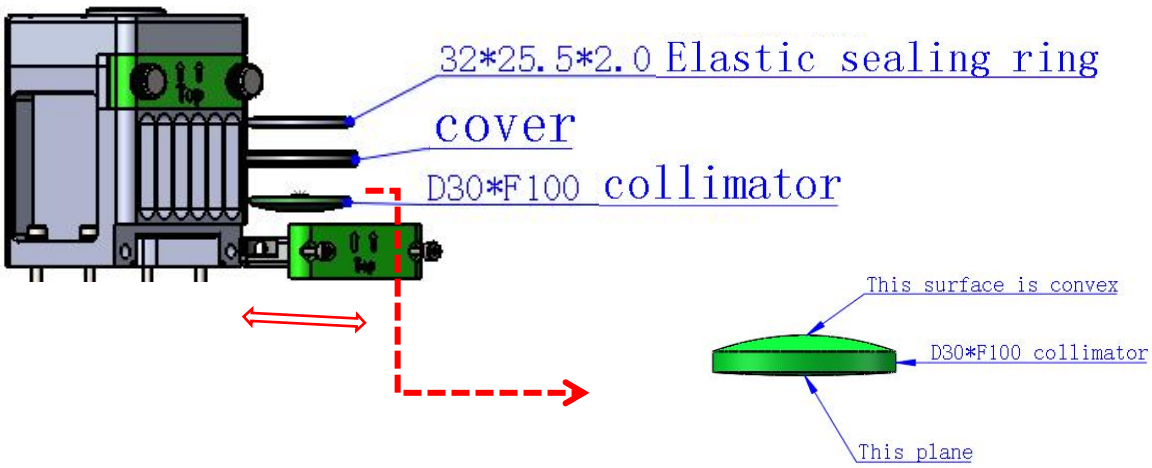
※ Disassembly and assembly steps:

Step 1: First, clean all the dust on the surface thoroughly.

Step 2: Loosen the 2-M3 screw in the figure with a 2.5mm Allen wrench.

Step 3: Directly remove the collimating drawer module in the horizontal direction and seal the ports with masking tape to prevent dust from entering the cavity.

Step 4: Lift the cover upwards to remove the lens and replace it. Make a record of the concave and convex surfaces of the lens or the arrows marked on the side of the viewing area to identify the orientation of the lens.



4.3.3 Disassembly and assembly of reflective lenses

Tools: 2.5mm Allen wrench, cross-head screwdriver, dust-free cotton swab, alcohol

The disassembly and assembly process must be carried out in a clean place. When disassembling and assembling the lenses, dust-free hand dust or dust-free finger cots must be worn.

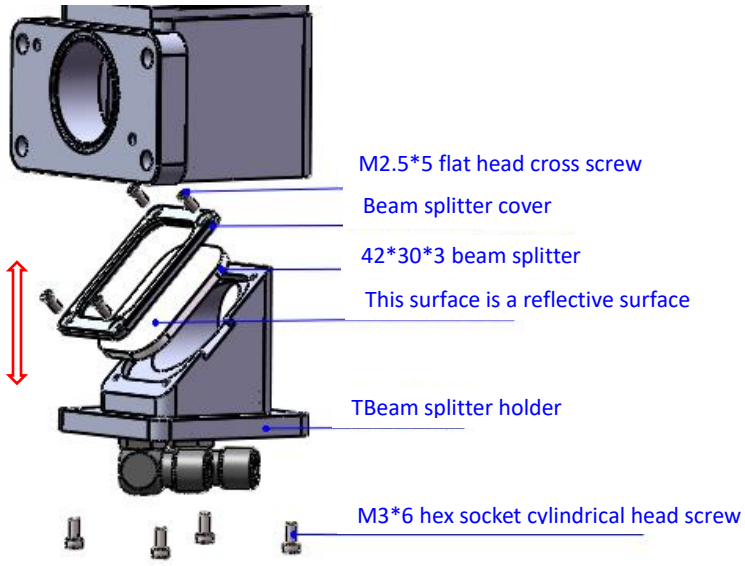
※ Disassembly and assembly steps:

Step 1: First, clean all the dust on the surface thoroughly.

Step 2: Use a 2.5mm Allen wrench to loosen the M3 Allen cylindrical head screws in sequence.

Step 3: After assembling each component module, seal the exposed sealing surfaces on the cavity with masking tape to prevent dust from entering.

Step 4: Loosen the M2.5 screw with a cross-head screwdriver, remove the cover, and then the lens can be replaced



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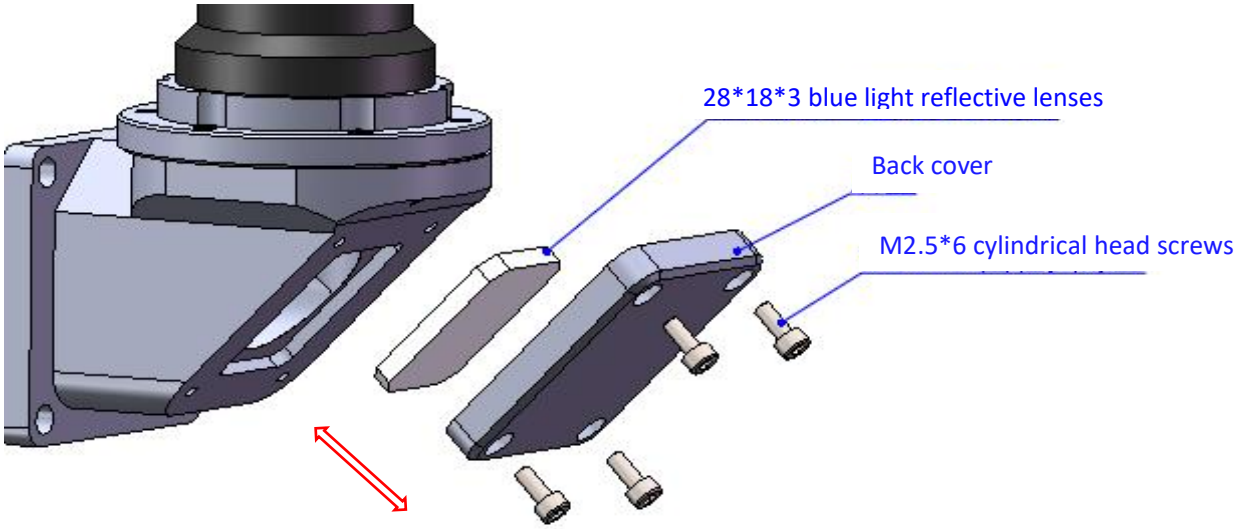
4.3.4 Disassembly and assembly of blue light reflectors

Tools: 2mm Allen wrench, dust-free cotton swabs, alcohol

The disassembly and assembly process must be carried out in a clean place. When disassembling and assembling the lenses, dust-free hand dust or dust-free finger cots must be worn.

Operation method: Loosen the M2.5 screw and the lens can be replaced.

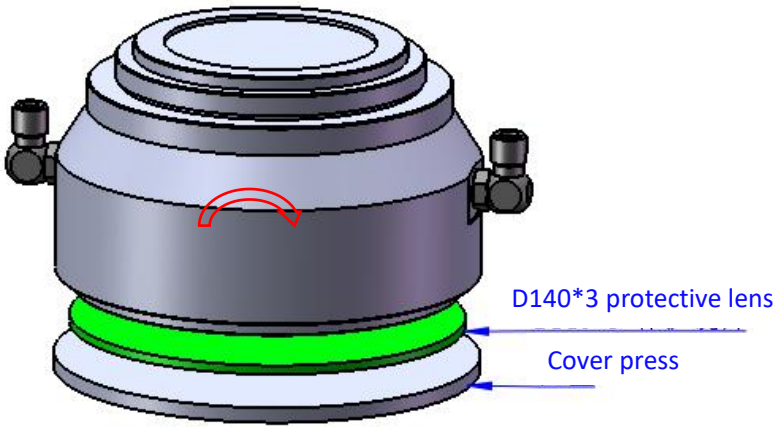


4.3.5 Disassembly and assembly of protective lenses

The disassembly and assembly process must be carried out in a clean place. When disassembling and assembling the lenses, dust-free hand dust or dust-free finger cots must be worn.

Operation method: Loosen the cover counterclockwise and the lens can be

replaced.



Chapter Five Electrical

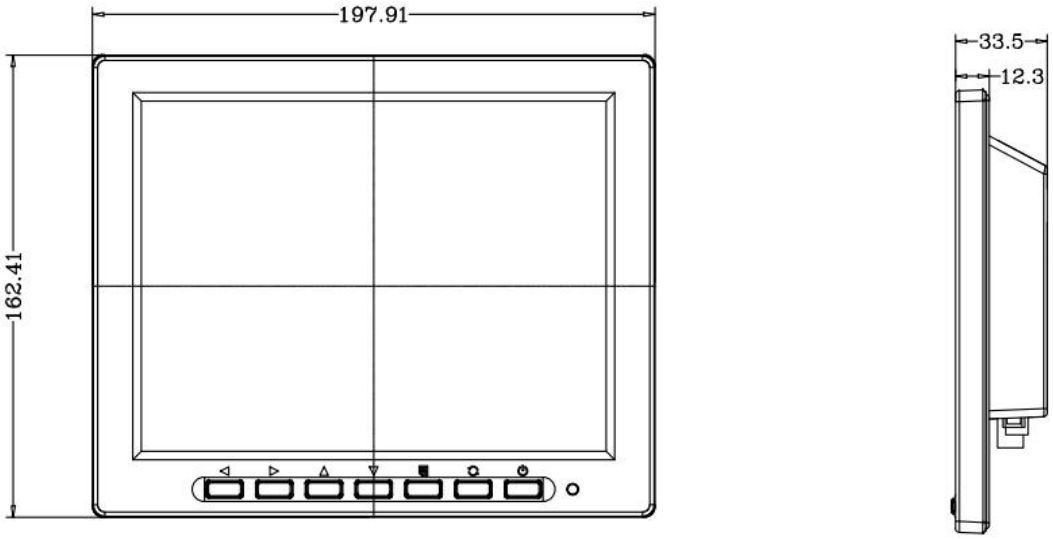
5.1 Electrical Material Table

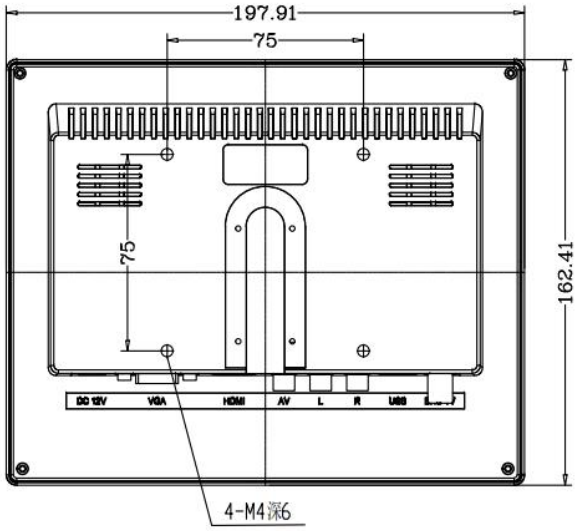
List				
Serial number	Name	Illustration	Quantity	Remarks
1	Galvanometer welding		1	
2	±15V switching power supply		1	
3	Field lens control line (5 meters)		1	
4	Display screen (8 inches		1	
5	Display screen signal cable (5 meters)		1	
6	Power adapter cable (1.5-meter display screen		1	
7	Fixed buckle		1	
8	Fixed tripod		1	
9	Fixed foot patch		1	
10	Power adapter cable (1.5 meters for camera)		1	
11	Laser welding blue light work lamp		1	

5.2 **Display screen installation dimensions**

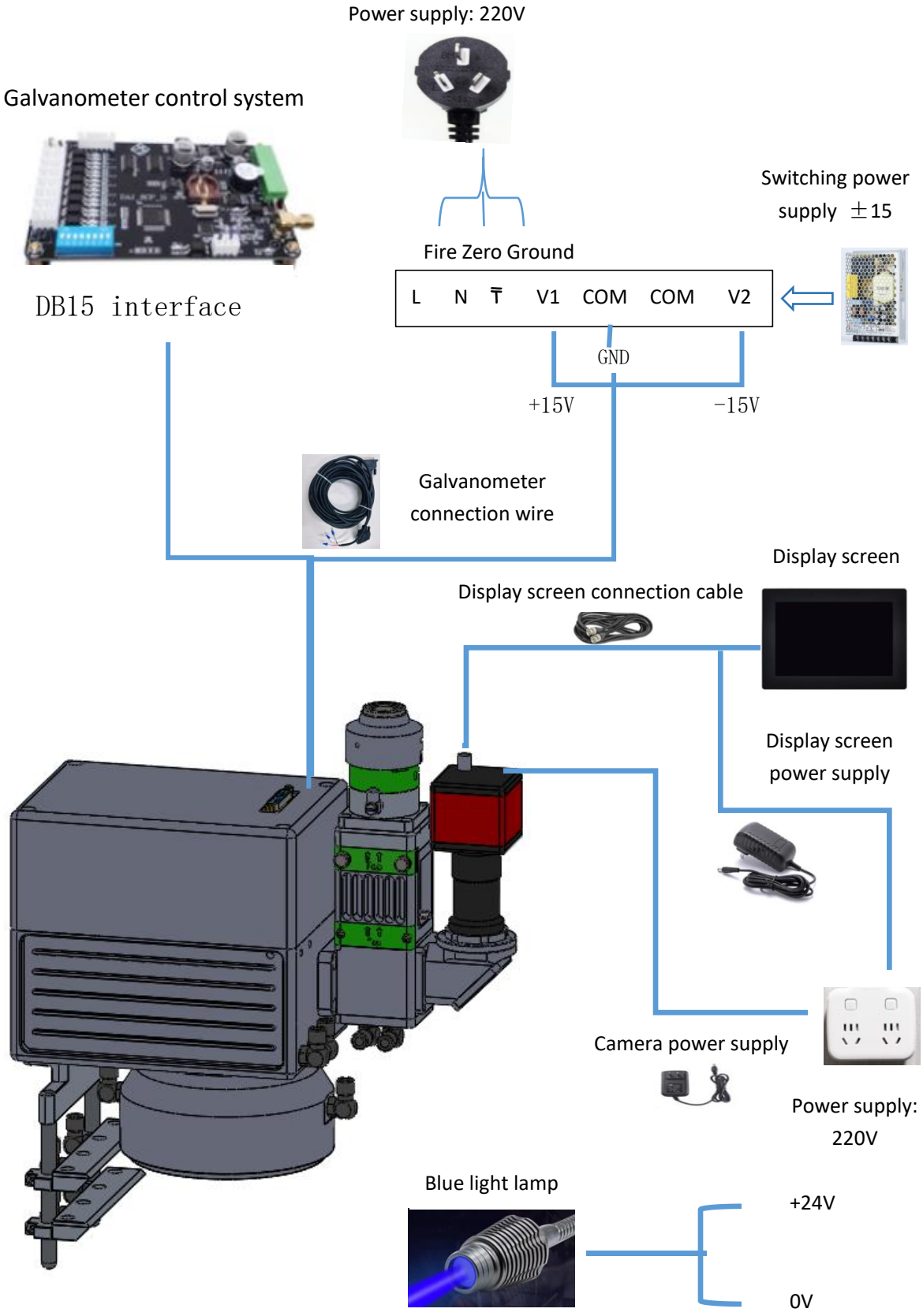
External dimensions (200*165*20.1)mm

The installation dimensions of the touch screen are shown in the following figure:

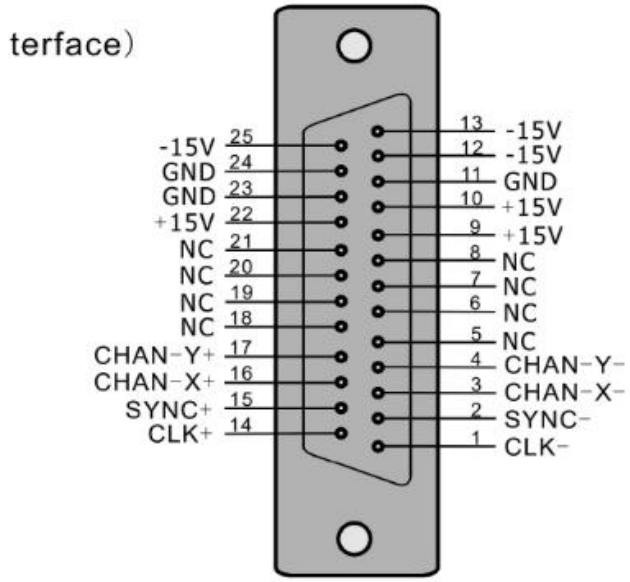




5.3 System Wiring



5.4 Definition of galvanometer control signal interface



The galvanometer welding head is a DB25 female interface

DB25 female header definition

Pin	Signal	Definition and Explanation
1	CLK-	Clock signal
2	SYNC-	Synchronous signal
3	CHAN-X-	X-axis galvanometer motor signal -
4	CHAN-Y-	Y-axis galvanometer motor signal -
5	NC	Remaining, suspended in mid-air
6	NC	Remaining, suspended in mid-air
7	NC	Remaining, suspended in mid-air
8	NC	Remaining, suspended in mid-air
9	+15V	External power input

10	+15V	External power input
11	GND	Power reference location
12	-15V	External power input
13	-15V	External power input
14	CLK+	Clock signal +
15	SYNC+	Synchronous signal
16	CHAN-X+	X-axis galvanometer motor signal +
17	CHAN-Y+	Y-axis galvanometer motor signal +
18	NC	Remaining, suspended in mid-air
19	NC	Remaining, suspended in mid-air
20	NC	Remaining, suspended in mid-air
21	NC	Remaining, suspended in mid-air
22	+15V	External power input
23	GND	Power reference location
24	GND	Power reference location
25	-15V	External power input

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