



Model SG7310
Galvanometer Scanner

Instruction
Manual

SINO-GALVO (BEIJING) TECHNOLOGY CO., LTD.

Company Profile

Sino-Galvo (Beijing) Technology Co., Ltd. is a high and new technology enterprise which is located in the Zhongguancun high-tech industrial parks. We specialize in optical scanning galvanometers and its related product's development, production and sales.

Since our company was established in 2001, we introduced the international advanced professional technology, and after several years' hard working, our company has developed a series of new laser galvanometer system with independent intellectual property. Our scan heads are widely applied in the laser precision engraving, laser cutting, laser welding, rapid prototyping, drilling positioning, medical cosmetology, scientific research and military field, etc.

Sino-Galvo owns a number of high standard electronics, optical and precision machinery research specialists. We also have the international first-class optical testing instruments and microelectronics test equipment. Relying on Chinese Ministry of Aviation's technology advantages, strict quality management systems and perfect production process, we can provide customers with the first-class products and comprehensive application solutions. Thus, our galvanometer scanner's performance has already reached the international leading level in this field.

Our products has already got the EU CE certification, and we also obtained a number of invention patent and other related intellectual property right certificates. The whole production process accord with ISO9001 quality system standard, and now we have won the major market share in the high-end application market in China, moreover, we exported our products to Italy, Britain, Spain, Singapore, India, Russia, America, etc.

Sino-Galvo depends on the leading technical superiority in laser industry, with the management idea of People-oriented, Innovation by science and technology, taking customer's demand as center to be looking forward to your visit and cooperation, and making a contribution together to Chinese laser industry.

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Chapter 1 Summary of SG7310 Scanning system

Sino-Galvo's galvanometer motors are designed by adopting the magnet-moving structure, combining the most advanced international photoelectric sensor technology and the PDM control mode, and using the Military-grade processes and technologies.

The model SG7310 galvo scanner has the good running stability, high positioning accuracy, fast marking speed, strong anti-interference ability, the overall performance of SG7310 has reached the international leading level in this field. The advantages are as following:

- Adopted the photoelectric sensors which imported from America, and owned the proprietary intellectual property rights.
- Differential photoelectric sensor for accurate detection of motor rotor position, good linearity, lower drift, high resolution and repeat positioning.
- Accurate load design for 10 mm mirrors, high accuracy of motor assembly, reasonable structure, very small static friction coefficient and zero offset, all ensured the best dynamic characteristics for the whole system.
- Drives with advanced detection ability of position and speed, greatly improved the dynamic response performance and scanning speed of the whole system.
- Design of overload, over-current and reverse connect protection, makes the system running more reliable.
- The whole system adopted the optimization Designing of electromagnetic compatibility, with high signal-to-noise ratio and strong anti-interference ability.
- This scanner system solved the common problems of motor temperature drift, signal interference and zero drift, etc.

Chapter 2 SG7310 Technical Parameters

SG7310 Motors & Drive board technical parameters

Motor Specification

Working Temperature	0-45°C
Linearity	99.9%
Setting Time	≤0.35ms
Scale Drift	<40PPM/°C
Zero Drift	<15μRad./°C
Long-term Drift Over 8 Hours	<0.5mRad
RMS Current	2.0A
Peak Current	15A(Max)
Maximum Scan Angle	±15°
Storage Temperature	-10 to +60°C
Resolution	12μrad
Repeatability	8μrad
Input Aperture	10.0mm
Beam Displacement	13.4mm
Motor Weight	120g
Frequency	≤1000Hz

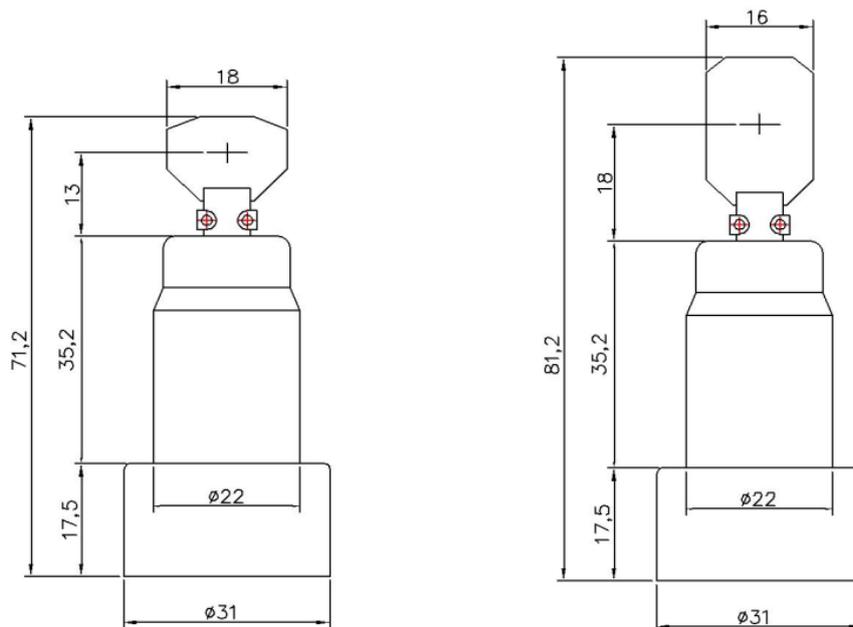
Servo Drive Board Specification

Input Voltage	±15VDC	
Interface Signals	Digital	XY2-100
	Analog	±5V, ±10V
Position Signal Input Resistance	1KΩ±1%	
Position Signal Input Scale Factor	0.33V/°	
Position Signal Output Scale Factor	0.33V/°	
Working Temperature	0-45°C	
Dimension(L×W×H)	75×50×28mm	

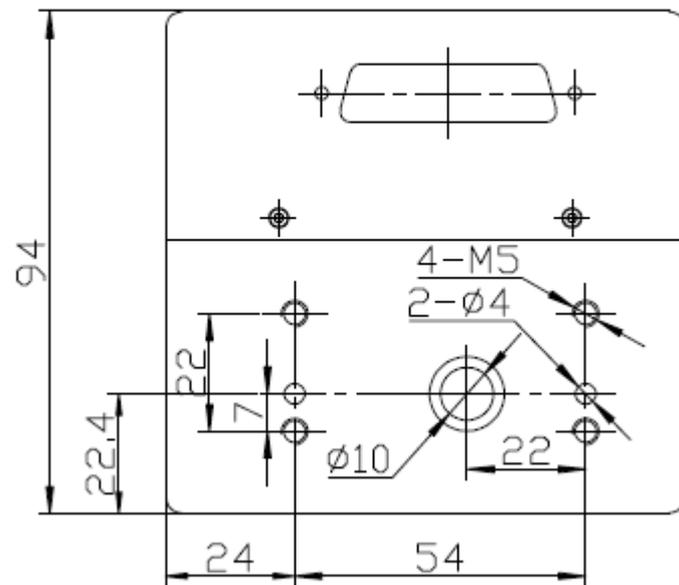
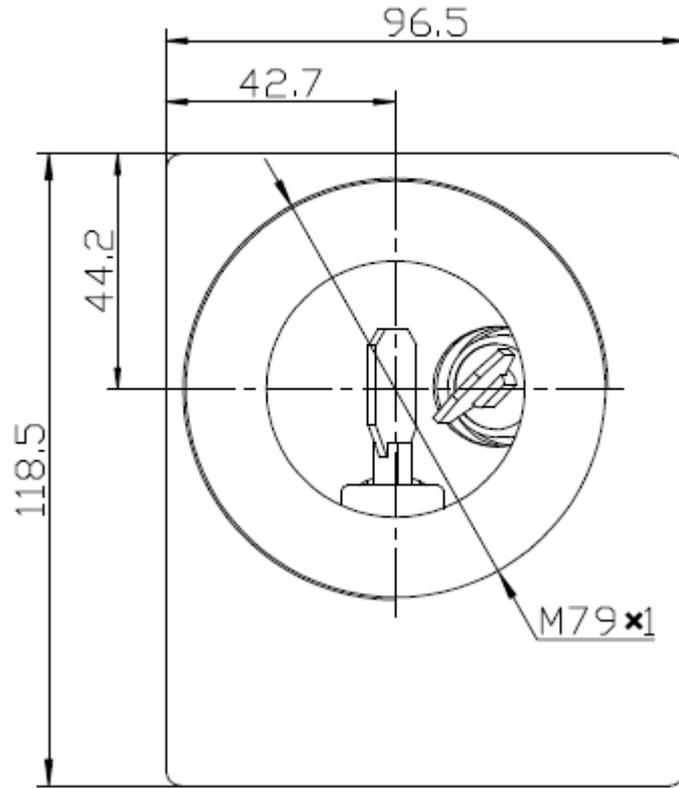
2.1 The Galvanometer Structure and Wiring



Scanner housing



Scanner motors drawing



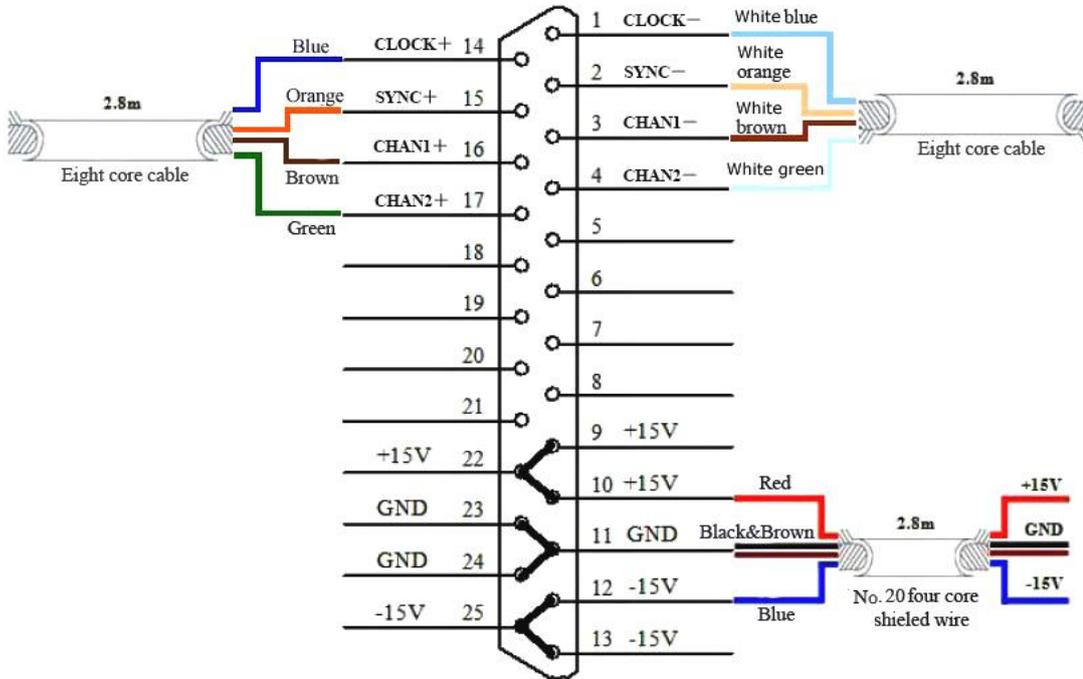
External housing size drawing

2.2 Power supply wiring diagram

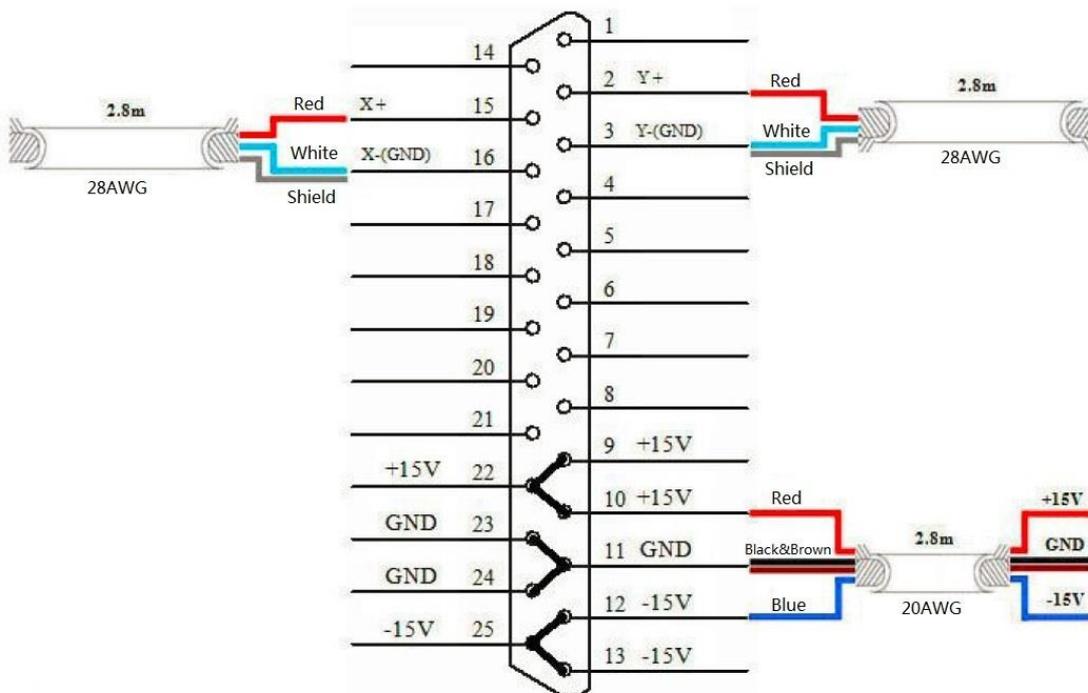


Power Supply

2.3 The External Wiring for DB25 Connection



Digital Wiring Diagram



Analog Wiring Diagram

Chapter 3 Self-checking and FAQ

Before starting up the whole system, please check carefully to confirm whether there is any problems, such as: plug virtual connection or without connection, two mirrors touched with each other, drive board signal input errors, etc. Only after finishing all checking, then you can turn on the power supply.

Fault phenomenon	Reasons	Solutions
System has no any reactions	Power supply was not turned on or the circuit did not connect well	Check if the power supply is connected well
Scan motor swings lightly after turning on	Too much interference or input signal circuit did not connect very well	Check the interference sources and the input signal circuit
Motor screams after turning on, the drive board and motor overheat	Driver board and motors did not connect well/The mirrors and clips become less crowded	Check the wiring/And checking the mirrors with clips
Mirror reflection power is weak	Light path is not straight	Adjust the light path of the marking machine; if can not solved, please contact with our company
Marking figures becomes one straight line	One motor can not move normally	Checking the wiring connection between the motors, drive boards and control board
Waves exist in the marking line	Grounding problems/ Surrounded by strong interference sources/The Anti-interference ability of marking control board is poor	Check if the ground connection is well/Check if there is a strong interference source surrounded/ Check the position control signal of marking control board

Special Notice:

1. Before starting up the marking system, please carefully check whether the wiring sequence of DB25 on the scanner housing is connected correctly or not, otherwise the galvanometer scanner can not work normally or even damage.
2. Two motors and drive boards must be connected according to corresponding serial numbers and can not be interchangeable, otherwise there will appear self-excitation phenomenon.
3. Please ensure the accuracy of the laser light path output, otherwise it will affect the accuracy of marking, or even it will lead to marking displacement and non-uniform of laser intensity, etc.

If you have any questions, please contact our Technical Services Department:
Service consulting hot-line: 400-055-8805

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