



Model JD2203
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 control system's development, production and sales, and has established the world's largest production base of industrial galvanometer scanners in Zhenjiang, Jiangsu province.

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 laser galvanometer system and software control system with independent intellectual property, which are widely applied in the laser marking/engraving, medical cosmetology, 3D laser printing, laser cleaning, laser welding, laser cutting, scientific research, and military fields, etc.

The R&D center of Sino-Galvo located in Shangdi Information Technology Industry Base, owns a number of professional electronics, optical, precision machinery research and software control specialists. 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.

Our products has already got CE and RoHS certification, quality control in accordance with ISO9001 quality system standard, and obtained 8 invention patents and other related intellectual property right certificates. We have won more than 50% market share in the mid and high end application market in China, moreover, we exported well our products to the United States, Germany, Russia, Italy, Turkey, Poland, Brazil, South Korea, and India, 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 JD2203 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 JD2203 galvo scanner has the good running stability, high positioning accuracy, fast marking speed, strong anti-interference ability, the overall performance of JD2203 has reached the international leading level in this field. The advantages are as following:

- Adopted the photoelectric sensors which are 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 JD2203 Technical Parameters

JD2203 Motors & Drive board technical parameters

Motor Specification

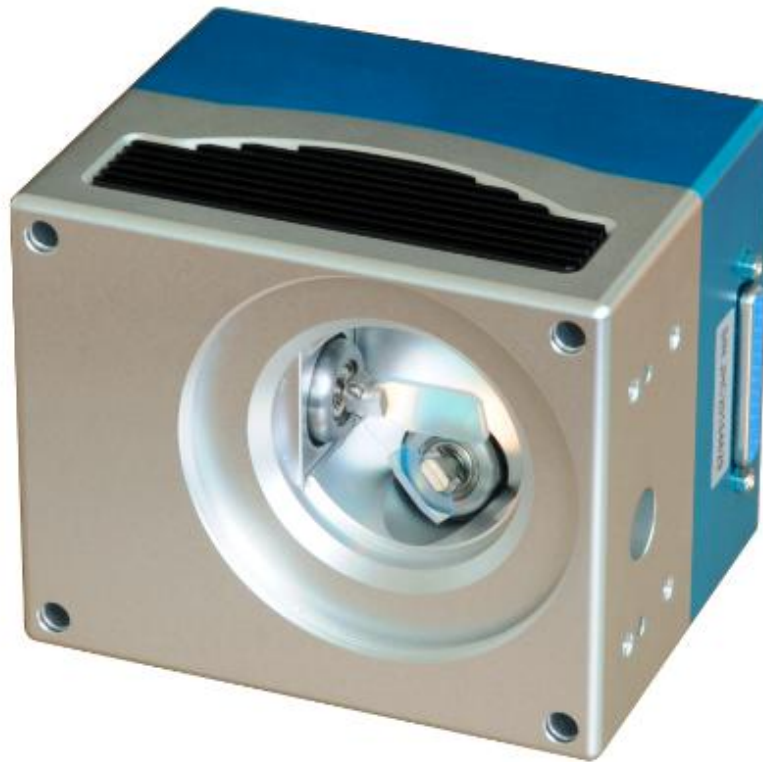
Working Temperature	0-45℃
Linearity	99.9%
Setting Time	≤ 0.35ms
Scale Drift	<40PPM/℃
Zero Drift	<15μRad./℃
Long-term Drift Over 8 Hours	<0.5mRad
RMS Current	2.0A
Peak Current	15A(Max)
Maximum Scan Angle	±15°
Storage Temperature	-10 to +60℃
Resolution	12μrad
Repeatability	8μrad
Input Aperture	10.0mm
Beam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

Servo Driver Board Specification

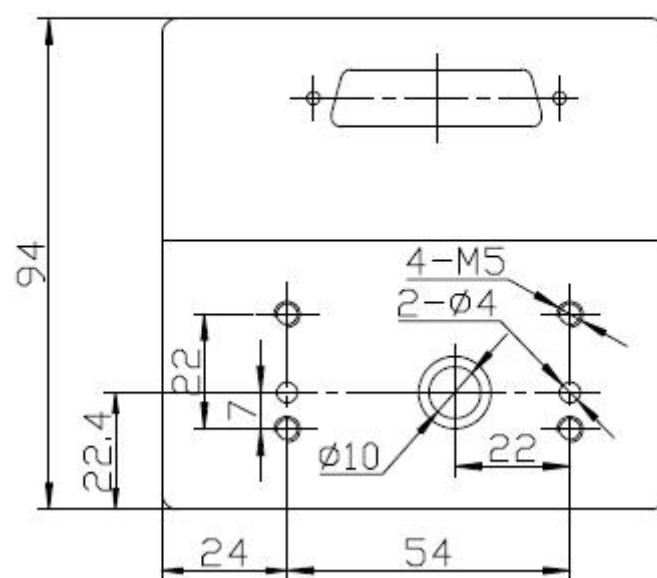
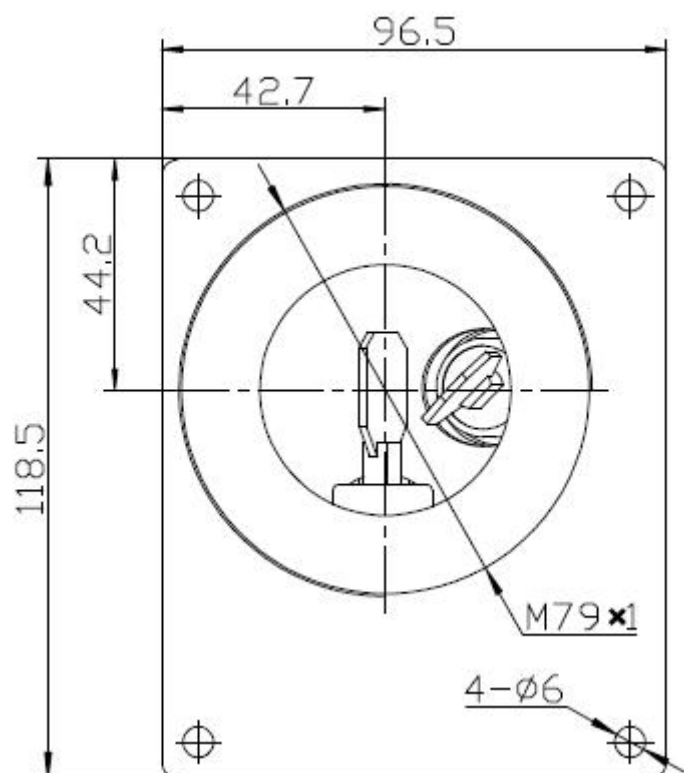
Input Voltage	±15VDC
Interface Signal Digital	XY2-100
Position Signal Input Resistance	1KΩ±1%
Position Signal Input Scale Factor	0.33V/°
Position Signal Output Scale Factor	0.33V/°
Working Temperature	0-45℃
Dimension(L×W×H)	75×50×28mm

Chapter 3 The Galvanometer Structure and Wiring

3.1 Scanner Housing



3.2 Housing Dimension Drawing

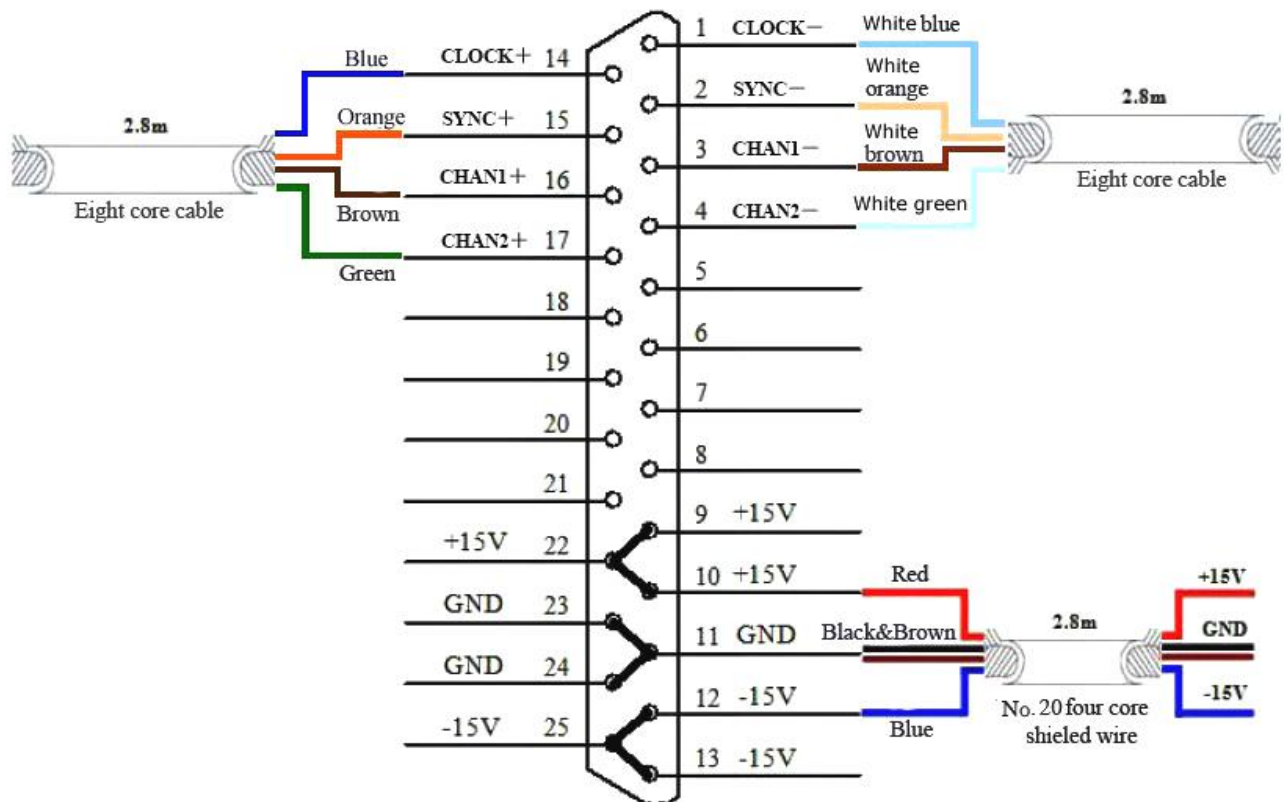


Connecting table

3.3 Power supply wiring diagram



3.4 The external digital wiring for DB25 connection



Chapter 4 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	No power supply or the circuit did not connect well.	Check if the power supply is connected well
Red light keeps on with "KaBa" sound	Position limitation protection	Check if over input signal amplitude. If the signal is normal, please contact us.
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 squeals after turning on, the drive board and motor overheat	Driver board and motors did not connect well/The mirrors or clips become loosen.	Check the wiring/ the mirrors and clips.
Mirror reflection power is weak	Light path is not aligned well	Align the light path of the marking machine; If the light path is normal, please contact us.
Marking graphics 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
Marking square becomes rhombus or one side not straight	Abnormal signal output from D/A board.	Replace D/A board, if not solved, please contact us.

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.
4. Please DO NOT adjust potentiometers on driver board or dissemble the galvanometer scanners without authorization.

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

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