

SCANHEAD_CUH_V1

Manual of GO2 Serial Galvo head

Please read it before using the product

Firstly, thank you for your interest in our GO serial Galvo head. Please read this manual before you use it.

This manual includes some information such as type, principle, installation, notes and fault judgement about GO serial Galvo head.

Please feel free to connect with me if you have some question about our product.

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1 Warning

1. We finish the adjust work to GO serial Galvo in factory time, the user had better not adjust it.
2. Don't connect wrong polarity for input power supply of GO serial driver card, or the Galvo system will break down.
3. During the installation, please protect the mirror from polluting.
4. Because of there are many chips in the driver card and scan head, so during the installation, please pay attention to static defence problem, in order to avoid chip broken problem.
5. When insert or draw plug, please hold the plug body, don't draw the string directly, in case of break the string.

2 Basic safety instructions

2.1 Laser safety

The user is responsible for safe operation and for safeguarding the surrounding area against hazards that can be caused by laser radiation. OEM customer must ensure compliance with all local and national regulations.

3 Product introduction

3.1 Brief introduction

Galvo system is a kind of servo control system that has high precision, high speed and composed of driver card and high speed swing motor. It mainly used in laser marking, laser show, stage lighting controlling, and so on.

The working principle of the system: input a position signal, the motor will swing according to convert

proportion. The whole process adopts close-loop feedback control: includes position sensor, error amplifier, power amplifier, position deviation integrator and current integrator, the five control system work together to finish the control work.

The GO serial Galvo heads system adopts the newest generation integrated circuit, and the driver card has 4-layers structure and adopts various of anti-interference method. So the system has strong anti-interference, good reliability, good linearity, high repeatability precision, short response time, also its volume and weight is small, it is easy to install and transport.

3.2 Classification

According to actual requirement:

According to size of the motor:

22 type Galvo head: Diameter of the motor is 22mm, most used to control mirrors with aperture value under 12mm.

28 type Galvo head: Diameter of the motor is 22mm, most used to control mirrors with aperture value above 12mm.

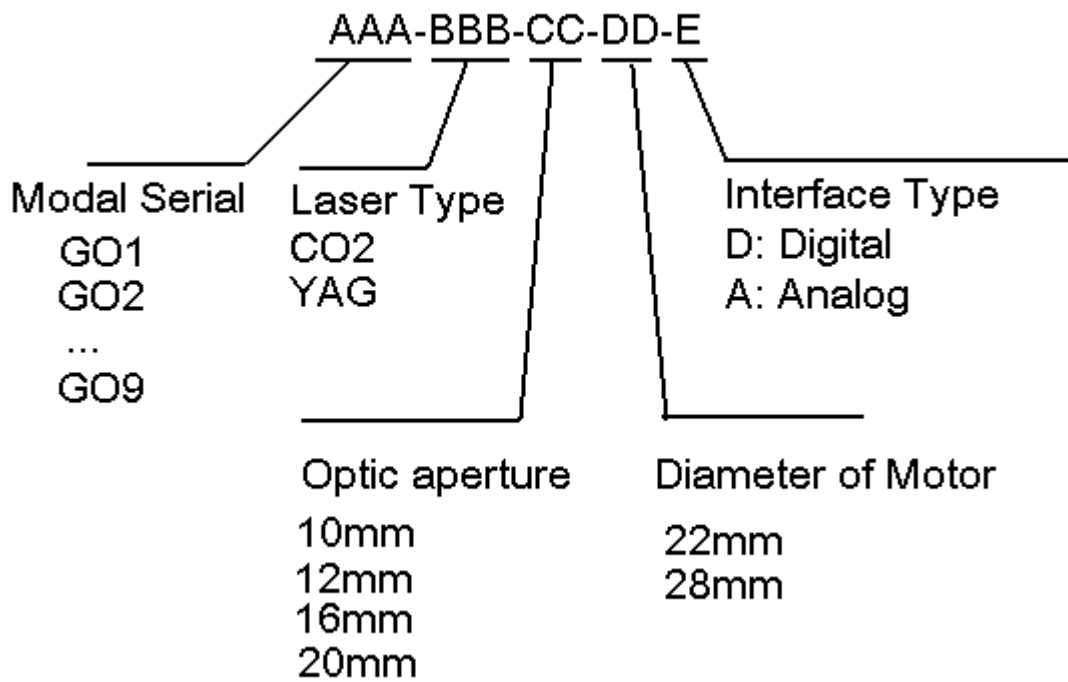
According to the position input signal:

Analog: accept analog position control signal, single input, $\pm 5V$ analog signal.

Digital: accept digital position control signal, XY2—100 protocol.

3.3 Model definition

Model definition includes 5 parts, which shown as follows:



AAA:

Product serial number, named GO series where x is from 1 to 9.

GO1 is the lowest, and GO9 is the highest version. Only GO2 series is available now.

BBB:

Laser type, CO2 or YAG.

CC:

Optical aperture size of the mirror. 10mm / 12mm / 16mm / 20mm is available.

DD:

Diameter of the motor. 28mm or 22mm.

E:

Interface type. D – Digital interface A – analog interface

For example: GO2-YAG-12-28-D

Optic aperture is 12mm, YAG mirror, digital interface, diameter of the motor is 28mm.

4 Attention about GO serial Galvo

1. Attention the heat dissipating of the scan heads

When working the scan head will radiate much heat, and make sure that when working, the surface

temperature of the scan heads should not over 45°C.

2. Make sure that the Galvo head connect with ground well. To increase the anti-interference ability of the system, shell of the GO scanner should connect with shell of the system and ground well.

4.1 The first start and adjust of the Galvo

1. Before starting, please check the connection, especially for the $\pm 24\text{VDC}$ power supply. If the input port of the power supply connects with a wrong place, the driver card will be broken.
2. First start. Open the power supply, after 3 seconds, the swing motor stay in the center automatically. Turn the mirror gently by holding the brim of the mirror, the swing motor basically should be 'freeze'. The swing motor will become hard when it is controlled by the step motor. Attention that, touch the brim of the mirror, but don't touch the surface of the mirror.
3. Input position signal to the XY driver card, the Galvo will work at once.

5 Specification

System response time: $<0.5\text{ms}$ (it is up to inertia of the mirror)

Analog Signal Input Resistance: $100\text{K} \pm 1\%\Omega$ (Single-ended input)

Position Signal Output Resistance: $1\text{K} \pm 1\%\Omega$

Position Signal Input Scale Factor: $0.5\text{V}/0$ (input 0.5V , the mirror swing 10°)

Position Signal Input Range: $\pm 5\text{V}$ (max)

Position Signal Output Scale Factor: $0.5\text{V}/0$

Electronic circuit stability: $20\text{ppm}/^\circ\text{C}$

Input voltage request: $\pm 24\text{VDC}$

Maximum input current: 10A

Average input current: 2A

Operating temperature range: $-10\sim 40^\circ\text{C}$

Size of driver card:

length: 85mm

width: 65mm

height: 40mm

6 Attachment list:

Double $\pm 24\text{V}/2\text{A}$, one DC power supply, 220V-50/60HZ.

User manual about GO serial Galvo

Galvo head (drivers and mirrors) as follow:



Fig 1 Galvo head

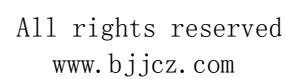


Fig 2 drawing of GO-22 Galvo head

8 Size of GO-28 Galvo head (unit: mm)

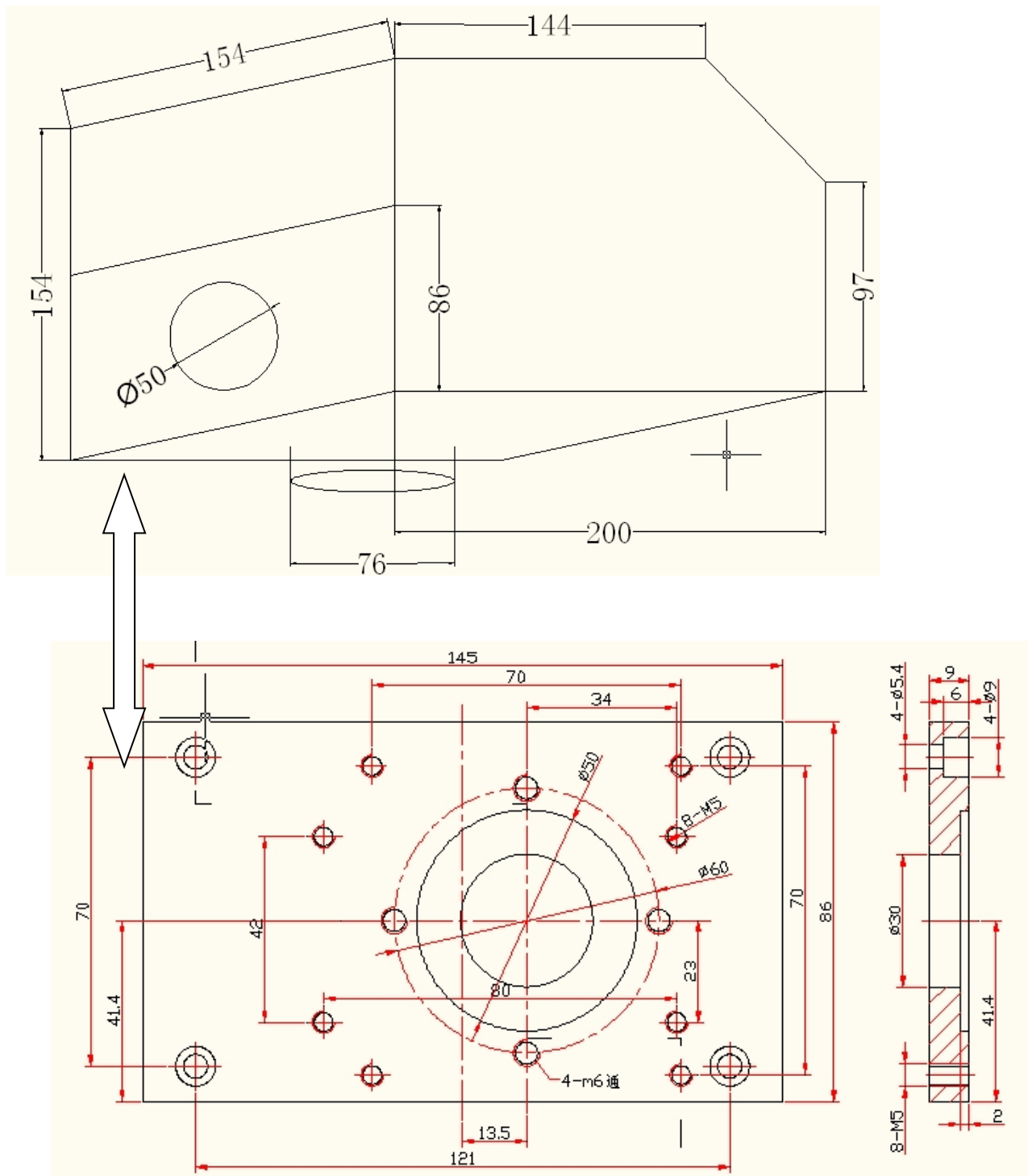


Fig 3 drawing of GO-28 Galvo head

9 Analog Galvo head pins definition

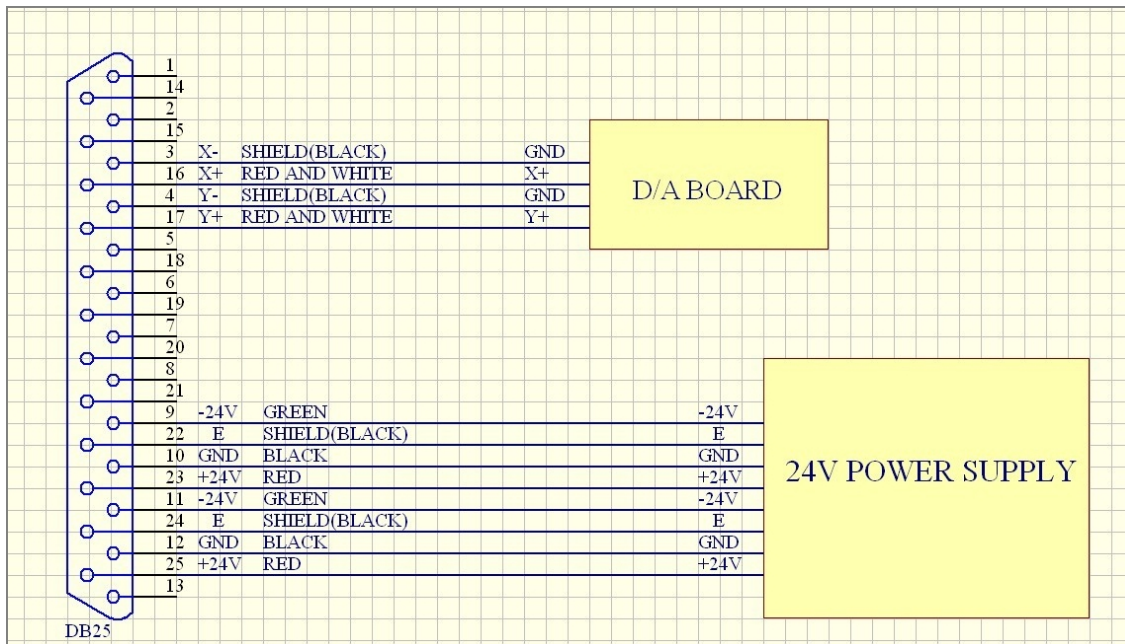


Fig 4 connection of analog head DB25

Pins definition as follows:

Pins	Signal	Description
1,14	SENDCLK	Clock signal
2,15	SYNC	Synchronized signal
3,16	CHAN1	X-axis signal
4,17	CHAN2	Y-axis signal
9	X -24V	Power supply, X-24V input port
22	X E	X shielding layer connector, connect with earth
10	X GND	X power supply to the ground
23	X +24V	Power supply, X+24V input port
11	Y -24V	Power supply, Y-24V input port
24	Y E	Y shielding layer connector, connect with earth
12	Y GND	Y power supply to the ground
25	Y +24V	Power supply, Y+24V input port
5、6、7、8、18、19、20、21	NULL	Reserved

10 Digital Galvo head pins definition

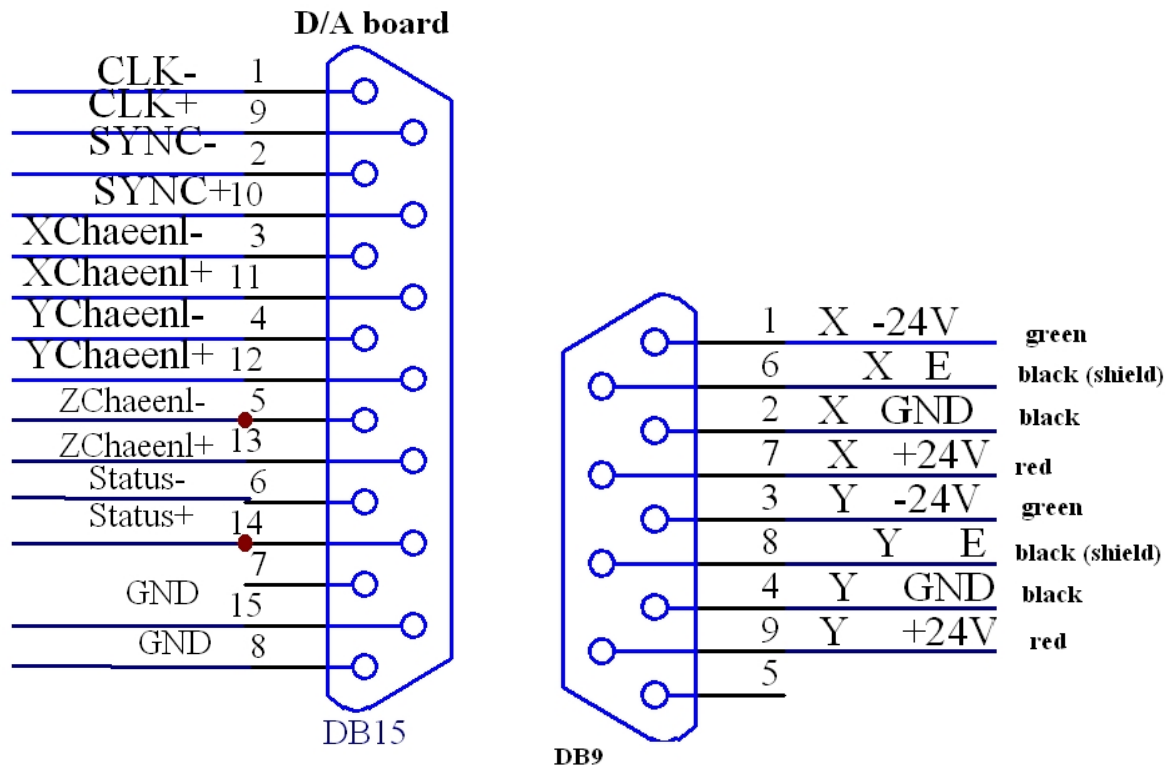


Fig 5 pins definition of digital head DB25

Pins definition as follows:

	Pins	Signal	Description
DB15	1,9	SENDCLK	Clock signal
	2,10	SYNC	Synchronized signal
	3,11	XChaeenl	X-axis signal
	4,12	YChaeenl	Y-axis signal
	5,13	ZChaeenl	Z-axis signal
	6,14	Status	
	15,8	GND	Signal ground
	7,	NULL	Reserved
DB9	1	X -24V	Power supply, X-24V input port
	6	X E	X shielding layer connector, connect with earth
	2	X GND	X power supply to the ground
	7	X +24V	Power supply, X+24V input port
	3	Y -24V	Power supply, Y-24V input port
	8	Y E	Y shielding layer connector, connect with

			earth
4	Y	GND	Y power supply to the ground
9	Y	+24V	Power supply, Y+24V input port
5、	NULL		Reserved

11 Connection between GO analog scanner and JCZ LMC_PCI

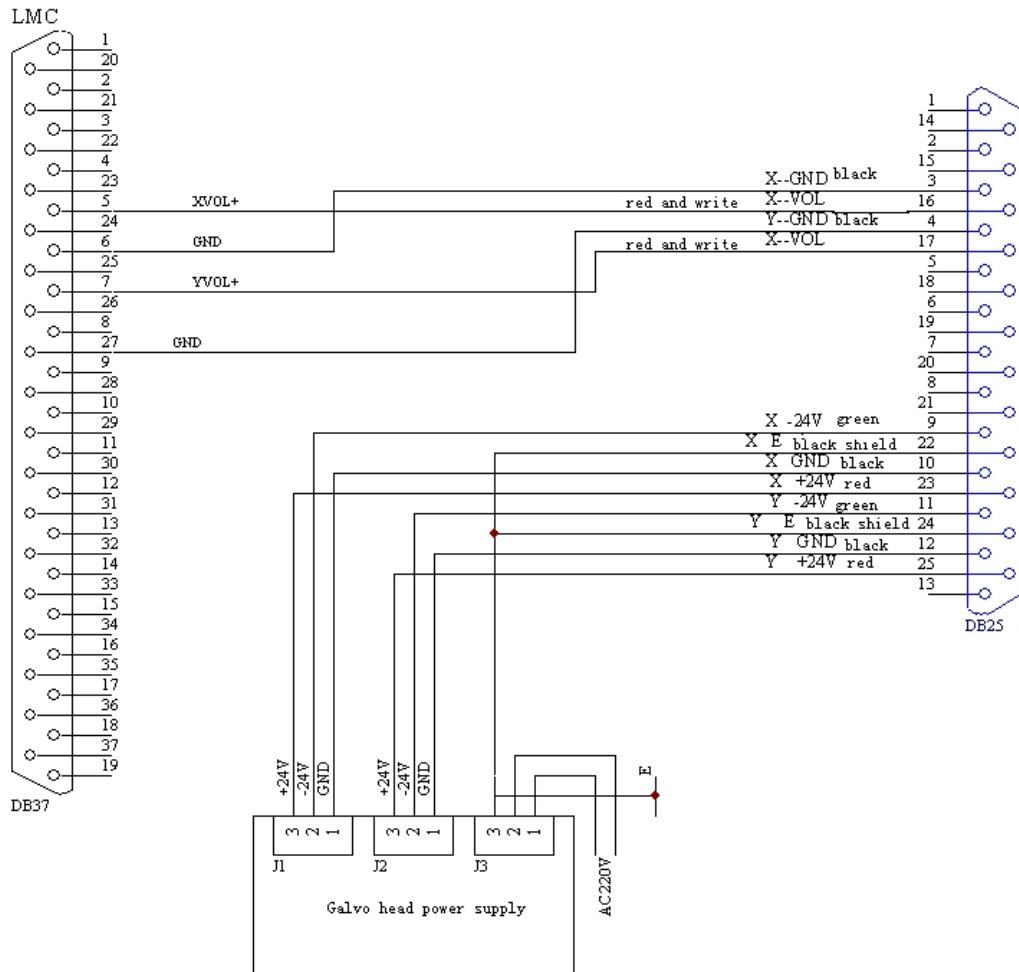


Fig 6 connection of analog head and PCI board

12 Connection between GO digital scanner and JCZ LMC USB digital marking board

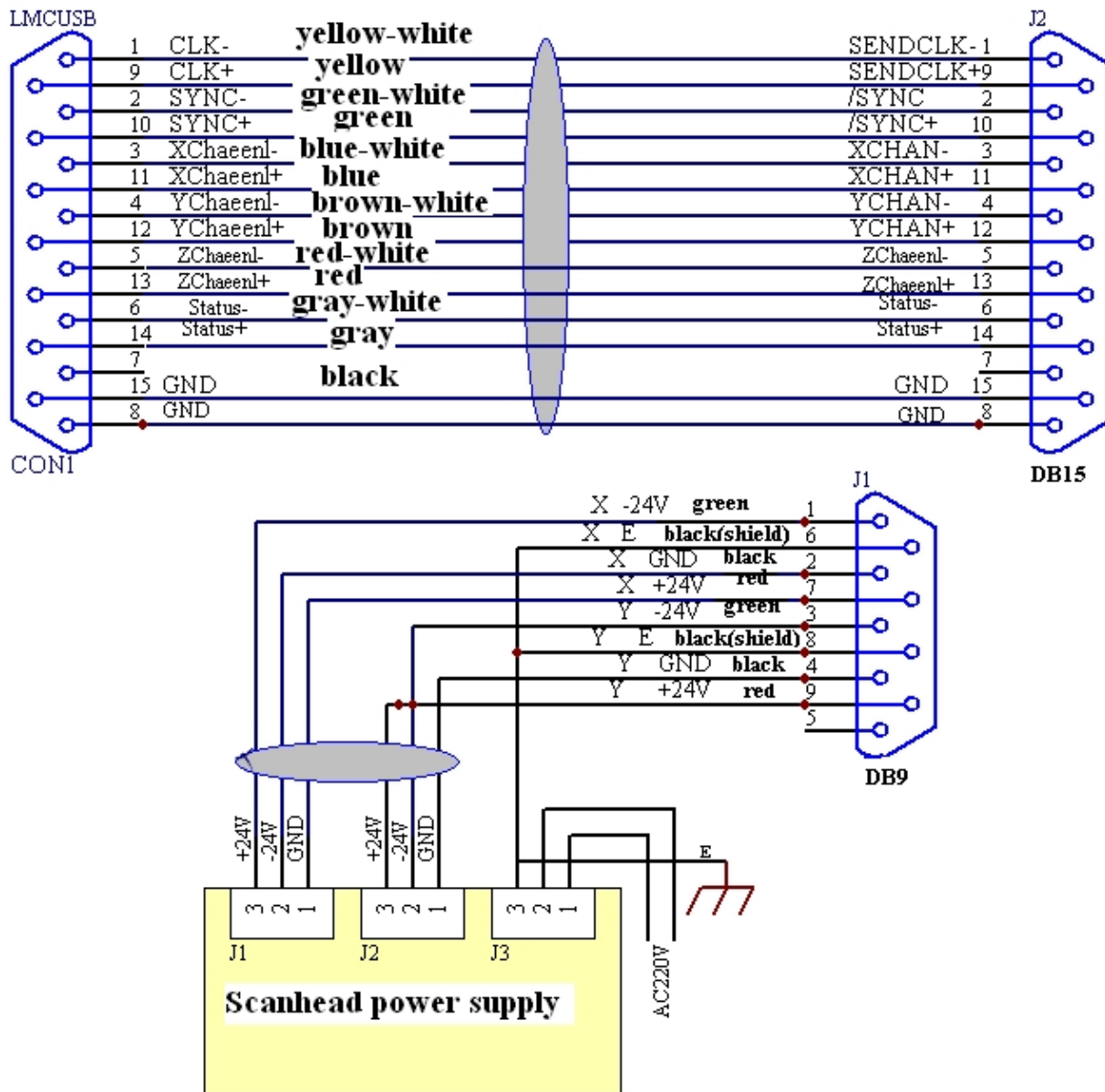


Fig 7 connection of digital head and USB board