DLC-2(DSP Laser Control Electronics-2)User manual

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DLC-2(DSP Laser Control Electronics-2)Control board manual

Version Update

Version	Date	Note
V1.0	20180202	Create

DLC-2(DSP Laser Control Electronics-2) Board USER Manual

The DLC control board and EZCAD3 software can perform real-time synchronous control of the 2D/3D scanning galvanometer and laser. The main features of the board are as follows:

(1) supports the enhanced version of the protocol data XY2-100 (X, Y, Z three-axis Scanhead)

(2) Fiber, CO2, QCW, SPI, UV, YAG and other lasers can be supported by the laser expansion card.

(3) Support 10 input and 8 output ports

(4) 12V power supply, minimum Current requirement 3A

(5) Support fly marking function

(6) Support offline marking function

(7) Support 16Bit/18Bit galvanometer, can be customized according to the actual galvanometer protocol

The board interface is as follows:

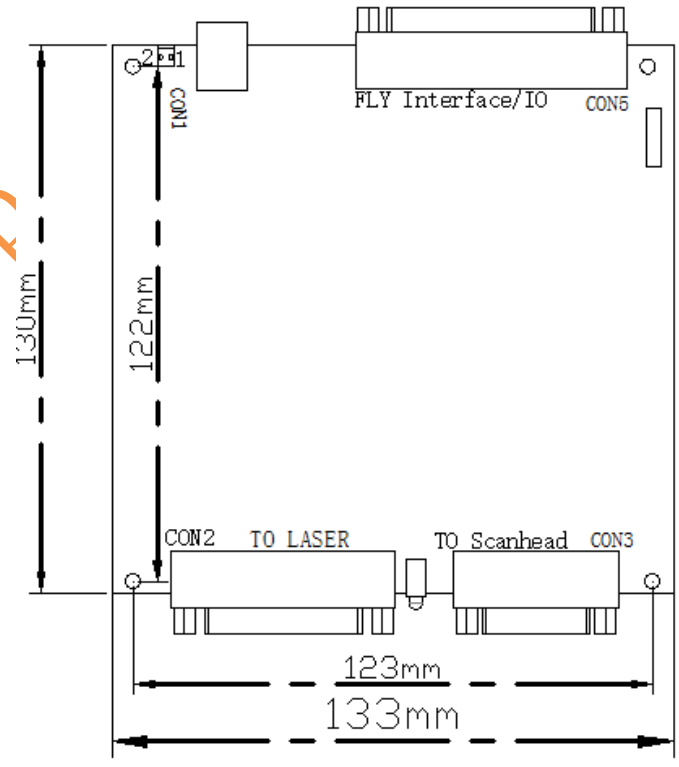


Figure 1: Board Dimensions

。There are two LED indicators on the board, and the green light is on after the board is powered on. During the marking process, the red light is on when the laser is marking.

CON1: power connector, 2P green terminal socket;

CON2: laser interface, supports all lasers, DB25 socket (female);

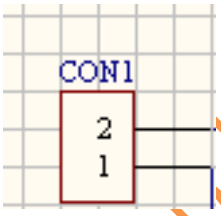
CON3: galvanometer interface, support for enhanced XY2-100 data protocol, can drive 2D/3D galvanometer, DB15 socket;

CON5: IO interface for fly marking interface and input and output digital signals, DB37 socket.

Each interface description:

CON1: Power

■ The DLC-2 controller card supports wide voltage DC power supply (5.5V-24V). It is recommended to use 12V DC power supply. It is recommended to use a 12V/3A DC power supply. The power supply is connected from the CON1 2P green terminal pin. Which is close to the silk screen printing power for the 2 pin, close to the USB interface is 1 pin.



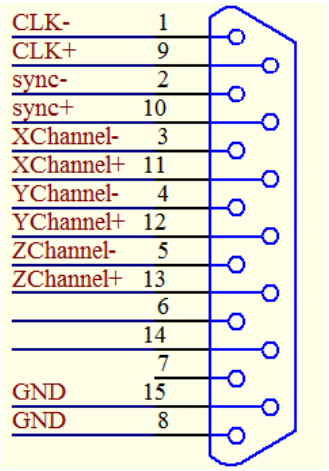
CON1 Pins	Name	Instructions
2	VCC	+12V. The positive side of the power supply
1	GND	GND. The negative side of the power supply

Figure/Table 2: Power Pin Interface Definitions

CON3: galvanometer interface

The galvanometer interface (CON3 interface) supports the enhanced XY2-100 data protocol and can drive 2D/3D galvanometers. The interface type is: 15-pin double-row pin (female, 2.54 mm pitch). Pins are defined as follows:

PIN	Name	Pin description



1, 9	Clock signal	According to standard protocols XY2-100 output galvanometer data.
2, 10	Synchronization signal	
3, 11	X axis data	
4, 12	Y axis data	
5, 13	Z axis data	
8, 15	Ground signal	
Other	Reserve	

Figure / Table 3 galvanometer interface definition

For a commonly used two-dimensional galvanometer, only four signals, CLK, SYNC, X Channel, and Y Channel, and 9 signal cables for GND are needed. Digital signals are recommended with shielded twisted pair connections.

CON2: Laser Interface

PIN	Name	Pin description
1, 2, 3, 4, 5, 6, 7, 8	P0---P7	Laser source power control interface
9	Latch	Laser source power latch signal
11, 12, 16, 21	SGIN0---SGIN3	Laser source state input signal
18	MO	Laser source working enable
19	AP	Laser source on/off
20	PRR	Laser source frequency signal
22	Red light	Laser source red light output
23	EM Stop	Laser source emergency stop output signal
Other	Reserve	

The laser interface (CON2 interface) supports all lasers and controls different lasers to be switched by the Ezcad3 software >

parameter (F3) laser control settings. Note: When switching the laser type, be sure to turn off the laser power, set the correct laser parameters, and then turn on the laser power. Interface type: 25-pin double-row pin (female, 2.54mm pitch)

(1) Definition of Fiber Mode Pins

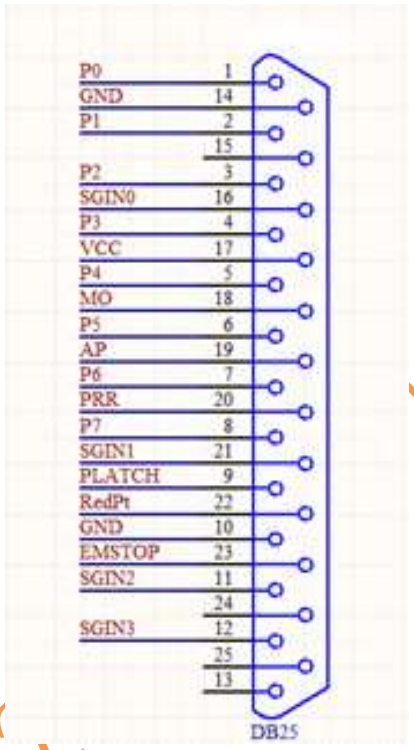
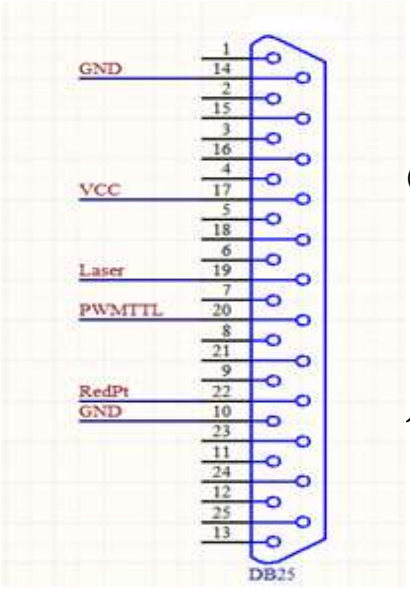


Figure / Table 4 CON2-Fiber mode pin definition



(2) CO2/YAG mode pin definition

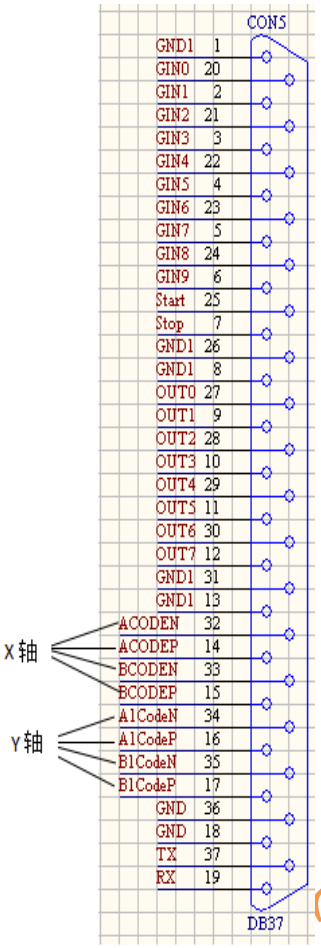
PIN	Name	Pin description
10, 14	GND	

Figure/Table 5 Pin definition for CON2-CO2/YAG mode

19	Laser	。 Laser switch signal (light gate signal), TTL output. Constitute loop with GND signal.
22	REDPT	The red light indicates the output port. TTL output. The reference signal is GND.
20	PWMTTL	PWM signal. TTL output. The reference signal is GND. For the CO2 Laser source, this signal is used to set the power of the Laser source and also output as a Tickle signal. For the Yag Laser source, this signal is used as a repeat frequency signal for the Q drive.

PIN	Name	Instructions
20，2，21，3，22，4，23，5，24，6	GIN0~GIN9	input signal 0~9 Positive input terminal
27，9，28，10，[illegible]	OUT0~OUT7	Output put signal0~7
25，7	Start/Stop	Reserve

DB37:IO and fly marking



32，14	ACODEN/ ACODEP	Encoder input A-/ A
33，15	BCODEN/ BCODEP	Encoder input B-/ +
34，16	AICodeN /AICode	Encoder input A-/
35，17	BICodeN /BICode	Encoder input B-/ +
37	TX	RS232 Data send
19	RX	RS232 Data receive
36,18	GND	GND for RX/TX
1，26，8，31，	GND1	GND for input