Trocen 乾诚

AWC708 Plus Motion Control System

User Manual

Laser Motion Control System

RV 1.4

2017.06

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Patent

Trocen has held the patent rights for our laser motion control system.

Attention!	Users have the responsibility to point out the design error and establish protection mechanisms. Trocen does not accept any responsibility or liability for any damage or loss resulting from improper operation.

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Version

Ver. No.	Revision Date
V1.0	2015/08/17
V1.1	2015/12/17
V1.2	2016/3/17
V1.3	2016/5/09
V1.4	2017/06/12

Relevant Documents

- AWC708 Plus Panel Instruction
- LaserCAD User Manual

AWC708 Plus User Manual

Contents

1. Outline

1.1. Terms

Terms	Explanation
LaserCAD Software	LaserCAD is a complementary software with auto typesetting for laser motion control system.
Panel	They all refer to 4.3'' color TFT LCD display.
Panel Wiring Board	Both panel and wiring board are playing major roles, integrating signal I/O with control card of driver.
Hardware	Including panel, wiring board and accessories

1.2. Snapshot

AWC708 Plus series, high efficiency in production, invented by Trocen for around 5 years, combines *LaserCAD* with controller and reduce product costs.

Features of LaserCAD:

- User-friendly and versatile
- Compatible with CorelDraw and Auto CAD
- Support the file format like AI, PLT, DXF, etc.
- Basic graph drawing

Features of Wiring Board:

- High DSP, quick calculating and optimal algorithm.
- 4.3'' color TFT LCD display with concise operation interface.
- Optical coupler, anti-electromagnetic interface and system stability.
- Faster reading files under USB or network connection.
- 6 axes, 4 laser heads controlling and servo motor is controllable.

2. LaserCAD Installation

You can go through *LaserCAD User Manual* for more details about installation and how-to-use LaserCAD.

3. Hardware Installation

Users will get further to know hardware parts of AWC708 Lite series and how they are connected.

3.1. Hardware Parts

3.1.1. Accessories

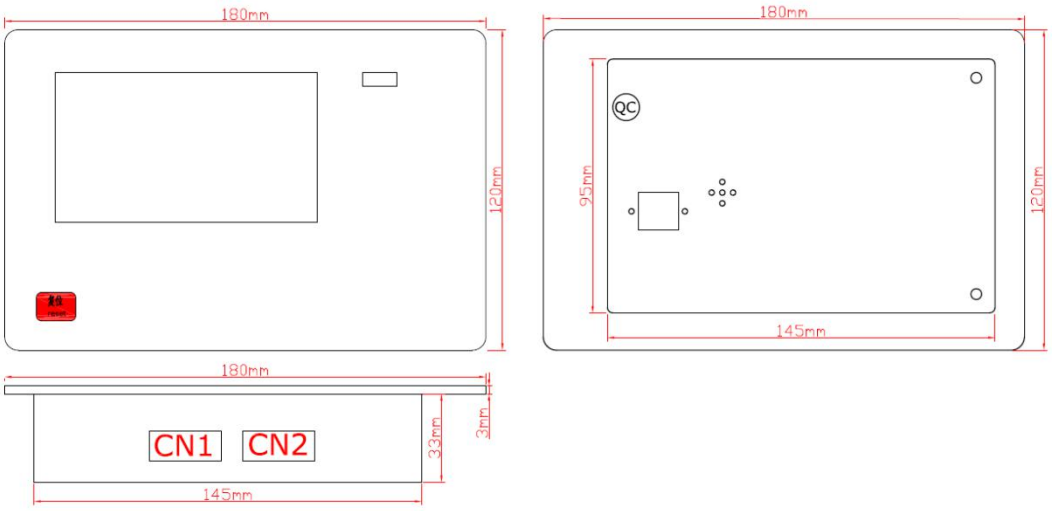
Title	Overview	Explanation
USB Cable		Connect computer and panel.

Network Cable		Connect computer and panel.
CN Cables		CN1&CN2 as one set to connect wiring board and panel.
Extension Cords		Extension cords allow for long distance between USB and network cable.

3.1.2. Panel

3.1.2.1. Overview of Panel

3.1.2.2. Size of Panel

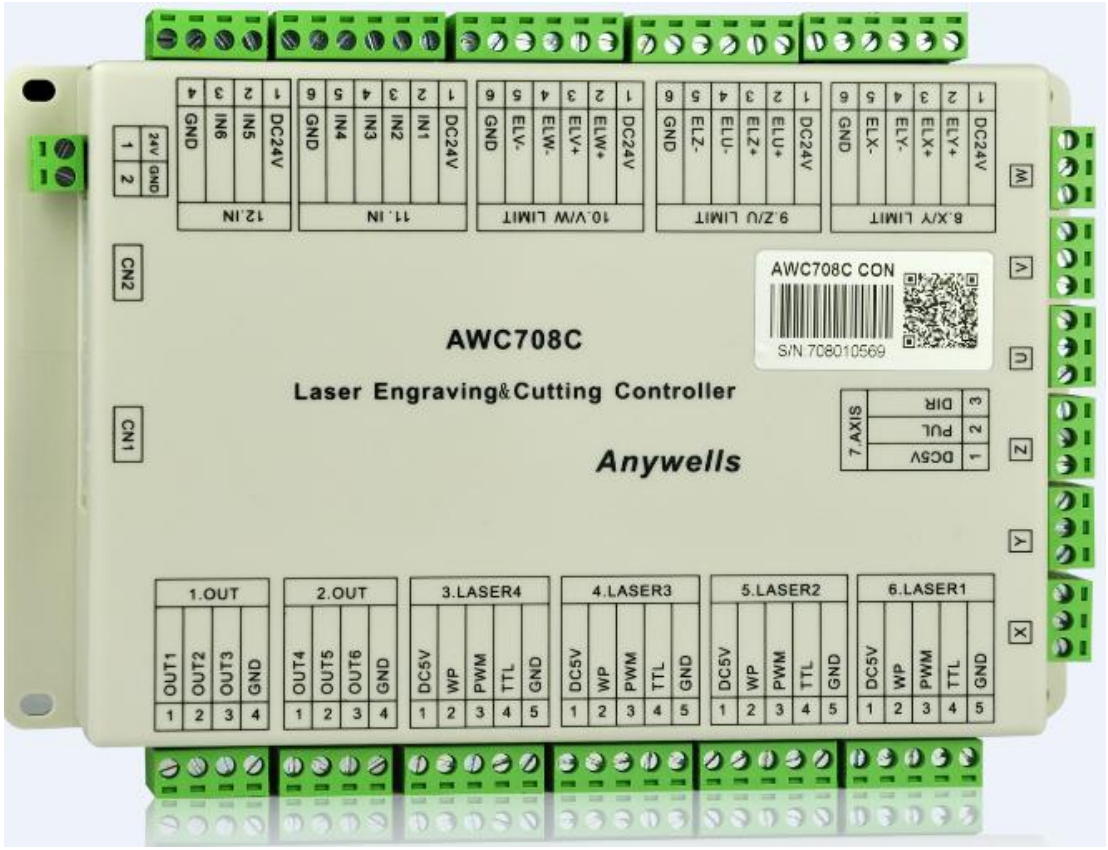


3.1.3. Wiring Board

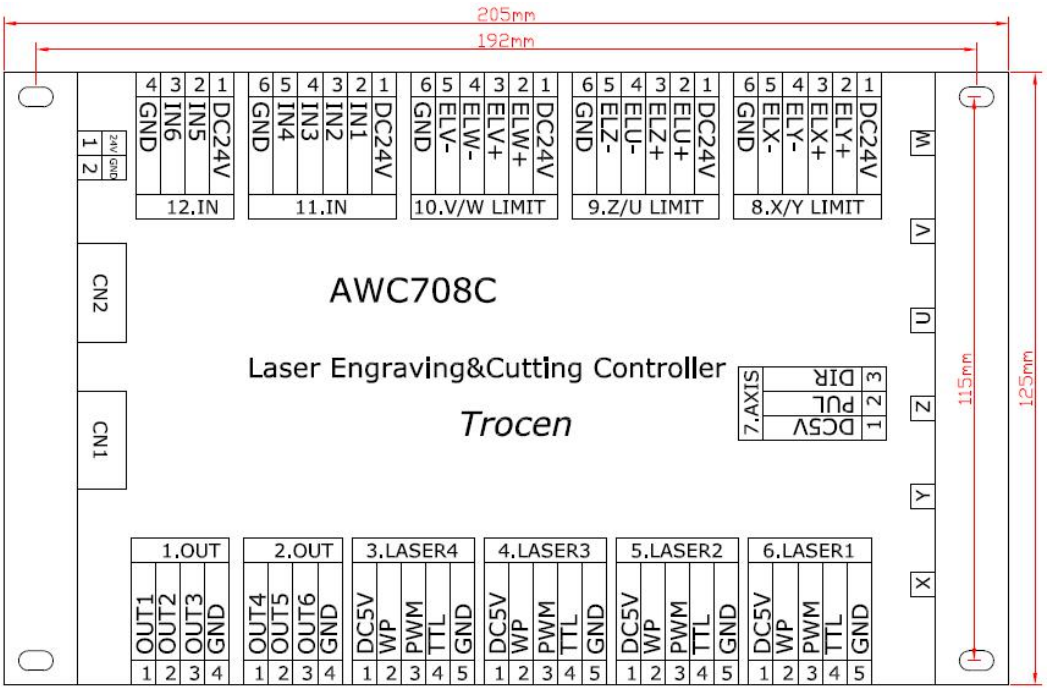
Wiring board plays a role of connecting panel and other parts, including:

- Connecting to driver
- Detection of limit signal from axis
- Detecting input signal
- I/O signal and corresponding power supply unit

3.1.3.1. Overview of Wiring Board

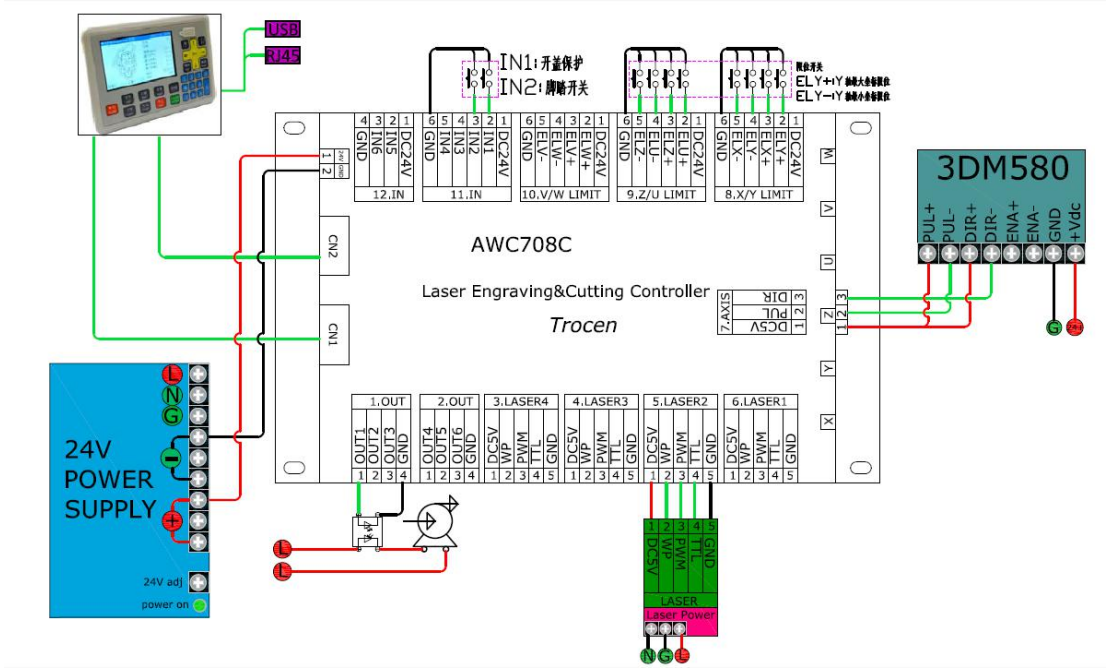


3.1.3.2. Size of Wiring Board



3.2. Electric Connection

3.2.1. Wiring Diagram



3.2.2. Explanation About Unit Port and Wiring Diagram of Wiring Board

3.2.2.1. Power Supply Port on Wiring Board

The power supply for wiring board and panel and pay more attention to polarity when you are connecting them.

Port No.	Title	Explanation
1	24V	24V positive polarity
2	GND	24V grounding

3.2.2.2. Port of Panel and Wiring Board

Connect panel to wiring board with CN cables.

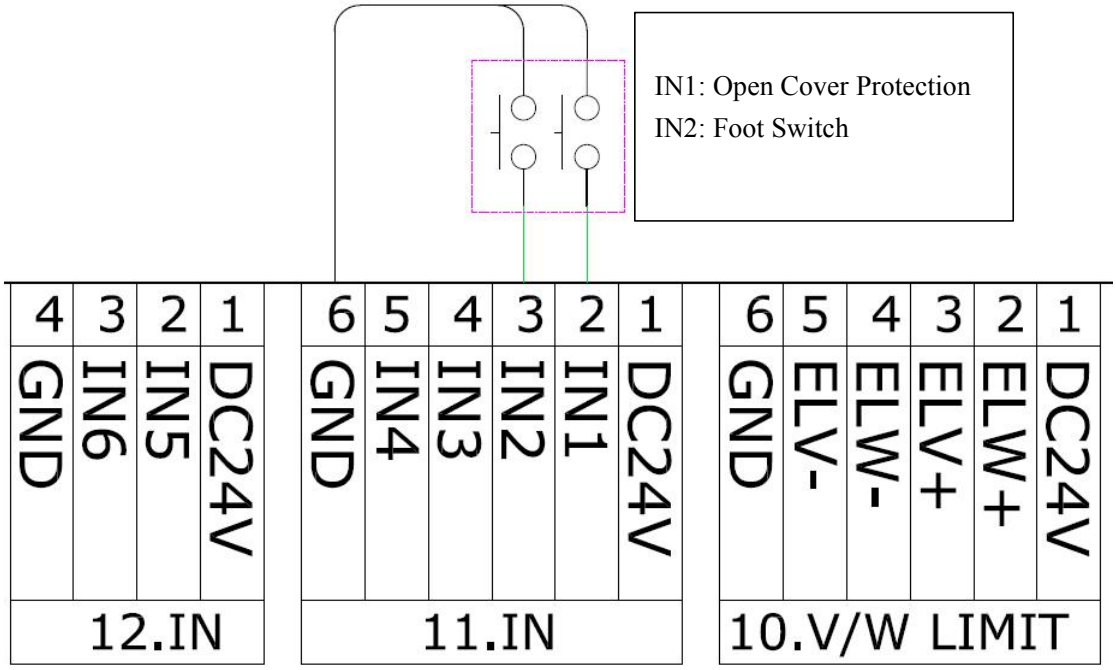
Title	Explanation
CN1	Connect CN1 to panel
CN2	Connect CN2 to panel

3.2.2.3. Signal Input Port on Wiring Board

There are two ports for signal input.

Ports	No.	Title	Explanation
11.IN	1	DC24V	24V Power supply positive polarity output
	2	IN1	Open cover protection signal is effective to low logic level
	3	IN2	Foot switch signal is effective to low logic level
	4	IN3	Reserved
	5	IN4	Reserved
	6	GND	Grounding output
12.IN	1	DC24V	24V Power supply positive polarity output
	2	IN5	Reserved
	3	IN6	Reserved
	4	GND	Grounding output

Wiring diagram for signal input:

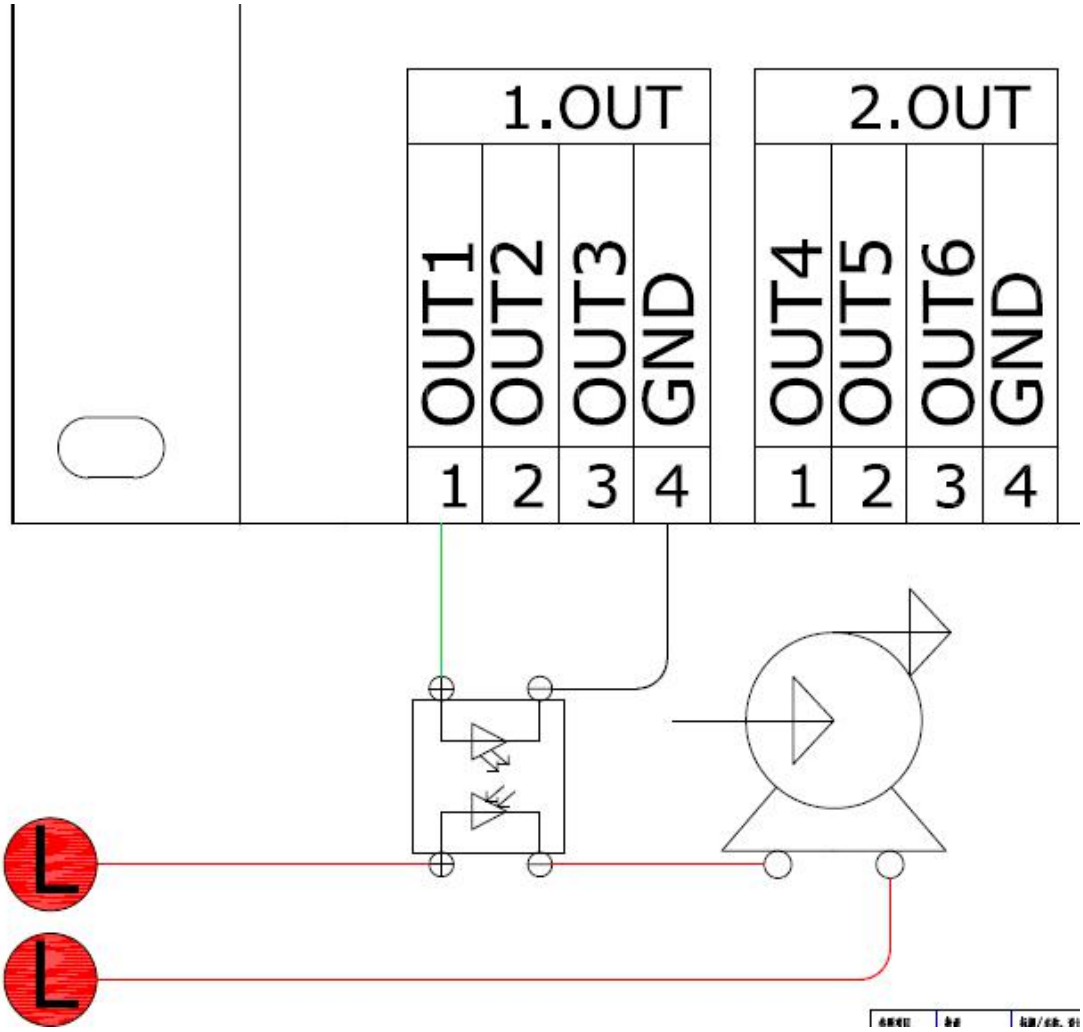


3.2.2.4. I/O on Wiring Board

There are two output ports for power supply outside and signal control.

Ports	No.	Title	Explanation
1.OUT	1	OUT1	Blow signal (blowing all the working time) OUT1 Blow when output is high logic level OUT1 Do not blow when output is low logic level
	2	OUT2	Blow signal (blow when laser is powering on) OUT2 Blow when output is high logic level OUT2 Do not blow when output is low logic level
	3	OUT3	Reserved
	4	GND	Grounding output
2.OUT	1	OUT4	Reserved
	2	OUT5	Reserved
	3	OUT6	Reserved

Output signal generally controls laser blowing and the wiring diagram shown below.

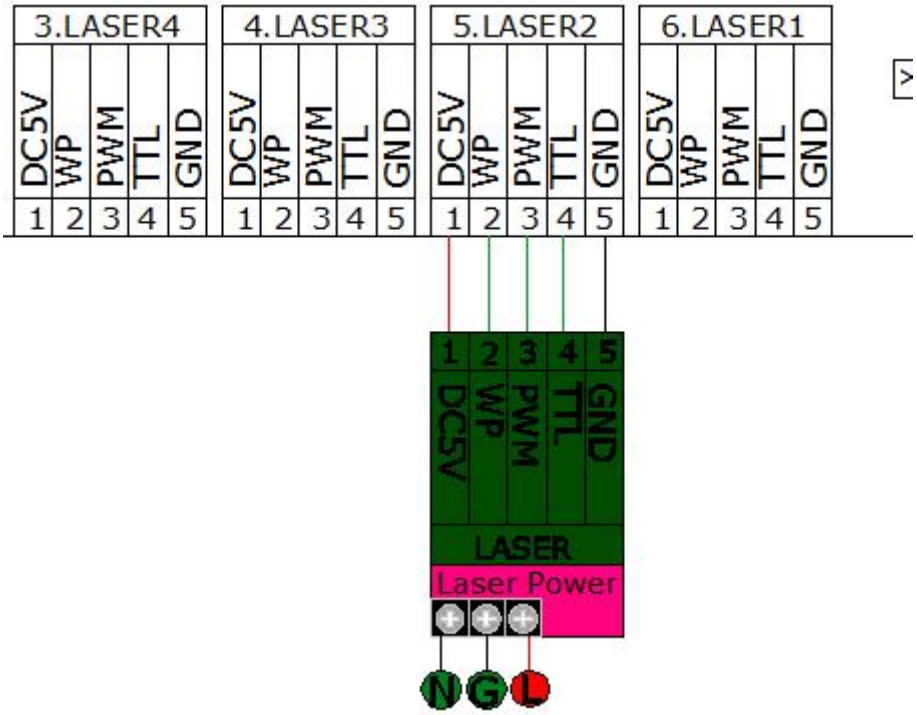


3.2.2.5. Laser Power Supply Port on Wiring Board

There are two output ports on wiring board.

Ports	No.	Title	Explanation
5.LASER2 6.LASER1	1	DC5 V	5V power supply positive output
	2	WP	Water protection input signal
	3	PWM	Laser power
	4	TTL	Laser on/off signal
	5	GND	Grounding output

Here's one road of laser's wiring diagram as an example.

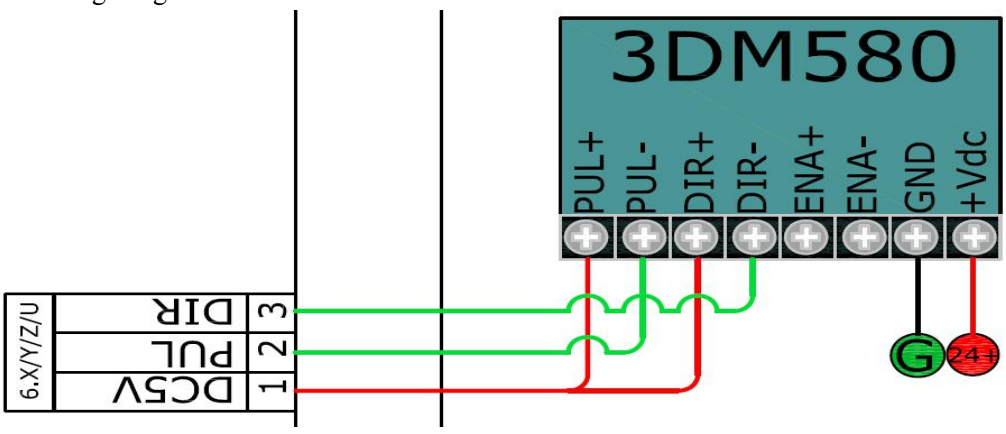


3.2.2.6. Driver Port on Wiring Board

There are no more than 4 roads for driver connection on wiring board.

Port	No.	Title	Explanation
X/Y/ Z/U	1	DC5V	5V power supply positive polarity connecting to driver's positive polarity
	2	PUL	Pulse signal
	3	DIR	Direction signal

Wiring Diagram:



3.2.2.7. Input Port of Limit Signal on Wiring Board

6 roads of limit signal of sensor on wiring board. 2 limit signals input on two side of each axis.

- X/Y Limit Signal Input

Port	No.	Title	Explanation
8.X/Y LIMIT	1	DC24V	24V power supply positive polarity output
	2	ELY+	Y+ limit switch/input signal from sensor
	3	ELX+	X+ limit switch/input signal from sensor
	4	ELY-	Y- limit switch/input signal from sensor
	5	ELX-	X- limit switch/input signal from sensor
	6	GND	Grounding output

- Z/U Limit Signal Input

Port	No.	Title	Explanation
9.Z/U LIMIT	1	DC24V	24V power supply positive polarity output
	2	ELU+	U+ limit switch/input signal from sensor
	3	ELZ+	Z+ limit switch/input signal from sensor
	4	ELU-	U- limit switch/input signal from sensor
	5	ELZ-	Z- limit switch/input signal from sensor
	6	GND	Grounding output

- V/W Limit Signal Input

Port	No.	Title	Explanation
10. V/W LIMIT	1	DC24V	24Vpower supply positive polarity output
	2	ELW+	W+ limit switch/input signal from sensor
	3	ELV+	V+ limit switch/input signal from sensor
	4	ELW-	W- limit switch/input signal from sensor
	5	ELV-	V- limit switch/input signal from sensor
	6	GND	Grounding output

Wiring Diagram: