Arc Voltage Torch Height Controller
AHa-S2 & AHa-M2 Manual

Content

Safety

1. Please carefully read the manual before using the controller.

2. Professional workers use the controller.

3. It's dangerous to be close to CNC equipment that is working.

4. When the equipment has problem, please power off first, then check and repair it.

5. The power supply is DC24V.

6. Use shielded cable to connect.

Warranty

Period: within 12 month from the date of delivering products

Range: it's under warranty the product is damaged when it's used normally. Other

situations are out of warranty.

Charge: it's free to repair products under warranty.

Basic Parameters

Processor: industrial ARM process chip

Display: 4-digit nixie tube

Auto height range: 2~30mm

Height adjustment accuracy: ±0.5mm

Power supply: DC24V, 3A

Working temperature: 0~40℃

Current of driver inside THC: 1.8A (AHa-S2) and 3A (AHa-M2)

Technical Features

1. Height & sensitivity adjustment knob

The height and the sensitivity can be statically or dynamically adjusted with the knob, and the value is saved in real time so that the operation is easier and faster. In addition, the pulse adjustment knob can be used longer than the contact potentiometer.

2. Industrial ARM processor

   ARM embedded core has faster process speed, more powerful calculation and stronger anti-interference ability.

3. Stepper driver

   The controller has a built-in stepper driver that has bigger over-load current and better liability.

4. Aluminum alloy structure

   It has better mechanical strength.

Installation Dimension

Type 1
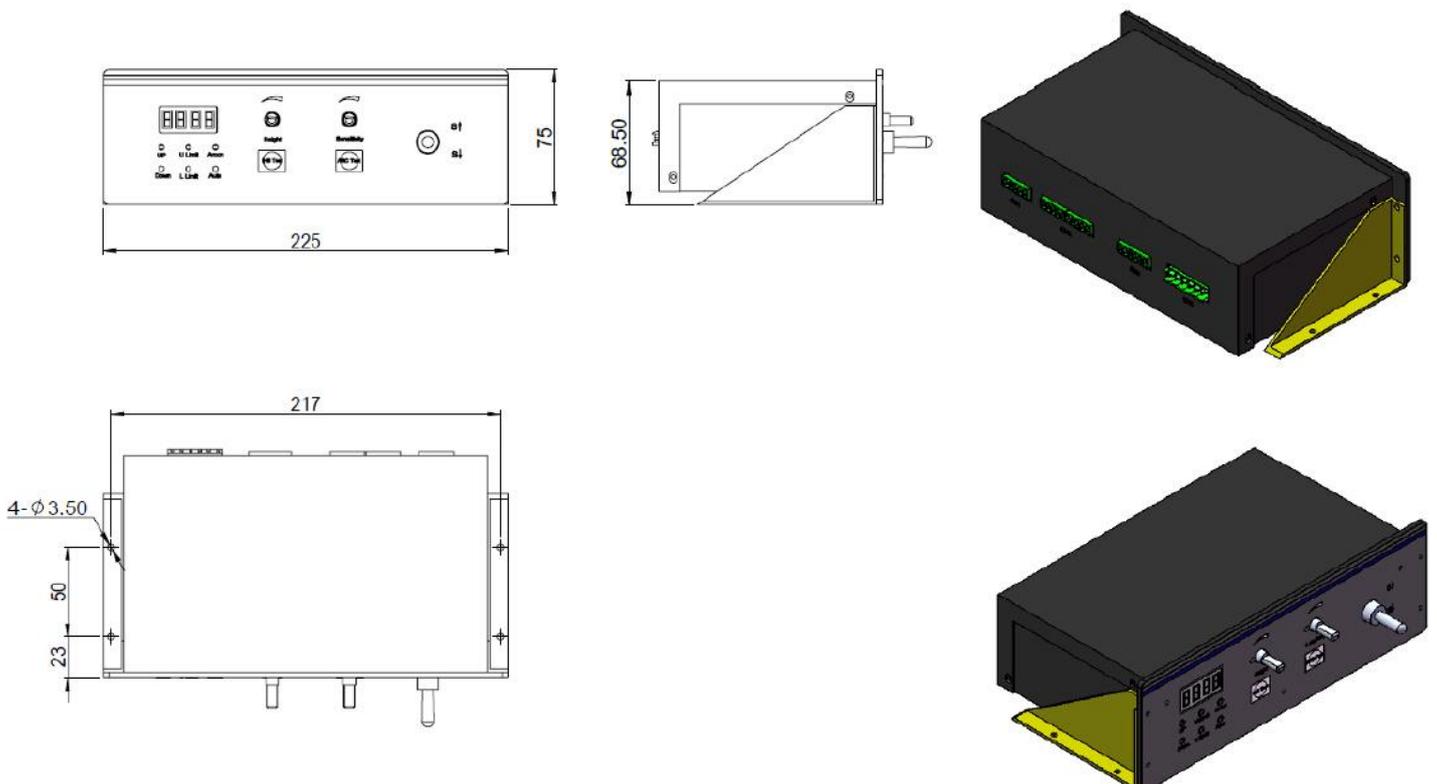
Type 2
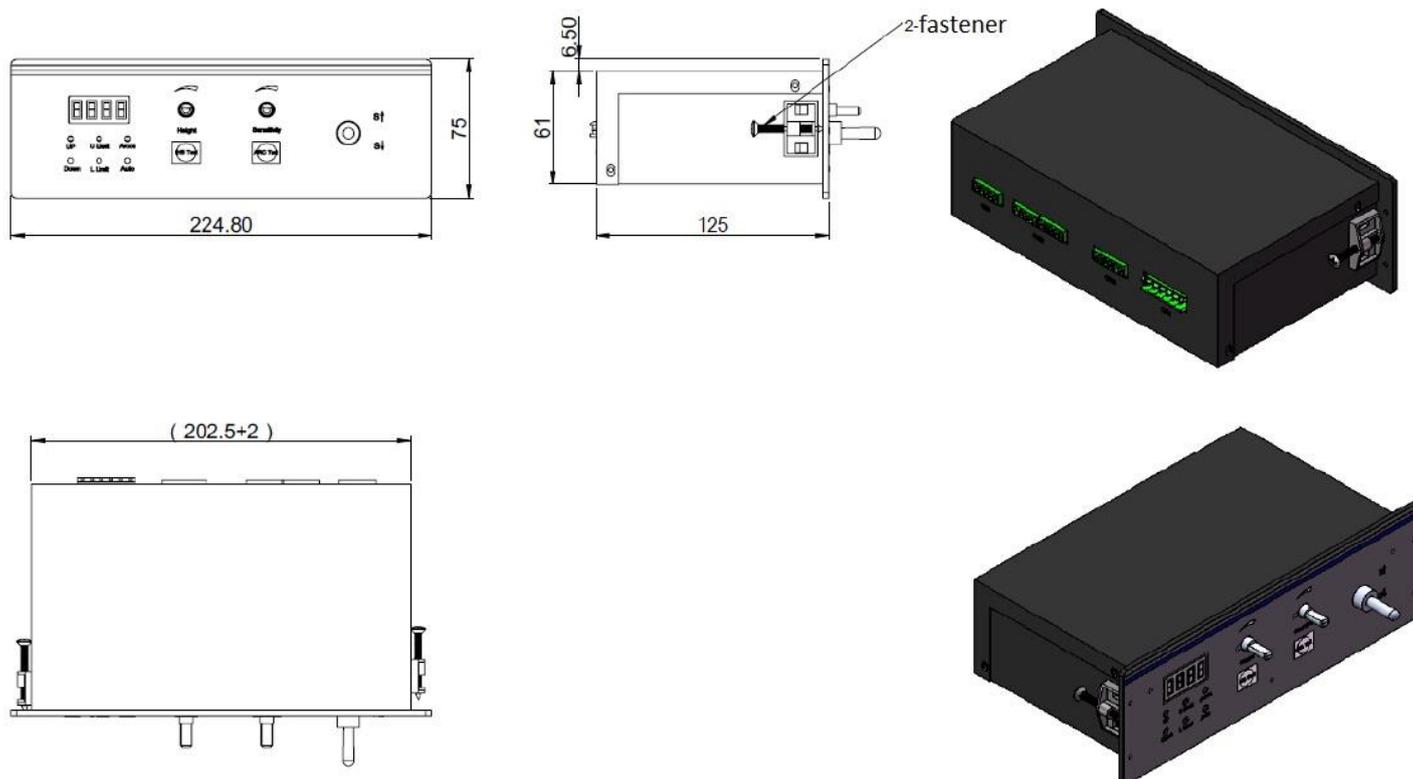
Connection

Port CN1

Pin No.	Definition	Instruction
1	DC24V+ (input)	Connect with power supply DC24V+
2	DC24V- (input)	Connect with power supply DC24V-
3	DC24V+ (output)	Connect with THC divider DC24V+
4	DC24V- (output)	Connect with THC divider DC24V-
5	Arc voltage signal	Connect with THC divider arc voltage

Port CN2

Pin No.	Definition	Instrument
1	Manual/auto	Connect with THC signal of CNC

2	Up	Connect with torch up of CNC
3	Down	Connect with torch down of CNC
4	Arc input	Connect with arc strike of CNC
5	Auto cycle	Connect with arc strike of CNC
6	NC	useless
7	Location OK	Connect with torch location of CNC
8	Arc OK	Connect with arc success of CNC
9	Arc strike output	Connect with start signal of plasma power source
10	COM	

Port CN3

| Pin No.	Definition	Instruction
1	DC24V+ (output)	
2	DC24V- (output)	
3	Zero	Connect with zero point of lifter
4	Upper limit	Connect with upper limit of lifter
5	Lower limit	Connect with lower limit of lifter
6	NC	useless

Port 4

Pin No.	Definition	Instruction
1	A+	Connect A+ of lifter motor
2	A-	Connect A- of lifter motor
3	B+	Connect B+ of lifter motor

4	B-	Connect B- of lifter motor
5	Motor power +	AHb-S2: DC24V
6	Motor power -	AHb-M2: DC24V

## Panel & Function

  parameter & state display	U: plasma mode, value: 30~250 Before arc strike, it's the set arc voltage value. After arc strike, it's the actual arc voltage value. The set arc voltage value decides the cutting height. Usually the manual of plasma power source has a parameter table, including arc voltage, speed, etc.
	E: sensitivity, value: 1~10 When cut, the bigger the value is, the slower the track frequency is.
	b: initial location height (pierce height), value 1~20mm
  state indicator light	Up: torch moves up Down: torch moves down U Limit: upper limit L Limit: lower limit

	Arcon: arc strike Auto: auto state
 Height	set U value (cutting height) set b value (initial location height/pierce height) after press the knob in manual state
 Sensitivity	set E value (sensitivity) one-key location (press the knob in manual state): the torch moves down, then touches the plate, then moves up and stops at the location height
 IHS Test	initial location test, the same function as one-key location the torch moves down, and before it touches the plate, when press up & down keys, the location is cancelled
 ARC Test	arc strike test, press the key to work, and press it again to stop
 S↑ S↓	manual up & down key, press the key to work, and loose it to stop
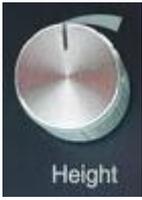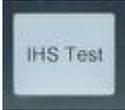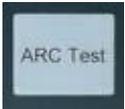
Voltage divider box AHD1
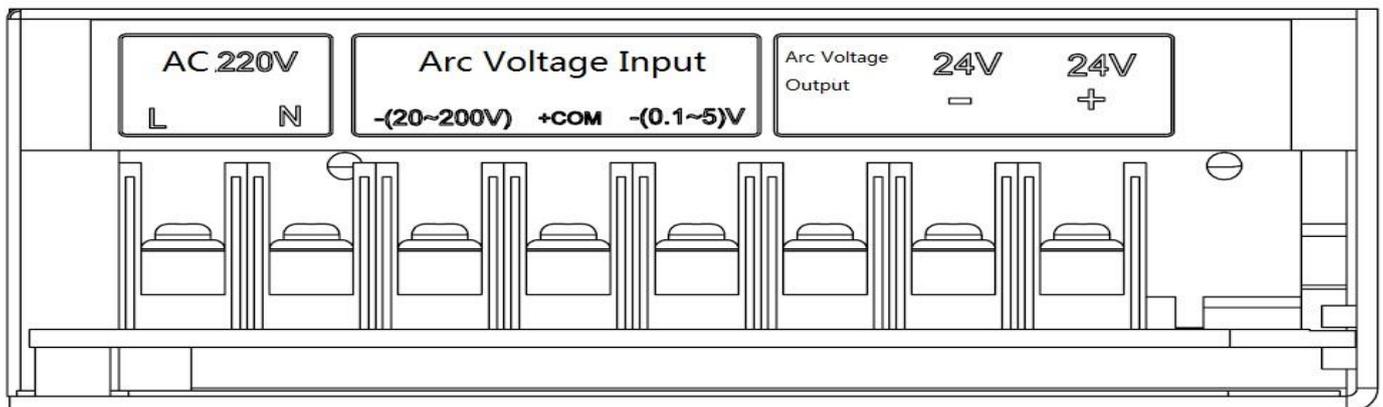
AC220V L & N: connect AC220V power supply

Arc Voltage Input -(20~200)V: connect original arc voltage- of plasma power source

Arc Voltage Input +COM: connect arc voltage+ of plasma power source

Arc Voltage Input -(0.1~5)V: connect 50:1 arc voltage- of plasma power source. And

open the box, break the jumper JP2 and connect.

Arc Voltage Output: connect arc voltage signal of THC.

24V-/+: connect DC24V power supply

Voltage divider box AHD2

Arc Voltage Input ET(-) WK(+)	(ground)	AC220V Power Input L N	Current Output I(+) I(-)	Voltage Output V(+) V(-)
Connect original arc voltage of plasma power soure	connect ground	connect switch power supply	no need to connect	connect "arc voltage signal" of THC connect 24VG of THC
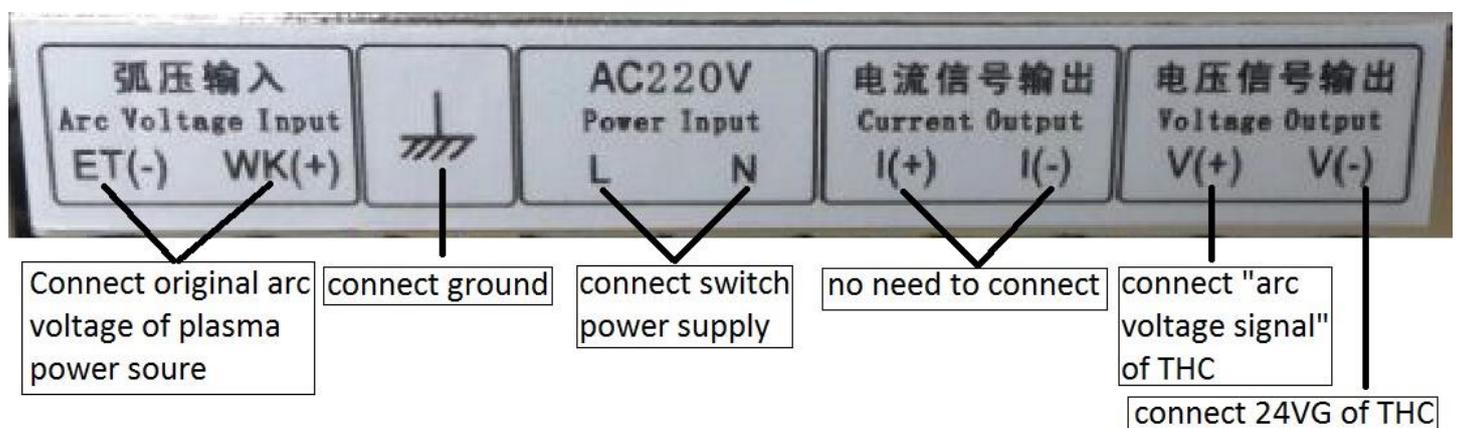
Voltage divider box AHD3

Pin No.	Definition
1(L) & 2(N)	Connect with AC100~240V power supply
3 (E)	Connect with ground
4(WK+)	Connect with arc voltage output of plasma power source
5(ET-)	If arc voltage output of plasma power source is 1:1, then ONLY connect jumper 100:1 inside AHD3
	If arc voltage output of plasma power source is 50:1, then ONLY connect jumper 2:1 inside AHD3
6(NC) & 7(NC)	Not connect

8(VO+)	Connect with pin 5 "arc voltage signal" of CN1
9(VO-)	Connect with pin 4 "DC24V- (output)" of CN1