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XPTHC-4

Arc Voltage Plasma Height Controller

ShenZhen HongYuDa CNC Technology CO.,LTD

Please read this manual fully before use

SAFETY：

- Please read this manual fully before use XPTHC-4
- DO NOT open cabinet of THC unless trained technician.
- DO NOT adjust the sealed resister.
- Turn off Powersupply if when THC is unused.
- DO NOT put liquid on THC.
- Attention Anti-dust work, DO NOT let metal dust into THC.

Installation Note：

- **Power supply: AC 24V or DC 24V**
- Please offer the enough power supply: usually, 25W motor, the current couldn't be less than 3A, the AC24V transformer couldn't be less than 50W.
  Power supply= 2*motor's power + 10W
- GND Must follow THC instruction, GND resister≤4Ω。
- UP/DOWN on THC must be same to Z-axis Lifter
- To avoid interference, follow cables please use shield cable(connection between CNC controller and THC, to motor, to voltage divider, to IHS card), especially the cable from THC to voltage divider, please use shield twisted pair cable, and shield net connected at THC side.
- The plasma raw arc couldn't connect to the THC directly, must connect to the voltage divider correctly.

To Customer：

- **We only supply to re-seller as CNC cutting machine manufacturer, engineering company… end-user please contact our local distributor for product supplying.**
- **We offer technical support to all distributors and users of our product.**

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IMPORTANT NOTE：

All our THCs have been tested on CNC cutting machine in our workshop before delivery, all commissioning work was done. Please DO NOT change the setting without informing your supplier.

ShenZhen HYD CNC Technology CO.,LTD

Contents

1 、Brief Info

1.1 、Product name and model

Arc voltage torch height controller (THC)

Model: XPTHC-4

1.2、Application

XPTHC-4 supports almost all plasma cutters on market like Hypertherm, Thermal Dynamics…

And it supports all CNC cutting controllers on market like Hypertherm, Burny industrial level controllers or Mach3 such DIY controllers, because XPTHC-4 can start Auto Height control with or without Auto enable signal from CNC. But with Auto enable/disable signal from CNC, THC would work better.

1.3 、Basic Parameter and Feature

- Input Power：AC24V±10%，50Hz/60Hz or DC24V±20%;
- Motor：DC24V DC motor;
- Motor Drive：PWM;
- Output current：0.1A-1.8A;
- Load capacity：Max 20W；
- Working temperature：-10∽60℃；
- IHS：Switch IHS & Proximity switch IHS； Do Not support the retaining cap HIS
- Work way: check the arc enable output, 200mA optical coupler OC door output
- Voltage Divider ratio: 50:1 non-isolation on voltage divider; 1:1 isolation inside of THC
- **Control accuracy** ： ±1V∽±3V，depends on the motor and lifter of user.
- The speed of lifting：1000mm/min ∽ 3000mm/min(Contact the supplier if it exceeds the range of speed)；
- Arc Voltage rang：50V∽250V，
- Over protection：PWM adjusting, current feedback；
- Max speed test：12000mm/min（ it's related to the setting on the lifter's speed and motor's start voltage and sensitivity)

XPTHC-4 is the newest design THC, special for portable CNC cutting machine and small bench type machine, with 32 ARM processors, and analogous circuit height control together.

Feature:

1, installation: user could install the THC's operation panel on the work interface, or install it at the convenient operation place. Install the main body at a suitable station.

2, height controller: could change the auto cutting height at any time

3, two modes of the setting arc volt:

A, Setting arc volt mode: set the setting arc volt on the operation panel, let the THC work on the setting arc volt status. It's the traditional work way.

B, sampling arc volt is the setting arc volt: when the THC control the torch finish the HIS and plasma start, and CNC controller open the AUTO signal to THC, and THC will test the arc

value as the setting arc when at beginning the AUTO status. It's suitable for some small plasma.

4, High Sensitivity: adjusting the THC's sensitivity, could realize the arc volt change 1V, the arc voltage output will change 1.5V~4V, and don't occur the vibration. So the lifter's start voltage is closed related to the THC's sensitivity, Our lifter's start voltage is 1.5V ~2V.

6, Good stable: XPTHC-4 has 5 sets isolation power inside, to realize the I/O isolation; sampling arc volt isolation; drive isolation; and control isolation.

XPTHC-4 is with full functions of the Stand alone Arc Voltage Torch Height Controller. But as it's with small body, the motor of the lifter should be less than 20W on the portable CNC cutting machine, light gantry machine and small bench type machine etc.

1.4、 Components and installation

1.4.1 Components：XPTHC-4 includes the follow parts：

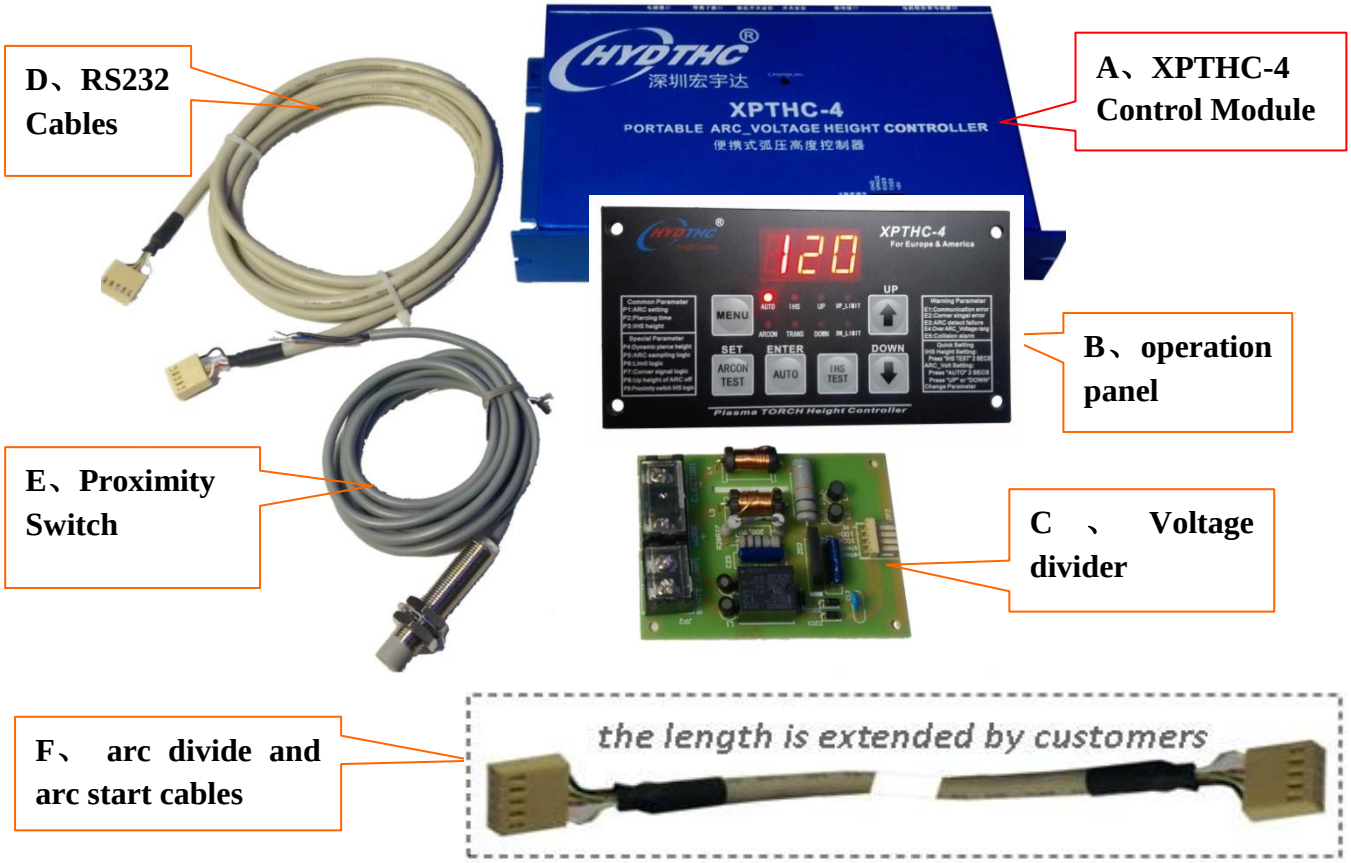


Fig 1-1：XPTHC-4 THC components

A、XPTHC-4 control module

B、Operation panel

C、Voltage divider

D、Cable(operation panel to control module)

E、Proximity switch（DC12-24V，NPN model effective NO，test distance 2mm）。

F、 Arc divide and Arc start cables, 2PCS

1.4.2、Installation

A、XPTHC-4 control module installation size

Fig 1-2 XPTHC-4 Control module size

Fig **1-3**

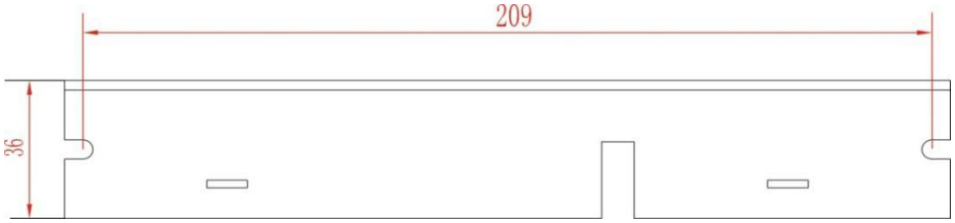


Fig 1-4

B、operation panel and installation size

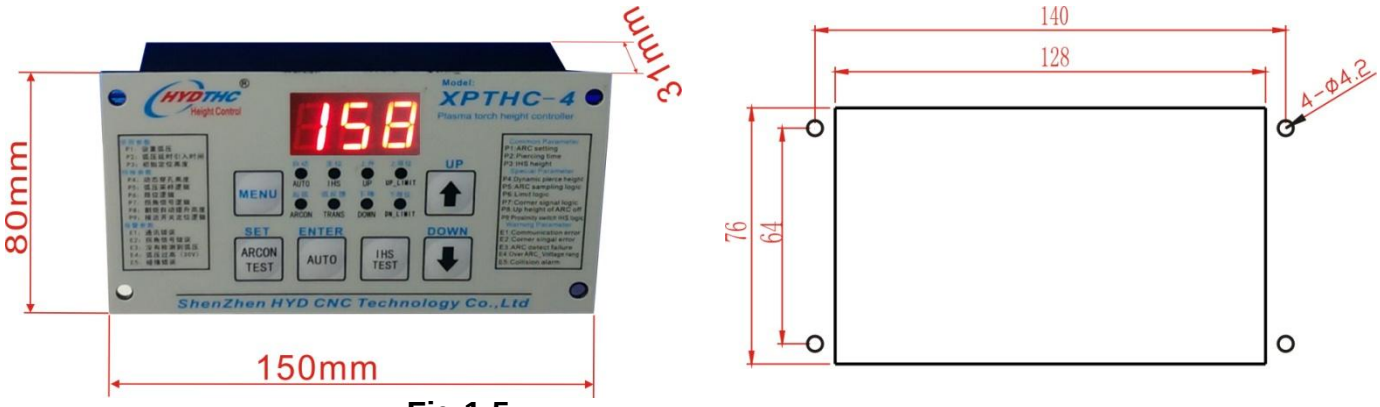


Fig 1-5

C、Arc Voltage divider installation size

Plasma Arc Voltage is divided by Arc Voltage Divider (offered with THC) on 50:1 via none isolate voltage divide, lead into THC after processed by Isolation Circuit. It can be installed inside of the plasma or cnc control cabinet. (**must use the shield cables**)）.Follow the fig 1-6 shows.

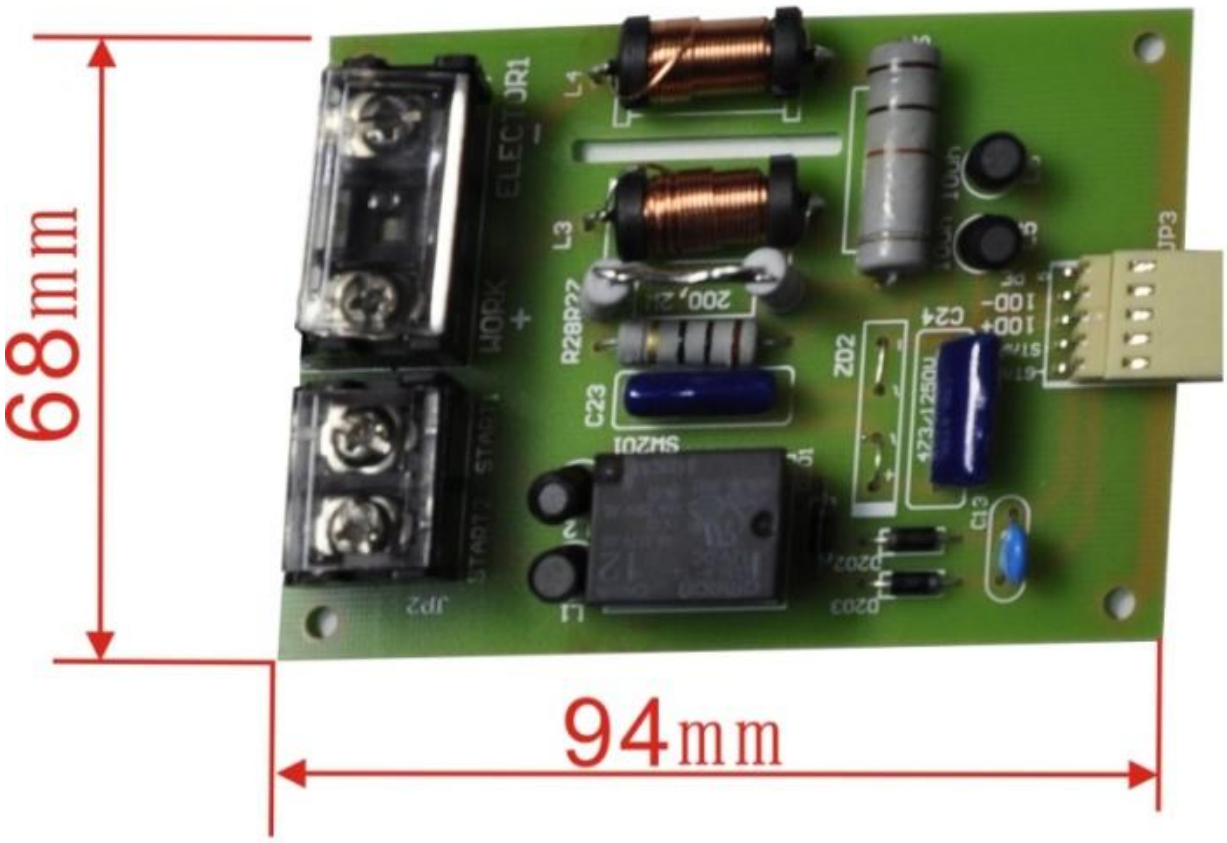


Fig 1-6 Arc voltage divider installation size

2、 XPTHC-4 Function and Setting

2.1、XPTHC-4 Function

◆ **Auto working process:**

CNC send arc start signal to THC---THC start IHS automatically ----Arc start---THC find divided arc voltage in THC-------Pierce time delay----Pierce completed---CNC received arc ok signal from THC ------ Plasma then start Motion----over 90% full speed, CNC enable THC's automode----Cycle ends and arc off, Torch lift up to programmed height. (Note：there is no dynamic pierce function under sample mode**)**

◆ **Auto initial height sensing(IHS)**

Touch Switch IHS and Proximity switch IHS.

Please note: XPTHC-4 it's not suitable for the touch retaining cap IHS .

A、Touch switch IHS：（Adopts to install a micro switch in the lifter, please refer to wiring diagram）

The micro switch is usually at Normally Open status. During IHS, it is activated when torch goes down to touch the work piece, and THC will let the lifter go up to the setting IHS height, then IHS finished.

B、Proximity switch

XPTHC-4 adopts NPN proximity switch IHS, Normally open or Normally closed could be set by P9 parameter.

During IHS, when torch goes down to touch the cutting material, the proximity switch takes off the proximity point, and send out the signal, then THC makes the torch go up to the IHS height(which is set by P3 parameter). When the proximity switch is always at the taking off status, the torch will go up with max speed to the Up limit position. In this way, it has the anti-collision function to protect the torch.

◆ **Setting arc volt and actual cutting volt display function**

Before plasma arc, it shows the setting arc volt; After arc start and detected the arc signal, and pierce delay, then it shows the actual cutting volt.

When during cutting, press the "MENU" button to check the setting arc volt.

◆ **Adjust the cutting height function**

During the auto work, pressing the "UP" and "DOWN" button on the operation panel to change the setting arc volt. Setting arc voltage changes 1V within 0.3 second button press; changes 5V over 0.5 second button press. Changing the setting arc voltage means changing the cutting height.

◆ **Torch lifter after cutting**

After finished the cutting, THC will control torch to go up, up height is set by P8 parameter.

◆ **Arc voltage enable output (piercing completed output)**

It delays the signal via setting the P2 parameter on operation panel. This signal is test by arc voltage signal. The arc enable signal is using 200mA optical coupler OC door output, it could connect to the CNC's ARC enable directly.

◆ **Anti-collision function**

When THC stops work, it'll send the collision signal within 0.2 second if any material touches the torch and actives the proximity switch.

During auto work, except for IHS, it'll send the collision signal within 0.2 second if any material touches the torch and actives the micro switch or proximity switch. The collision signal is using 200mA optical coupler OC door output, it could connect to the CNC's collision input directly.

◆ **Offering E1 to E5 warnings**

E1：Communication error

E2：Corner signal logic setting error

E3：ARC detect failure

E4：Over-voltage protection (actual arc voltage - setting arc voltage> 30V), it works at the setting arc volt mode, doesn't work at the sample arc volt mode.

E5：Collision warning

2.2、 XPTHC-4 operation panel and key button description

2.1.1、operation panel function

See Figure2-1 shows:

（MENU）：

1、 Work in stop status:
Press and hold it 2s to setting common parameters; press and hold it 4s to setting special parameters.

2、 THC Auto work status: press and hold it to show the setting arc voltage.

3、 Setting status: Press it to save the setting parameters.

Display：

1、 Work in stop status: show the setting arc voltage

2、 THC Auto work status: show the actual arc voltage

3、 Setting status: show setting parameters

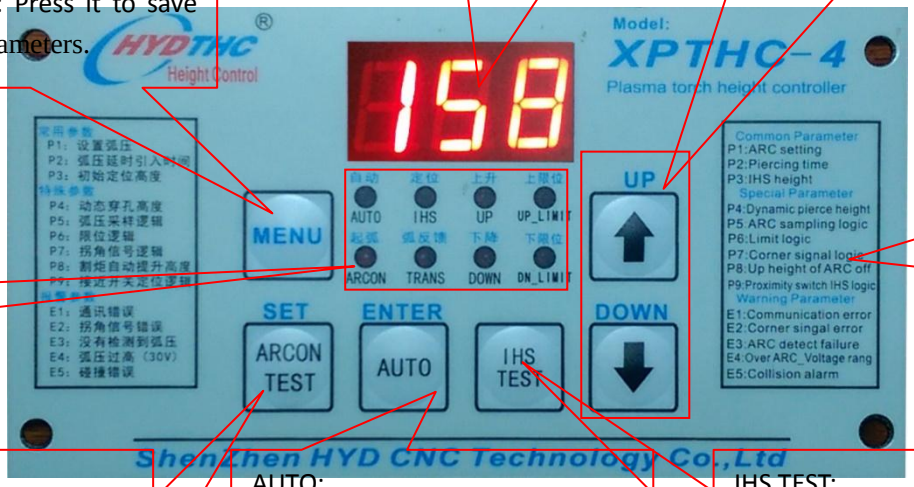
4、 Alarm status: show the alarm code

UP&DOWN：

1、In work stop status: control the torch goes up and go down

2、THC Auto work status: adjust the setting arc voltage, means to change the cutting height

3 、 Setting status: change the parameter numbers and values



Parameter codes and alarm codes

8 function LED lights

ARCON test:

1、In work stop status: press and hold it use to test the arc start

2、setting status: press it use to set parameters(SET)

AUTO:

1、In work stop or working status: press it ON the auto or OFF the auto

2、Setting status: confirm the parameter setting (ENTER)

IHS TEST:

1、 In work stop status: for IHS test

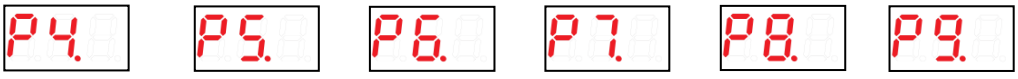
2、 Other status: no function

Fig 2-1 operation panel instruction

2.2.2、Key button and LED lights indicate

- **MENU：press and hold it with 2s to setting the common parameters**

Press and hold it over 4s to setting the special parameters



THC Auto work status: press and hold it to show the setting arc voltage. Checking the difference of the setting arc volt and the actual arc volt.

When at the “P” status, press the “MENU” to save all the setting parameters.

- **(ARCON TEST)&SET:**

  1、In work stop status: press and hold it to test the arc start, press it until the plasma arc start, loose it plasma arc stop.

  2、setting status: press it one time to set parameters(SET)

- **UP/DOWN：**

In work stop status: control the torch to go up and go down;
THC Auto work status: adjust the setting arc voltage, means to change the cutting height;
Setting status: change the parameter number and value

- **AUTO:**

In work stop and THC auto work status: press it ON the auto or OFF the auto function. When stop status, “AUTO” light is blink, means THC is allowed on auto status, if press “AUTO”, then the “AUTO” light is off, then means the THC is on manual status.
Setting status: confirm the parameter setting(ENTER), will show “P” status on it.

- **IHS TEST**

In work stop status: for IHS test; press it, begin the IHS, after the IHS finished, automatically recover, or press this button or “UP” button to recover it.

Other status: no valid

- **8 Function LED indictors:**

- UP/DOWN: LED light turn on when torch go up/ go down.
- ARCON: LED light turn on when THC has detected the arc start signal. If arc start with IHS enable, this LED light is turn off until IHS completed.
- AUTO: LED light turn on means THC is on AUTO mode. 4 conditions must be satisfied:
  1. In work stop status, “AUTO” LED light is blink, means THC panel allows it at the AUTO status;
  2. CNC send the arc start signal；
  3. CNC Auto Height Control(THC) enables;
  4. THC finds the divided arc volt from CNC(Trans turns on); Actual Arc Voltage is not higher than setting Arc Voltage over 30V.
- TRANS：LED light turn on when THC find divided arc get into THC, and send out the pierce complete signal to CNC.
- IHS: LED light turn on when do IHS.
- UP_Limit：LED light turn on when torch go to up limit.
- DN_Limit: LED light turn on when torch go to down limit.

Note: Press “UP” and ”DOWN” buttons When THC in work stop status, can be let the torch go up and down.

When finished ARC start, press “MENU” use to monitor the setting arc voltage, and in this status if press “UP”or “DOWN”, then to change the setting Arc Voltage or Sampling Arc Voltage. When at stop status, it’s for set the parameters.

During THC power on and setting parameter, some LED lights will be blink , that’s according to the different setting status.It’s use for remind the setting parameter’s meaning.

2.3、 XPTHC-4 Prompt braking adjusting and sensitivity adjusting

DO NOT ADJUST THE RED SEALED!

XPTHC-4's logic control is controled by the SCM, it can be setting on the operation panel, and in order to raise up the high performance's request, it uses the artificial circuit to control the drive parts, so it can be adjusted the "R6012"(Brake-ADJ) and "R501"(SEN-ADJ) for the motor's prompt braking and sensitivity. (Reference Fig2-3)

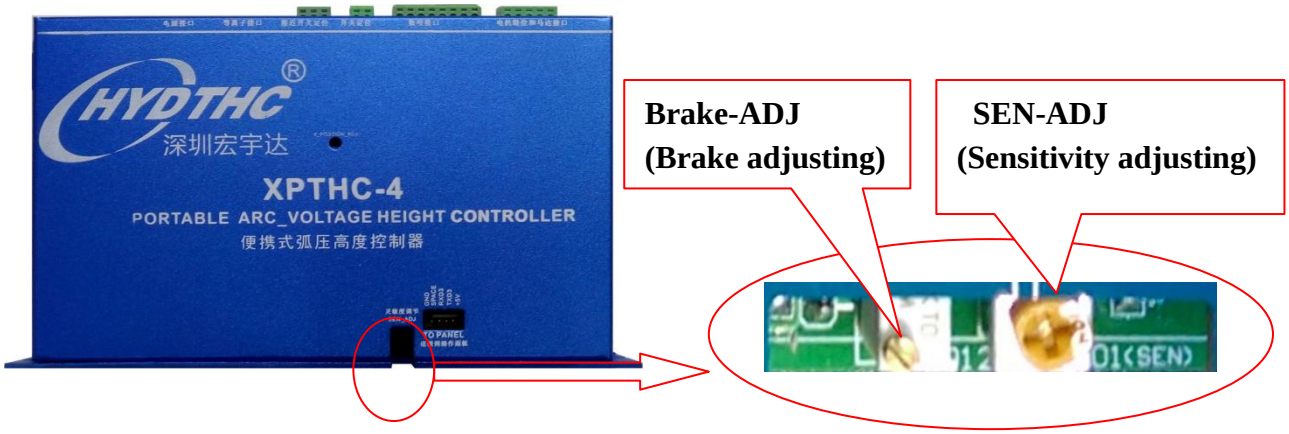


Fig 2-3 Prompt braking and sensitivity adjusting

1、Motor prompt braking adjusting is use to achieve fast braking when operate the THC manually, then it can avoid the up/down distance due to the inertia, and improve the up/down height accuracy.

This THC (XPTHC-4) is achieve to prompt braking by Plug-Braking. It can be set via adjusting the Resister "R6012(Brake-ADJ)". While It has been adjusted well before ex-factory, don't need to adjust by user. Unless longtime use/component aging etc. If user adopts the motor control voltage to control the limit instead of using our THC's limit switch, the promopt braking function is unuseful, please choose the proper limit method.

2、Sensitivity of THC decides the cutting accuracy.

THC sensitivity setting:

Sensitive increases on anti-clockwise, decrease on clockwise in XPTHC-4.

Note:If sensitivity is too high, the torch would be shake, please test it carefully.

XPTHC-4 is tested on the 2800mm/min with lifter, **so for 1000mm/min—3000mm/min speed with lifter, user no need to adjust it. If user need the speed over 3000mm/min, then need to decrease the sensitivity a little, according to the cutting situation (If it shake during cutting, please decrease the sensitivity).**

Sensitivity matters to the quality of lifter. If the lifter can lift torch up/down on with DC motor Power Supply below 3V, it is qualify lifter for XPTHC-4.

2.4、XPTHC-4 Parameter setting and Alarm diagnose

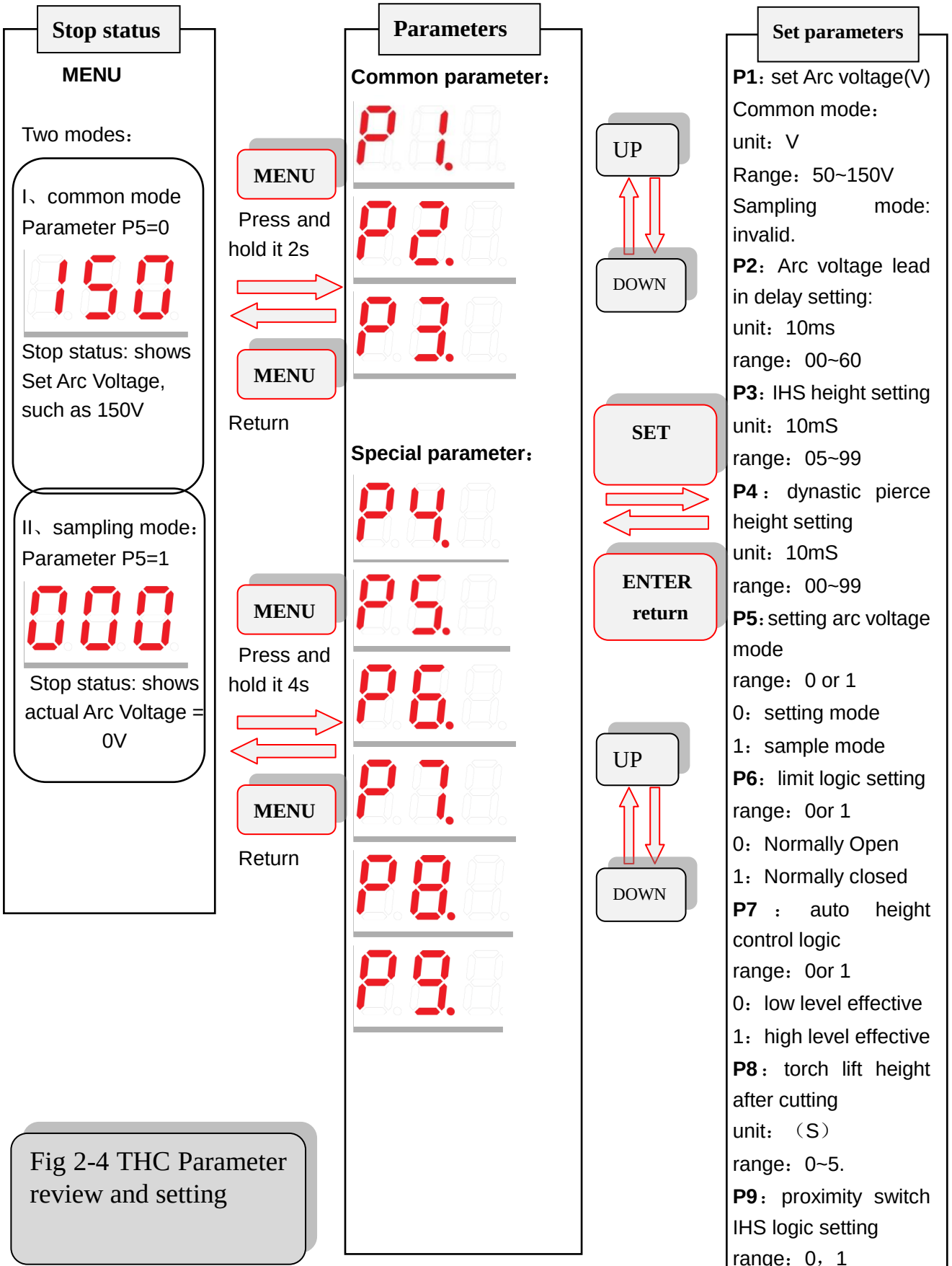


Fig 2-4 THC Parameter review and setting

2.4.1、 Parameters details

Common parameters					
Parameter No	Parameter Name	Default value	Unit	Range	Function and Description
P1.	ARC setting	130	V	50~250	Setting arc voltage mode effective. Set an initial arc voltage before cutting, it can be adjusted by “UP” or “DOWN” to change the initial arc voltage during cutting.
P2.	Piercing time	1	10mS	00~60	When THC sends the arc start signal to plasma, then will delay the lead in arc voltage to THC, thus it is helpful of anti-interference function to THC. This parameter is also for dynastic pierce setting. It’s set via the time of the Arc start to Arc ok. Such as if it needs 3s for the Arc start process, then it should be set to 30.
P3.	IHS height	0.4	10mS	05~99	The IHS height can be got from “IHS test” on the operation panel. It relates to the speed of the torch lifter.
Special parameter					
P4.	dynamic pierce height	0	10mS	00~99	This height is for the plasma arc piercing height, to protect the torch consumables.
P5.	ARC sampling logic	0		0，1	1、When set value = “0”, setting arc voltage by “P1” as an arc voltage , it’s set for Arc auto height control. 2、when set value = “1”, via the CNC’s corner signal, when the THC is opened the AUTO function, and take the actual arc voltage as the cutting arc voltage during auto work. In this mode, it’s required the CNC with high speed up to the setting speed to open the auto mode, this is the at the IHS height during cutting, it can be used for bevel cutting. During the cutting, it could be adjust the “UP” and “DOWN” to change the raw arc voltage, the cutting height won’t be changed during the whole cutting work until to break arc start signal.
P6.	Limit logic	0		0，1	**0：Limit Normally open；1： Limit Normally closed.** When the connection is not match with “P6” parameter’s setting, then the UP_limit and Down_limit LED light will be turn on.
P7.	Corner signal logic	0		0，1	**0：Corner logic close auto; 1: Corner logic open auto**

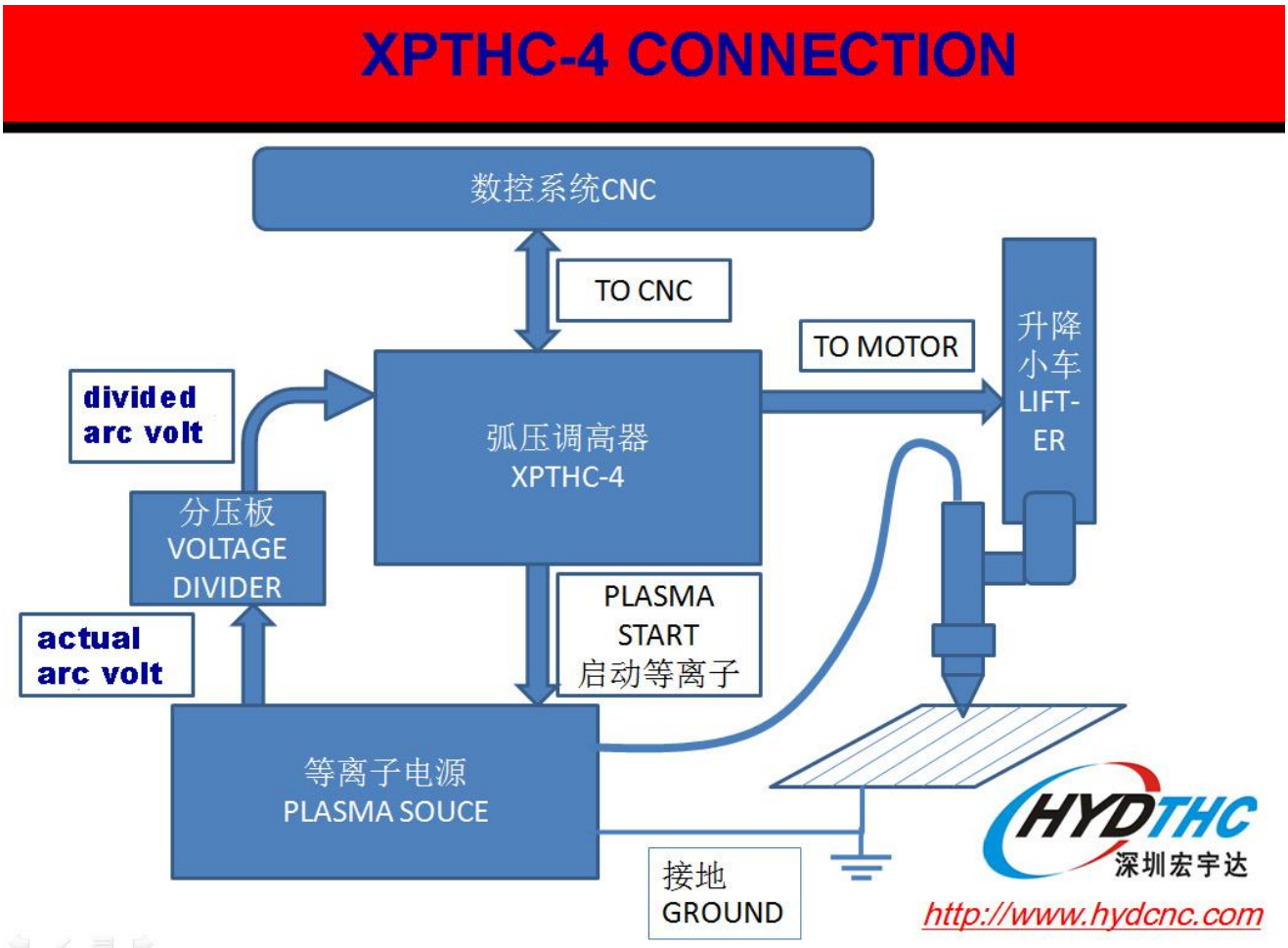
					Note：This signal need to be match with CNC setting
P8	Up height of ARC off	1	S	0~5	**torch lift height after cutting** **Range：0~5s**
P9	proximity switch IHS logic	0		0，1	**0**：low level effective，**1:** high level effective**.** **If using the NPN(NO) proximity switch, the "P9" value should be "1";** **If using the NPN(NC) proximity switch, the "P9" value should be "0"** (NO: normally open; NC: normally closed.)

2.4.2、Alarm codes details

Alarm code instruction			
Alarm code	Description	Alarm reason	Solution
E1	Communication error	Wrong connection in cables between operation panel and THC control module .	1、Connect the cables well again, checking whether there has a poor connection or wrong connection; 2、Circuit board fault; Will be solved after correct connection.
E2	Corner signal abnormal	If the connection or setting of Corner signal is wrong, it will be with "E2" alarm when arc start or IHS	1. Change the CNC auto/corner signal logic. 2. If can't change the auto/corner signal from CNC, then please change "P7" parameter in THC. It'll be solved when set correct at the Stop work status.
E3	ARC detect failure	Don't detect the arc voltage signal from voltage divider during cutting.	1、Check the connection from voltage divider to Plasma 2、Check the connection from voltage divider to THC **3、When appear E3 alarm after 3S, the torch will goes to the setting height, and disconnect the arc start automatically.** It'll be solved when the signal is correct at the stop-work status.

E4	Over ARC-voltage range	The actual arc voltage is over 30V than the setting arc voltage during cutting	1、Setting arc voltage is too low 2、The Dynastic pierce height is too high, please decrease “P4” parameter value 3、The auto signal is send from CNC to THC too early 4、Plasma problem, plasma consumables etc. 5、It’ll be solved after the arc voltage is normal. It doesn’t affect the cutting, but it’ll turn off the AUTO status.
E5	Collision alarm	If the proximity switch is touched before cutting or during cutting, it means there’s collision, if over 0.2s will have the E5 alarm. Meanwhile send out the collision signal to CNC.	1、Checking the Micro switch and it’s connection; 2、Proximity switch problem, change a new one **3、It must press the “MENU” button to cancel the “E5”alarm after all are checked ok.**

3、 XPTHC-4 Connection



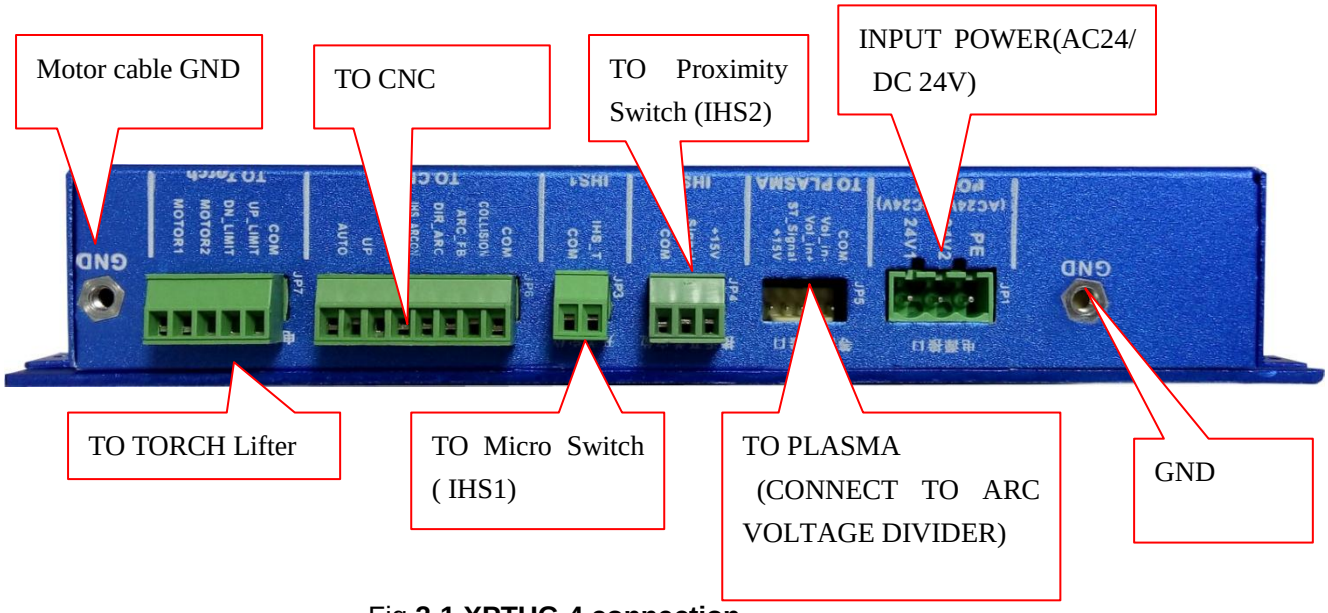


Fig **3-1 XPTHC-4 connection**

3.1、 To POWER

XPTHC-4 use DC24V or AC24V. The power supply depends on the motor in Lifter

Transformer ≥ 2 x Motor + 10W

Please using a separate power supply to the XPTHC-4, and need a well Ground connected to THC's metal shell.

XPTHC-4 Voltage supply is as follow：

When the power supply voltage is DC24V：DC18V~DC36V，the voltage of Motor: 15V~31V. The DC power and the output power: Vout（Max output）=（Vin (input)-1.4V）*90%.

When the power supply voltage is AC24V：AC15V~AC27V，50Hz. The output voltage to Motor：15V~31V。

If you want to speed up your lifter, then you should increase the power supply properly.

3.2 、TO Micro Switch(IHS1)

Micro switch IHS is with a special structure in Lifter. There's a micro switch in it, usually it's in "Normally Open" status, when the THC do IHS, the torch touch the work piece, then it'll let the micro switch closed, and the THC will let the torch go up to the IHS height. The IHS1 connect is suitable for external isolation IHS's input signal.

Installation of the micro switch reference Fig3-3.

Note：The lifter and fixture is not included in the THC (Optional to customers)

3.3、To Proximity switch（IHS2）

When XPTHC-4 is using the proximity switch IHS, should setting the P9 parameter.

If there's mistake on P9 parameter setting, then will have E5 error alarm.

If the E5 error alarm happens, then please press the "MENU" key button to recover it; After pressed "MENU" ,If the alarm is still existed, then meaning the proximity switch with mistake connection or operation.

Proximity switch could use NO(normally open) proximity switch, or NC(normally close) proximity switch.

The proximity switch we offered is NPN and NO proximity switch.

Don't use the proximity switch, the P9 parameter value should be "0"; When use the proximity switch, then P9 should be "1".

Pin(s)	Signal	Description & Ratings
1	COM	Proximity switch power, negative
2	Signal	Proximity switch signal
3	+15V	Proximity switch power, positive

Fig 3-1 proximity switch pin definition

Follow is the connection of the NPN proximity switch (NO). Reference Fig 3-2:

Fig 3-2 NPN proximity switch connection

The work process of the proximity switch：When THC get the arc start signal from the CNC controller, the torch goes down to touch the work piece, then the proximity switch takes off the proximity point, and send out the touch signal, after the THC gets this signal, then let the torch goes up to the IHS height (the proximity switch will auto return to original position during torch goes up). After the IHS is finished, then THC will control the plasma arc on.

In this way, it's suitable for any plasma's IHS.

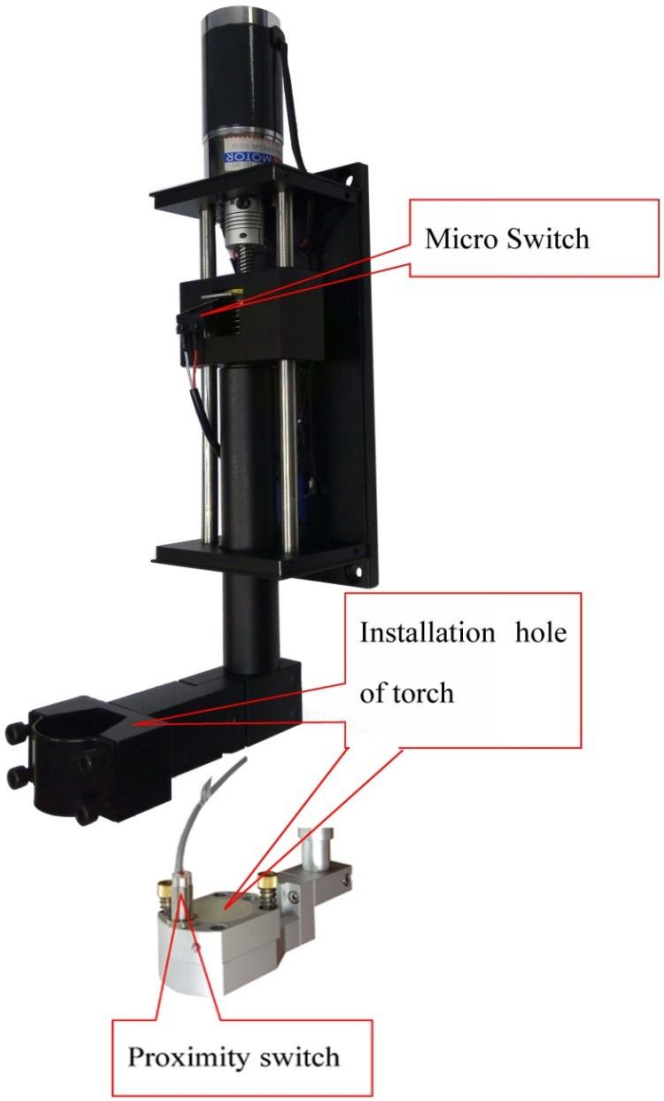


Fig 3-3 XPTHC-4 Proximity switch and micro switch

3.4 、TO CNC

Connection and pin definition reference Fig 3-4:

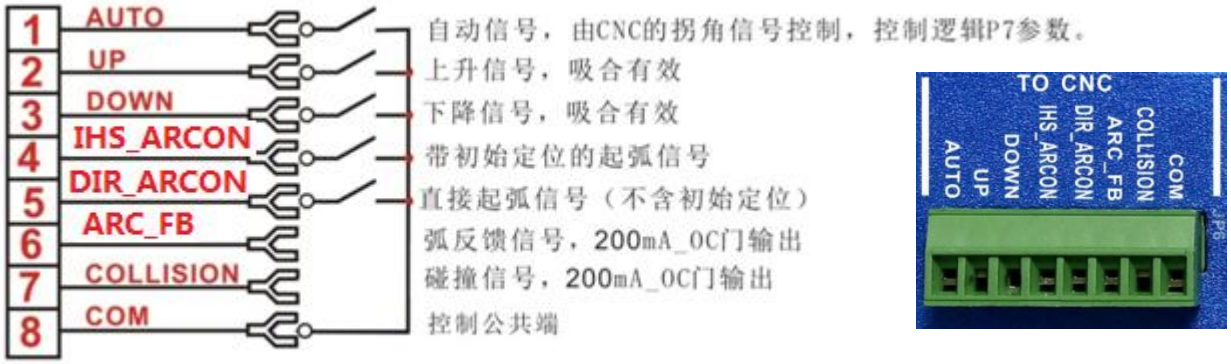


Fig 3-4 XPTHC-4 TO CNC connection

Note：

A、ALL to CNC controller's signals use optical isolation, original set is low-level effective.

B、Arc OK signal（arc feedback 1、arc feedback 2）is a switch signal.

C、Arc feedback signal adopts the 200mA NPN OC door output, it could connect to the input of the CNC's arc enable directly, also could connect to the 24V/100mA relay.

TO CNC pin definition as follow:

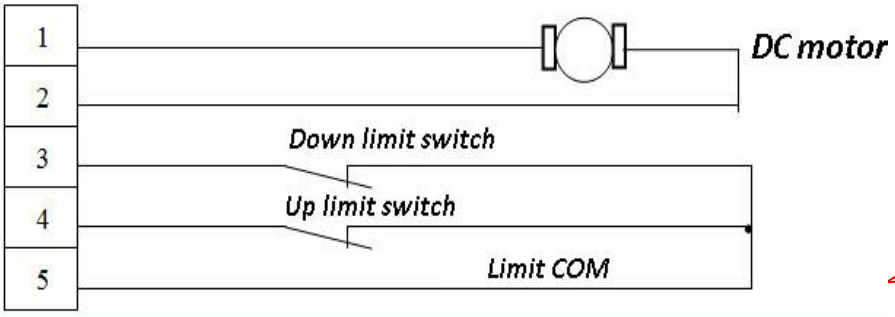
Pin(s)	Signal	**Description & Ratings**
1	EXAUTO	Auto Signal，Control level depends on P7 parameter setting, Controlled by CNC's corner signal or THC enable signal, Pin8 is control Com
2	UP	Up signal, low-level effective Pin8 is control Com
3	DOWN	Down signal, low-level effective Pin8 is control Com
4	ARC ON with IHS (IHS_ARCON)	Arc start with IHS, low-level effective Pin8 is control Com
5	EX ARC ON	Arc start without IHS, low-level effective Pin8 is control Com
6	ARC Feedback	Arc feedback output，connect to CNC's Arc enable input, via P2 parameter relay output Optical Isolation NPN OC door output，Max:200mA
7	COLLISION output	Optical Isolation NPN OC door output，Max:200mA
8	Control COM	Isolation Control COM

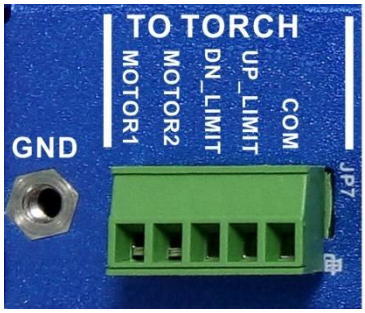
Table 3-2 TO CNC Pin definition

3.5 、TO TORCH

XPTHC-4 supports DC24V motor, according to the motor voltage choose the right power supply, can control the 12V~30V DC motor.

TO TORCH connection as follow Fig 3-5：





Limit com can be revised by setting P6 parameter.

Fig 3-5 TO TORCH connection

TO TORCH PIN Definition as follow：

Pin(s)	Signal	Description & Ratings
1 , 2	**DC Motor Drive （Output）**	DC motor drive output Can be drive DC24V motor directly Max 20W, PWM
3	**Down LIMIT （Input）**	Down limit input（Optical ISOLATED） Limit switch NC(normally Closed) Can revised via setting P6 parameter
4	**Up LIMIT （Input）**	Up limit input（Optical ISOLATED） Limit switch NC(normally Closed) Can revised via setting P6 parameter
5	**LIMIT COM**	COM

Table 3-3 TO TORCH PIN definition

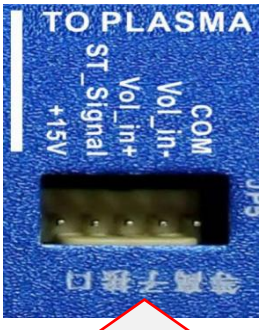
3.6、TO PLASMA (Connect to the Arc Voltage divider)

XPTHC-4 has a none isolation voltage divider with arc on function.

Reference Fig3-6：

Connection between **XPTHC-4, Voltage divider and Plasma.**

Please install the Voltage divider in plasma cabinet, or separate box, far away from the CNC controller circuit over 100mm distance.



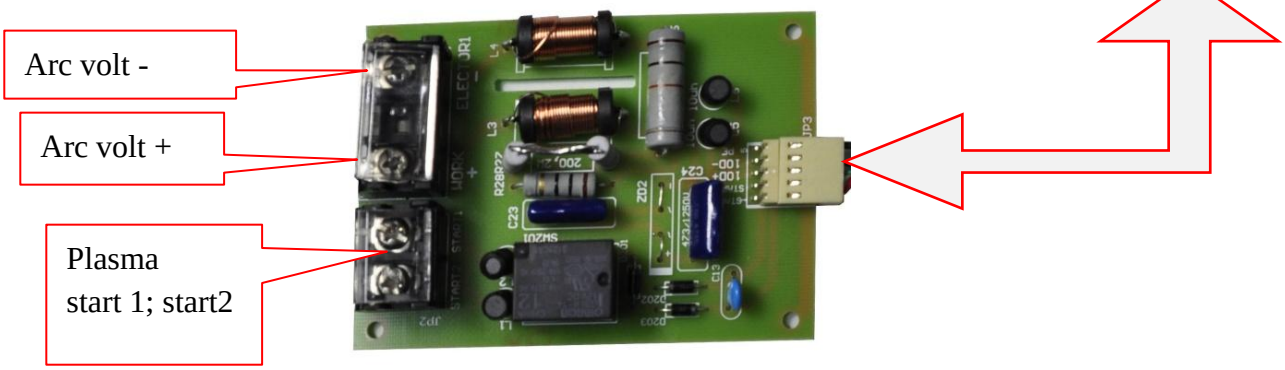


Fig 3-6：**Connection between XPTHC-4 and voltage divider**

3.6.1、 Voltage Divide info

Arc voltage THC must detect the plasma's arc voltage change. Usually the arc voltage is higher than 100V during cutting, and there has strong interference when arc start. So it must be use the voltage divider with 50:1 ratio before leading into THC.

XPTHC-4 is with none Isolation voltage divider, inside the THC with 1:1 isolation.

Voltage divider reference Fig 3-7 :

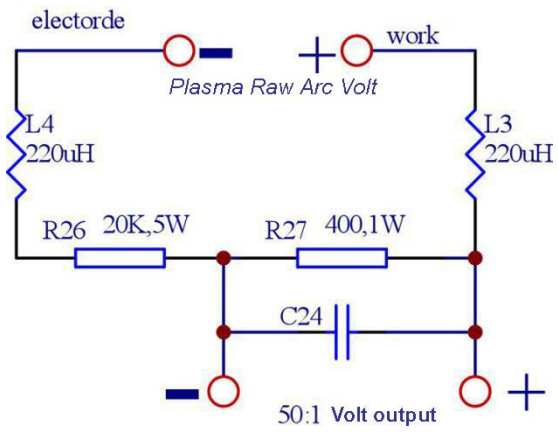


Fig 3-7, None Isolation voltage divider

Due to None Isolation Voltage Divide is directly connected with Plasma Power Supply, to enable THC escape from interference caused by the HF during Plasma Arc Start, the Divided Arc Voltage guided into THC is Time-Delayed. It just needs to prolong the time of lead Arc Voltage into THC, this interference can be avoid effectively.

On XPTHC-4, the delay lead in arc volt into THC is setting by P2 parameter on the operation panel.

3.6.2、Using the Plasma's 50:1 voltage divider solution:

Many plasma has its own 50:1 etc. voltage divider. We provide the 50:1 volt divide's method only.

Please do it as Fig 3-8 :

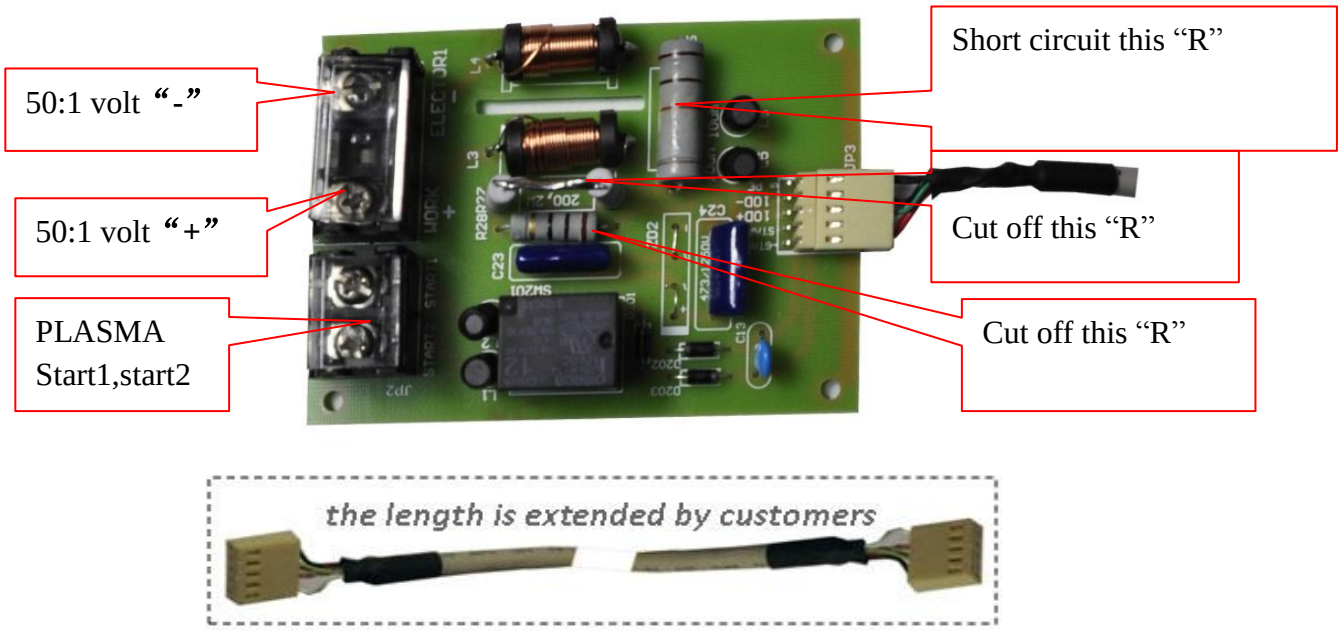


Fig 3-8: Using the Plasma’s 50:1 voltage divider solution

According to Fig 3-8, only need to do with these three Resistors. After that then could use plasma’s own voltage divider output.

4、 XPTHC-4 Diagram Wiring

4.1、Complete THC wiring

Reference Fig4-1 :

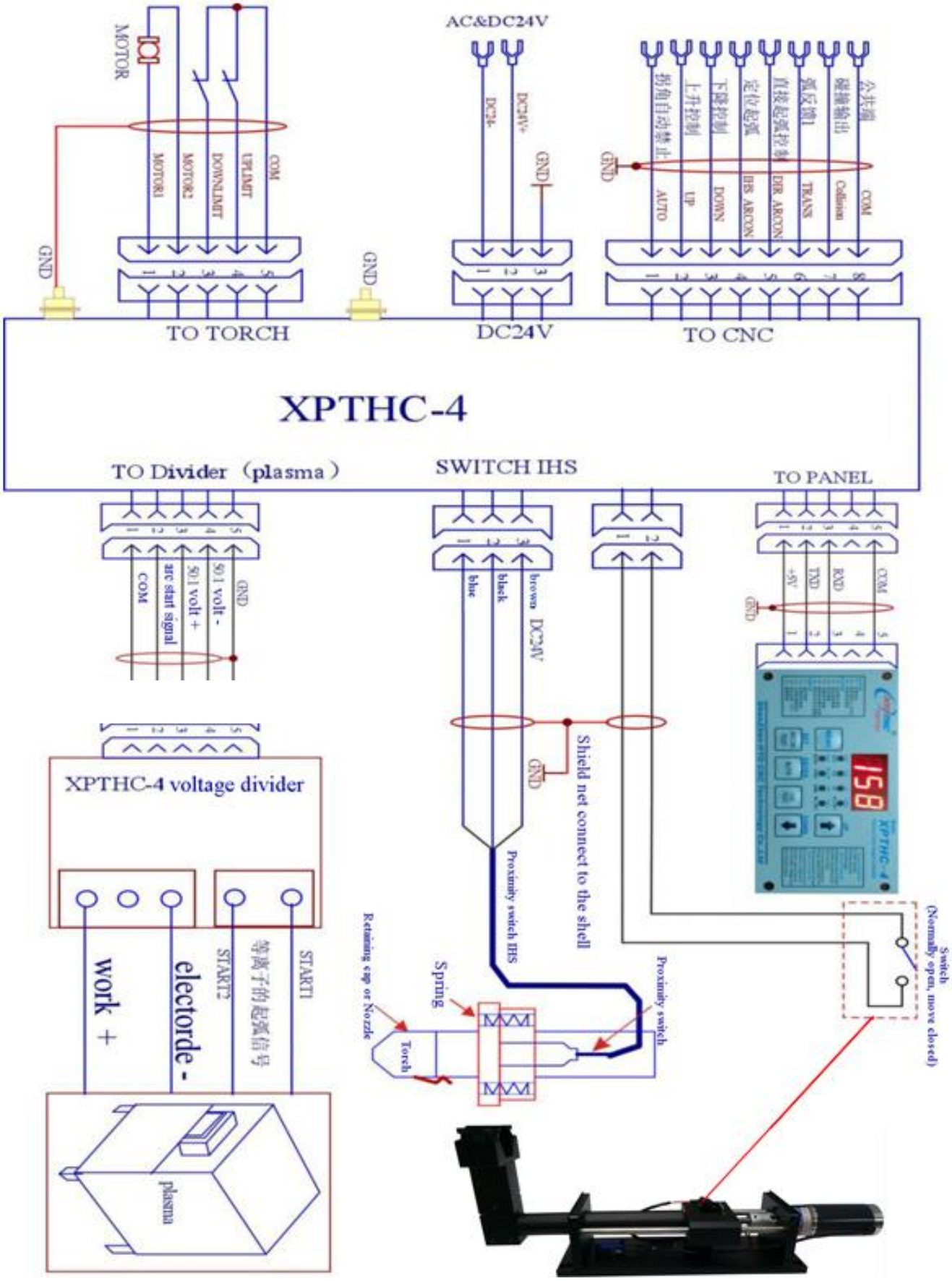


Fig 4-1:THC Complete Wiring

4.2、The connection between XPTHC-4 and SF2012/SF2100 wiring

See Fig 4-2 shows :

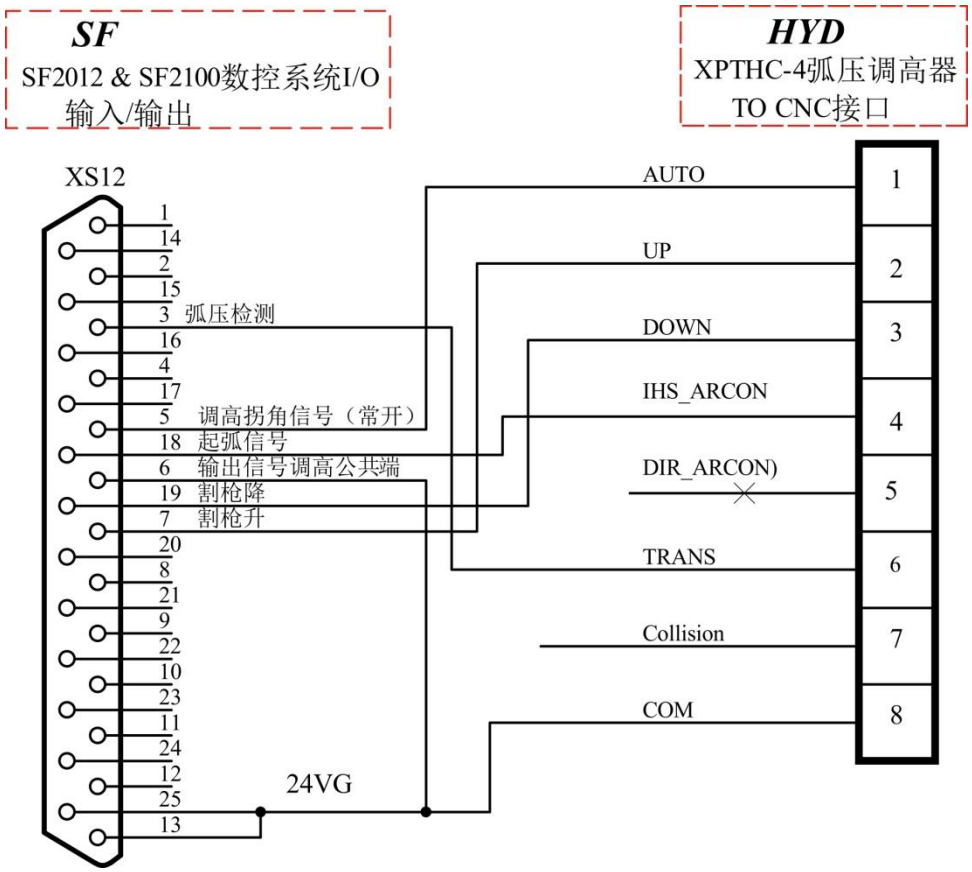


Fig 4-2：XPTHC-4 to CNC Connection

Note：

1、 This is the direct connection to SF2012/SF2100；

2、 This CNC controller is without collision input port, if you need the stop function when collision, please reference SF instruction Fig 4-3 :

3、 If use the PIN5 corner signal, please setting the “P7” to “0” on THC

4、 If for other SF CNC controller, please refer to its instruction’s I/O definition.

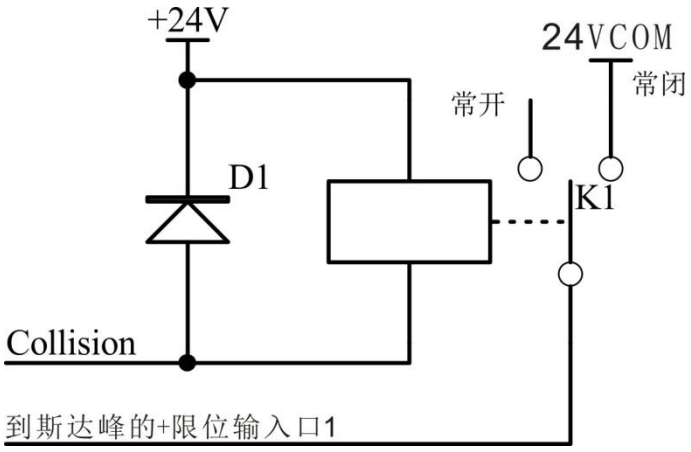


Fig 4-3: connection on the SF for the stop when collision

4.3.、The connection between XPTHC-4 and HYD2000 series wiring

XPTHC-4 to HYD2100、HYD2200、HYD2300、HYD2500, reference Fig 4-4:

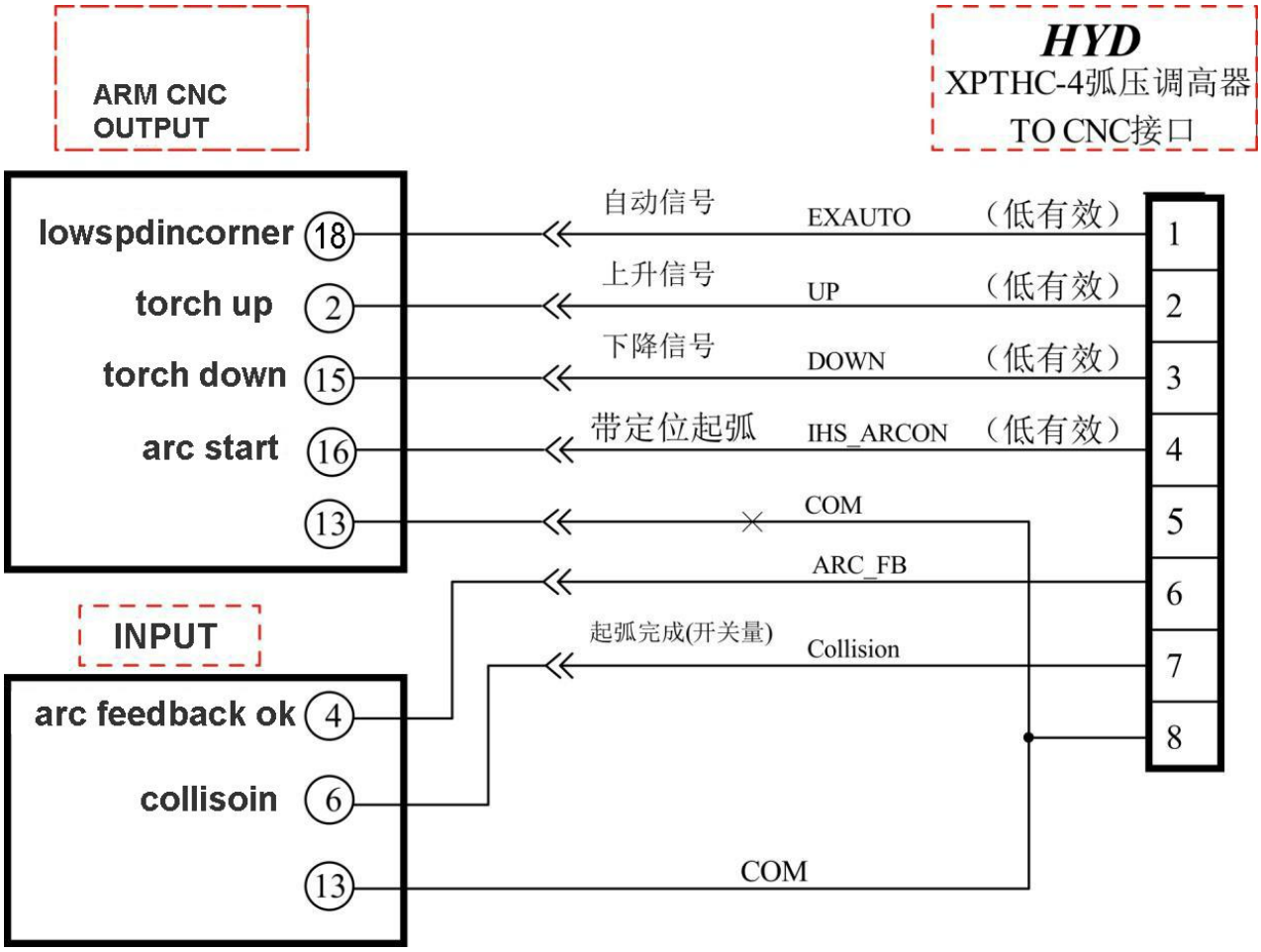


Fig 4-4 ： XPTHC-4 to ARM CNC controller connection

Note：1、It's the direct connection.

2、It requires the CNC controller output signal is low-level effective.

3、If don't change the corner logic on CNC, then please set the "P7" to "0" on THC

5、Important :

1、XPTHC-4 is a new and smart THC with full function, while it's designed for small motor(<25W), so please don't use it for a lifter which motor is more than 30W, avoid to any damaged.

2、XPTHC-4 performance is no relationship with plasma's current

3、Welcome to advise any suggestion and comment, it'll help our company design and develop good products to customers.