



Address:

No. 80, Industrial Road, Toufen , Miaoli, Taiwan

TEL:+886-37-623242

FAX:+886-37-623241

Website www.hust.com.tw

Address:

6th floor of Chengding, Chuangyuan road, Zhongcun , Panyu district,

Guangzhou, Guangdong, china

Address:

Building III.6th Floor, Yabai Industrial Park, Chuangyuan Road, Zhongcun,

Panyu District, Guangzhou, China

TEL: +86-20-84780717 84780917

FAX: +86-20-34786951

Postal code: 511495

Website: www.hust-cnc.com



The company reserves the right to modify the contents of the catalogue without prior notice.

Agent:

KEY TO TOMORROW'S HI-TECH AUTOMATION TECHNOLOGY

HUST

AUTOMATION

HUST CNC CONTROLLER

A6 Series Milling Machine Controller



Open CNC system leader

HUST high performance CNC controller structure



Performance improvement

- | | | |
|---|---|--|
| More universal <ul style="list-style-type: none"> Support SSI absolute encoder Universal + CNC proprietary HMI Bus axis and universal axis hybrid control | International standard specification <ul style="list-style-type: none"> International standard CNC programming International standard HMI scripting language International standard peripheral communication module | High efficiency and high performance <ul style="list-style-type: none"> BUS for MECHATROLINK-III/EtherCAT 64Bit high speed and high precision contour control PREFERCH8000 Block/Second 32-axis linkage, 8-channel combination Flexible channel synchronization High speed and high precision contour control |
|---|---|--|

Application example

High speed and high precision drilling and tapping machine

High speed optical communication

Y-axis servo motor

Servo motor (X-axis)

Servo motor (Y-axis)

Vertical CNC interface with high-speed spindle motor. Tapping precision and high speed, can also be used with multi-spindle to tap and improve processing efficiency.

Machine Center

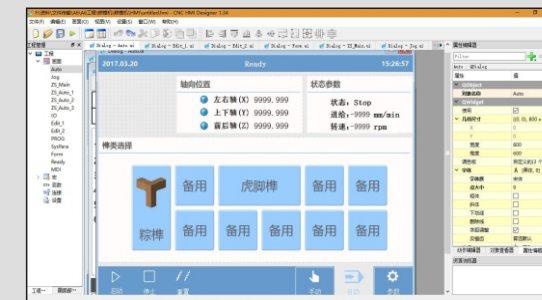
The controller has tool magazine programming and management functions, can be used with a variety of tool magazines, suitable for machine center, compound processing equipment, etc.

Multi-channel multi-spindle scheme

Customized controller, easy to operate, support each station independent Modular processing. Suitable for multi-axis multi-channel composite processing equipment, It can support up to 10 spindles at the same time. It can also be processed independently.

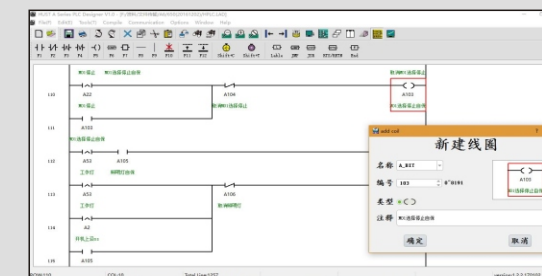
Perfect development platform

Open screen editing software - HMI



- Extensible man-machine attributes for superior performance
- Modular plug-in design, easy to learn
- Expandable plug-in technology makes configuration upgrades more convenient
- HMI.CNC.PLC, executed on the same platform
- Embedded macro editing for complex HMI logic
- Macro combined with PLC.CNC. Event, easy to develop
- Customized HMI design to provide customers with a simple and practical interface development platform

Easy to use ladder editing software - PLC



- Easy to use editing method
- Support data interaction between different channels
- Support for calling the self-defined script module
- Support multi-channel independent PLC operation
- Provide quick interface to system functions and develop faster

Open MACRO programming

- Compatible with standard CNC MACRO calculations, and development of command redefinition, decimal point redefinition, making non-standard sports customization development more convenient.
- The mixed programming mode of PREFETCH and REALTIME commands perfectly solves the shortcomings of CNC MACRO that cannot be executed in real time.

		Example
#*n	n is a positive integer	#*100
#*Expression	Expressed as:	
	(1) Digital	#*[100]
	(2) Variable	#*[#10]
	(3) Arithmetic	#*[#1*#2]
	(4) Function	#*[sin (#2)]

Example
Sample program: Find the odd-numbered sum of 1~100

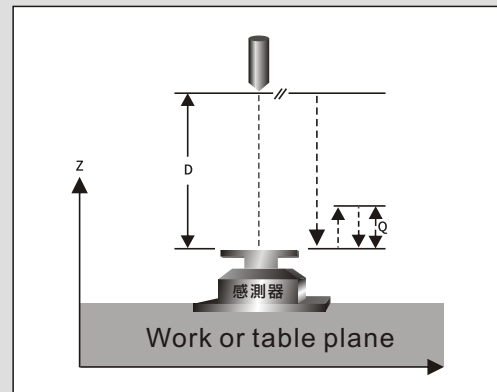
```

O0095
#1=0;           Initial value of solution
#2=1;           Initial value of the addend
WHILE[#2 LE 100]D01;  Execute the loop body when the addend is less than 100
#1=#1+#2;       Calculation solution
#2=#2+2;        Next odd number
END 1           Jump to the loop body
M30;           End of program
    
```

Note: * indicates any "v", "V", "u", "U", "s", "S", "r", "R", "m", "M", "b", "B", "c", "C" character in <>. For example: #1, #v1, #V1, #u1, #U1, #s1, #S1, #r1, #R1, #m1, #M1, #b1, #B1, #c1, #C1

Mill function introduction

Automatic tool length measurement



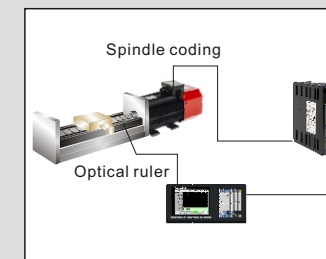
Automatic measurement of tool length by G31 function and external sensor.

The program writes the G31 command to move the Z axis downward.

When the sensor is touched, the machine stops momentarily and records the current position, and compensates the tool length compensation through the template program.

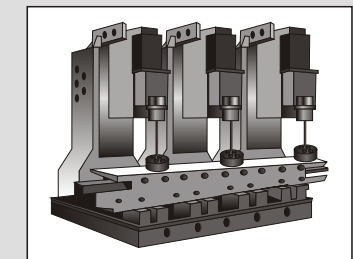
The frequency response speed is up to 20KHZ, which provides an effective solution for high-speed detection functions, greatly reducing the detection error caused by the unacceptable speed and low repeatability.

Full closed loop control



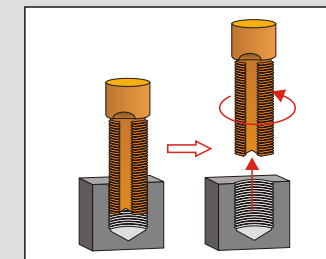
Real-time compensation is implemented by the system integrated motor encoder feedback signal and linear scale feedback signal to reduce the influence of mechanical clearance and ensure the positioning accuracy of the mechanical terminal.

Multi-spindle tapping



The high-end controller can support 10 high-speed tapping modules, and can select simultaneous tapping or independent tapping according to requirements.

Tapping retreat



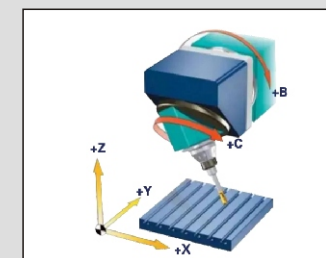
If there is an emergency interruption during the tapping process, you can enter the automatic retraction interface and automatically retract the relevant parameters.

Variety of tool magazine modules



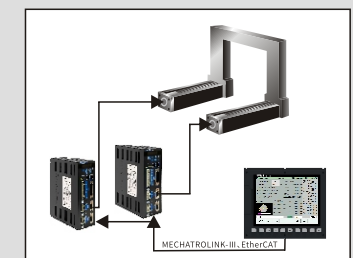
The controller can be connected to various types of tool magazines to complete various processing requirements, greatly shortening the processing time and improving the processing efficiency.

Tool nose control (RTCP)



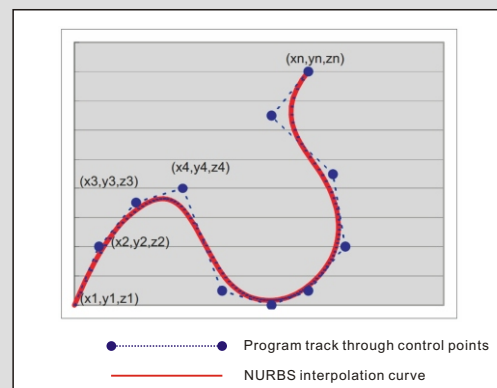
The controller provides 3D tool length compensation. The customer only needs to calculate the workpiece coordinate coordinate point on the CAM software. The system will automatically calculate the tool nose point position to ensure that the tool tip point is on the contour surface.

Gantry synchronization axis control



The gantry synchronous axis function can simultaneously perform the displacement of multiple pairs of feed axes without mechanical deviation. The system can quickly process the closed loop control of the synchronous axis and support the absolute value serial bus encoder such as SSI to improve the performance and efficiency of gantry synchronous control.

High speed and high precision

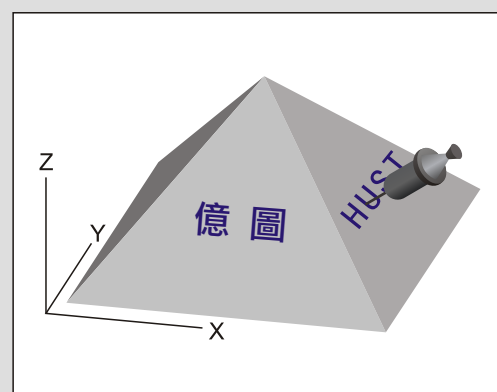


High-speed path processing technology, achieving high-speed small-line processing of up to 1000 knots/second, and NURBS optimization of line segment path, smoothing its singular points, ensuring machining accuracy and improving machining efficiency.

NURBS spline fitting technology, multiple fitting of line segments, optimizing the path, producing controllable precision, which is conducive to the smooth curve of production and processing.

Support constant JERK control technology, high speed processing is more stable.

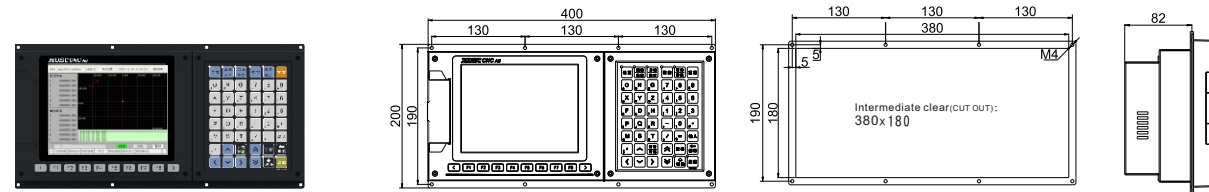
Inclined plane machining



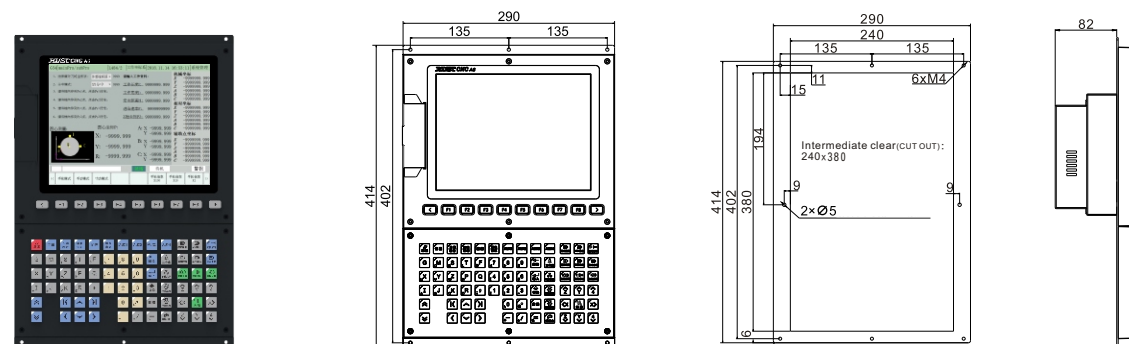
Tilting the workpiece due to uneven mold or table, or directly planning the path in the inclined plane. According to the plane machining design program, the inclined plane machining can be completed by setting the tilt angle by parameters. Convenient for the work plane CNC program on an inclined plane, or solve the trouble that the machining program cannot be shared because of the assembly / clamping tilt of the machine.

CNC Controller size

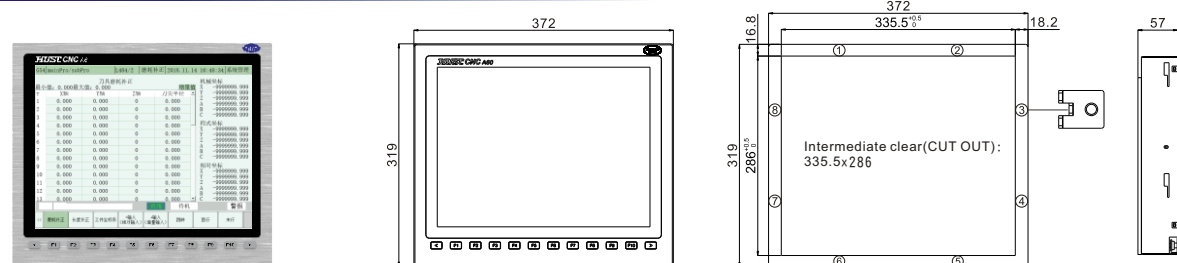
Order number: A6KD-M (8")



Order number: A6KDLV-M (10.4")



Order number: A6SKDL15V-M (15")



Accessories specifications

Order number: A6\SIO(I:32 O:32)



A6\SIO\I32O32\V4
Size: 158 x 86 x 46 (mm)
Input mode: NPN.PNP
Input Current: 10mA
Single point output maximum current: 1A
32 points output maximum current: 16A

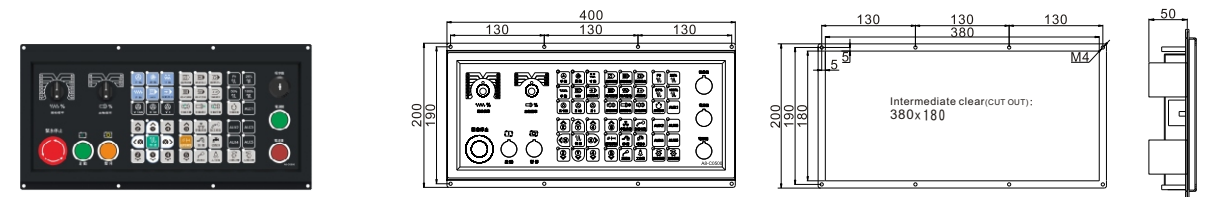
Order number: A6\SIO(I:16 O:16)



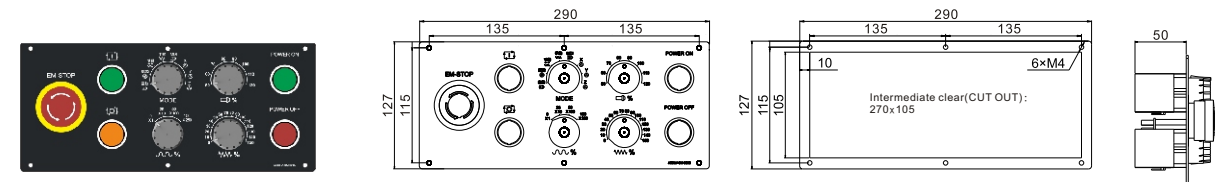
A6\SIO\I16O16\V4
Size: 100 x 86 x 46 (mm)
Input mode: NPN.PNP
Input Current: 10mA
Single point output maximum current: 1A
16 points output maximum current: 16A

輔助面板尺寸圖

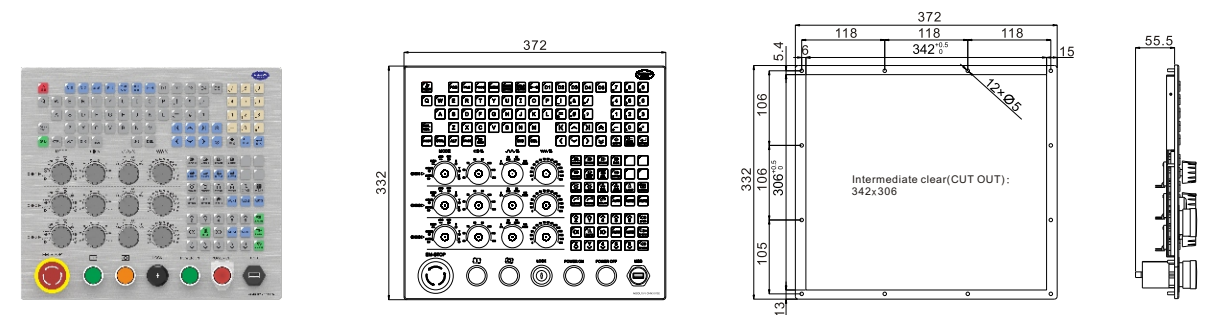
8" CNC Controller size



10.4" CNC Controller size



15" CNC Controller size



Accessories specifications

Order number: A6\SSR(O:4)



Size: 76 x 86 x 42 (mm)
AC input: maximum current 8A
Factory fuse setting: 5A
AC output: maximum current 4A

Mill function specification sheet

	Name	A6KD-M	A6KDLV-M	A6SKDLV-M	A6SKDL15V-M	
System specification	Maximum support channel	2	2	2	8	
	Maximum number of axes (single channel)	6	6	6	12	
	Maximum number of linked axes (single channel)	6	6	6	6	
	Maximum number of spindles	10	10	10	10	
	Maximum number of extended axes	40	40	40	40	
	Display size	8寸	10.4 inch		15寸	
	DA/AD	8/8 (standard, expandable to 64 groups)				
	Operating system	RT Linux				
	RAM	512MB				
	Program memory	4GB				
	Pre-read single block number	1000b/s				
	Minimum control unit	0.00001mm				
	Maximum number of tool compensation groups	160 groups				
	Transmission	USB/RS232/RS485/LAN/WIFI				
	Bus function	MECHATROLINK-III/EtherCAT				
	Absolute function	Support MIII、EtherCAT、MODBUS 485、SSI Absolute				
	I/O	Standard : 16/16 or 32/32 Maximum expansion : 512/512				
	Program function	IOT Industrial Internet of Things	Support			
		Processing program international standard (G code)	Support			
Macro programming standard		Macro B				
Background edit		Support				
Conversational intelligent programming		Support				
Program USB transfer		Support				
Automatic program error detection		Support				
Program lock function		Limit program editing (optional)				
Compound function	Multi-channel function	Support (optional) 16 channels				
	Backlash function	Support				
	Multi-spindle function	Supports up to 10 spindles simultaneously tapping				
	Axis Coupling/Exchange/Mixing function	Support				
High speed and high precision	Robot independent channel control module	Support (optional) using G code to plan the path				
	Spindle (C) axis dynamic positioning	No need to stop switching, positioning can be performed directly(requires servo spindle)				
	Single block non-stop mode	Support				
	CONSTANT JERK control	Support				
	Automatic corner control	Support				
	Arc radius speed limit	Support				
	NURBS fitting	Support				
Compensation function	Full closed loop control function	Speed control full closed loop. Bus control full closed loop				
	Taper compensation	Support				
	Backlash compensation	Support				
	Arc angle compensation	Support				
	Two-way screw error compensation	Support				
Inclined plane	Feed forward compensation	Support				
	Tilting axis processing	Support				
Five-axis function	Inclined plane machining	Support				
	Five-axis tool nose control (RTCP)	Support				
	Smooth tool nose function (Smooth TCP)	Support				

	Name	A6KD-M	A6KDLV-M	A6SKDLV-M	A6SKDL15V-M
Auxiliary fuction	Custom-defined boot screen	Support			
	Custom-defined M-code	Support			
	Custom-defined G-code	Support			
	Bus axis and universal axis control	Support			
	I/O redefinition function	Support			
	DMC processing	Support			
	Scale	Support			
	Acceleration/deceleration type	Linear type (support JERK). S type. Exponential type			
	Tool life management	Time limit. Number limit management			
	Protective function	Safety door. Hard limit. Soft limit. Chuck is not clamped into the test. Tool change tool detection			
	MPG test	Support MPG test. MPG retract function			
	MPG interrupt	Support			
	Tapping quickly retracts	Support			
	Restart function	Program breakpoints automatically find and restart. Custom-defined restart			
	Multi-function MPG hand-wheel	Support			
	Graphical simulation	Graphic preview before program execution, dynamic drawing during program execution			
	Authority management	Parameter authority management			
	Perpetual calendar lock machine	Support			
	Axial load monitoring	Support			
	Oscilloscope function	Real-time monitoring of system commands and servo feedback pulse waveforms			
	Following error detection	Support			
	Spindle speed arrival detection	Support			
	Diversified tool magazine	Turntable Tool Magazine. Carousel Tool Bank. Customized tool magazine			
	Automatic tool setting	Support			
	Data backup	Program backup. Parameter backup. Tool compensation backup			
G-code command	High precision track control mode	Support			
	Path smoothing mode	Support			
	NURBS curve interpolation	Support			
	Tool offset	Support			
	Thread cutting	Support			
	High-speed peck drilling canned cycle	Support			
	Left hand tapping canned cycle	Support			
	Fine boring canned cycle	Support			
	Drilling canned cycle	Support			
	Pause drilling canned cycle at the bottom of the hole	Support			
	Peck drilling canned cycle	Support			
	Tapping canned cycle	Support			
	Drilling canned cycle	Support			
	High speed drilling canned cycle	Support			
	Semi-automatic fine boring canned cycle	Support			
	Pause bottom of the hole boring canned cycle	Support			
	Multiple sets of high speed and high precision parameters	Support			