

# CNCmakers Limited

Address: No.168, Xiadu Road, Haizhu District, Guangzhou, China 510300

Email: [info@CNCmakers.com](mailto:info@CNCmakers.com)

Website: [www.CNCmakers.com](http://www.CNCmakers.com)

Tel: +86-138-24444158

Fax: +86-20-84185336

## 980TDc TURNING MACHINE CNC SYSTEM

### Brief Introduction

980TDc is a new product upgraded from GSK980TDb. It has two structural types: horizontal and vertical, adopting 8.4" colored LCD, controls 5 feeding axes (including Cs axis), 2 analog spindles. The minimum command unit is 0.1  $\mu$  m. Newly-added soft function press keys, graphical interface design, dialogue box operation, friendly human machine interface, PLC ladder diagram on-line display, real time monitoring, MPG trial-cut and multiple time-limit stop function, auxiliary programming and program path review function. As an upgraded product of GSK980TDb, GSK980TDc is the best choice for CNC turning machine technology upgrade.



980TDc



980TDc-V

### Characteristics

- X, Z, Y, 4th, 5th, axis name and axis type of Y, 4th, 5th can be defined
- 2ms interpolation period, control precision 1  $\mu$  m, 0.1  $\mu$  m
- Max. speed 60m/min (up to 24m/min in 0.1  $\mu$  m)
- Adapted servo spindle can realize spindle continuous positioning, rigid tapping
- Built-in multi PLC programs, the currently running PLC program can be selected.
- PLC ladder diagram on-line display, real time monitoring.
- MPG trial-cut
- Auxiliary programming
- Editing path preview
- Counter
- Multiple time-limit stop
- Tool offset measured value directly input function
- G71 command supports the cycle cutting of groove shape outline
- Support the programming of macro command in sentence type and the calling of macro program with parameter.

# CNCmakers Limited

Address: No.168, Xiadu Road, Haizhu District, Guangzhou, China 510300

Email: [info@CNCmakers.com](mailto:info@CNCmakers.com) Website: [www.CNCmakers.com](http://www.CNCmakers.com) Tel: +86-138-24444158 Fax: +86-20-84185336

- Support circular arc(3points), cylindrical and polar coordinate interpolation, etc.
- Support programming in metric system/inch system, with functions of auto tool-setting, auto chamfering, tool life management.
- Displays in Chinese/ English/ Spanish/ Russian, which can be selected with parameter.
- With USB interface, it supports file operation in flash disk, system configuration and software upgrade.
- Analog voltage output of 0v~10v in two channels, support two spindles.
- One channel for MPG input, supporting external MPG.
- Common input in 41 points/common output in 36 points, I/O contacts can be extended
- Panel size, mounting holes position, command system are compatible with GSK980TDb, mounting holes dimension has minor difference.

## Technical Specification

### ◆ Number of control axes

- Number of control axes: 5 (X, Z, Y, 4<sup>th</sup> and 5<sup>th</sup>)
- Number of linkage axes: 3
- Number of PLC control axes: 5

### ◆ Feeding axes function

- Minimum input/output increment

ITEM		μ grade (IS-B)		0.1μ grade (IS-C)	
		min. input unit	min. output unit	min. input unit	min. output unit
Machine tool (metric system)	metric input (G21)	0.001 (mm)	0.001 (mm)	0.0001 (mm)	0.0001 (mm)
		0.001 (deg)	0.001 (deg)	0.0001 (deg)	0.0001 (deg)
	inch input (G20)	0.0001 (inch)	0.001 (mm)	0.00001 (inch)	0.0001 (mm)
		0.001 (deg)	0.001 (deg)	0.0001 (deg)	0.0001 (deg)
Machine tool (inch system)	metric input (G21)	0.001 (mm)	0.0001 (inch)	0.0001 (mm)	0.00001 (inch)
		0.001 (deg)	0.001 (deg)	0.0001 (deg)	0.0001 (deg)
	inch input (G20)	0.0001 (inch)	0.0001 (inch)	0.00001 (inch)	0.00001 (inch)
		0.001 (deg)	0.001 (deg)	0.0001 (deg)	0.0001 (deg)

- Position command range

ITEM		Position command range
μ grade (IS-B)	metric input (G21)	-99999.999 ~ 99999.999 (mm)
		-99999.999 ~ 99999.999 (deg)
	inch input (G20)	-9999.9999 ~ 9999.9999 (inch)
0.1 μ grade (IS-C)	metric input (G21)	-9999.9999 ~ 9999.9999 (mm)
		-9999.9999 ~ 9999.9999 (deg)
	inch input (G20)	-999.99999 ~ 999.99999 (inch)
		-999.99999 ~ 999.99999 (deg)

- Rapid traverse speed

ITEM	μ grade (IS-B)	0.1μ grade (IS-C)
Machine tool (metric system)	0 mm/min ~60000 mm/min	0 mm/min ~24000 mm/min
Machine tool (inch system)	0 inch/min~6000 inch/min	0 inch/min~2400 inch/min

- Rapid rate: F0, 25%, 50%, 100% 4 grades of real time trimming
- Feedrate:

ITEM		μ grade (IS-B)	0.1μ grade (IS-C)
Machine tool (metric system)	Feed/rev.(G98)	0 mm/min ~15000 mm/min	0 mm/min ~15000 mm/min
	feed/min.(G99)	0.001 mm/r ~500 mm/r	0.0001mm/r ~500mm/r
Machine tool (inch system)	feed/rev.(G98)	0 inch/min ~5800 inch/min	0 inch/min ~5800 inch /min
	feed/min.(G99)	0.0001inch/r ~ 50inch/r	0.00001inch/r~50inch/r

# CNCmakers Limited

Address: No.168, Xiadu Road, Haizhu District, Guangzhou, China 510300

Email: [info@CNCmakers.com](mailto:info@CNCmakers.com) Website: [www.CNCmakers.com](http://www.CNCmakers.com) Tel: +86-138-24444158 Fax: +86-20-84185336

- Feedrate: 0~150% 16 grades tuning in real time
- Interpolation mode: linear, circular arc (3 points), thread, ellipse, parabola, and rigid tapping
- Auto chamfering
- MPG trial-cut function

## ◆ Thread function

- Types: equal pitch straight thread/taper thread/end face thread, variable pitch straight thread/taper thread/end face thread
- Number of thread: 1~99
- Single/multiple thread, metric and inch system straight thread/taper thread/end face thread, equal pitch thread and variable pitch thread
- Thread retraction length, angle, and speed can be set
- Thread pitch: 0.01mm~500mm or 0.06 gear/inch~25,400 gear/inch

## ◆ Acceleration and deceleration function

- Cutting feeding: Linear type
- Rapid traverse: Linear type or S type
- Thread cutting: Linear type or index type is selectable.
- The starting speed, finishing speed and time of acceleration and deceleration are set by the parameter.

## ◆ Tool function

- Tool length compensation (tool offset) 32 sets
- Tool nose radius compensation (C type)
- Tool wearing compensation 32 sets
- Tool life management 8 type per set
- Method of setting tools: Tool-setting in fixed position, trial-cut tool-setting, return to reference point, auto tool-setting
- Tool offset executing mode: Rewriting coordinate mode, tool traverse mode
- Tool offset measured value directly input function

## ◆ Precision compensation

- Backlash compensation (mode and rate are set with parameter, range: 0mm ~ 2mm or 0 inch ~ 0.2 inch)
- Pitch error compensation in memory type: 1024 points in total, points of each axis are set with parameter

## ◆ Human machine interface

- 8.4" colored LCD
- Display in Chinese, English, Spanish, Russian, and Portuguese, etc.
- Support soft function button operation
- Real time clock
- Counter

## ◆ PLC function

- 2 grades PLC function, 5000 steps at most, the refresh cycle of the 1st program is 8ms
- PLC program download
- PLC program on-line display, real time monitoring
- Support PLC warning and PLC alarming
- Support multiple PLC program (16 at most), current running PLC program can be chosen
- Basic I/O: 41 input/ 36 output

## ◆ Program auxiliary

- Graph programming assistance
- Grammar inspection
- 2D tool path display
- Graph preview

# CNCmakers Limited

Address: No.168, Xiadu Road, Haizhu District, Guangzhou, China 510300

Email: [info@CNCmakers.com](mailto:info@CNCmakers.com) Website: [www.CNCmakers.com](http://www.CNCmakers.com) Tel: +86-138-24444158 Fax: +86-20-84185336

## ◆ Operation management

- Operation mode: Edit, Auto, MDI, Machine zero-return, MPG Single step, Manual,
- Program Zero-return, MPG trial-cut
- Multiple time-limit stop
- Multi-level operation authorization management

## ◆ Program editing

- Program capacity: 40MB, 384 programs (including subprograms, macro programs)
- Editing function: program/block/characters research, rewriting and deleting
- Program format: ISO code, support macro command programming in sentence type, programming of relative coordinate, absolute coordinate and hybrid coordinate.
- Program calling: Support macro program with parameter, subprogram nesting of 4 layers.

## ◆ Communication function

- RS232: Files of part program and parameter, etc can be transmitted in two-way, support PLC program, software upgrade of Serial Ports
- USB: File operation and DNC processing, support PLC programs, system software ,can be upgraded by USB

## ◆ Safety function

- Emergency stop
- Hardware travel limit
- Software travel limit
- Data backup and recovering

## List of G codes



### List of G codes

G00	Rapid positioning	G36	Auto tool compensating and measuring X
G01	Linear interpolation	G37	Auto tool compensating and measuring Z
G02	CW arc interpolation	G40	Cancel tool nose radius compensation
G03	CCW arc interpolation	G41	tool nose radius left compensation
G04	Dwell, exact stop	G42	tool nose radius right compensation
G05	Arc interpolation of three points	G50	set coordinate system for workpiece
G06 .2	CW ellipse interpolation	G52	partial coordinate system
G06 .3	CCW ellipse interpolation	G54 ~ G59	coordinate system of workpiece
G07 .1	Cylindrical interpolation	G65	macro command non-mode calling
G07 .2	CW parabola interpolation	G66	Macro program mode calling
G07 .3	CCW parabola interpolation	G67	Cancel macro program mode calling
G10	Data input mode is valid	G70	Finishing cycle
G11	Cancel data input mode	G71	Axial roughing in cycle (support groove)
G12 .1	Start polar coordinate interpolation mode	G72	Radial roughing cycle
G13 .1	Cancel polar coordinate interpolation mode	G73	Close cutting cycle
G15	Cancel polar coordinate command mode	G74	Axial grooving cycle
G16	Start polar coordinate interpolation mode	G75	Radial grooving cycle
G17	XY plane selection	G76	Multiple thread cutting cycle
G18	ZX plane selection	G80	Cancel rigid tapping state
G19	YZ plane selection	G84	Axial rigid tapping
G20	Select unit in inch system	G88	Radial rigid tapping
G21	Select unit in metric system	G90	Axial cutting cycle
G28	Auto return to mechanical zero point	G92	Thread cutting cycle
G30	Reference point 2nd, 3rd and 4th return on machine	G94	Radial cutting cycle
G31	Jumping function	G96	Constant surface speed control
G32	Equal thread pitch cutting	G97	Cancel constant surface speed control
G32 .1	Rigid thread cutting	G98	Feeding/min
G33	Z axis tapping in cycle	G99	Feeding/rev
G34	Variable thread pitch cutting		

# CNCmakers Limited

Address: No.168, Xiadu Road, Haizhu District, Guangzhou, China 510300

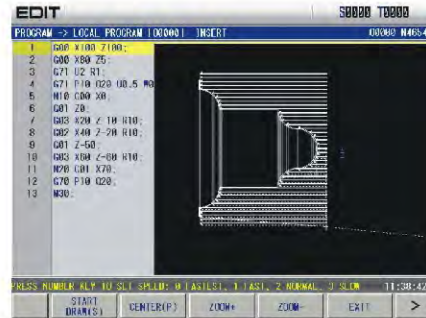
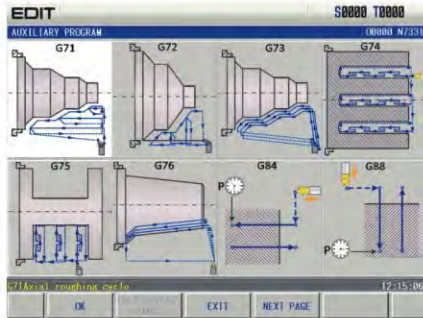
Email: info@CNCmakers.com

Website: www.CNCmakers.com

Tel: +86-138-24444158

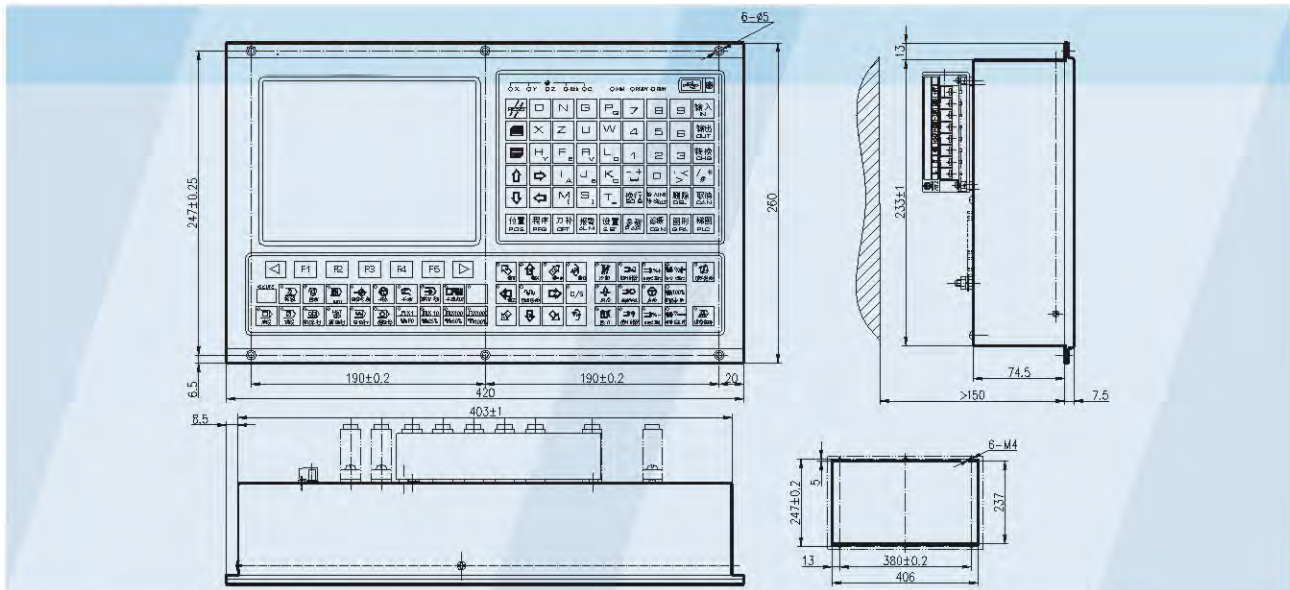
Fax: +86-20-84185336

## Edit programming

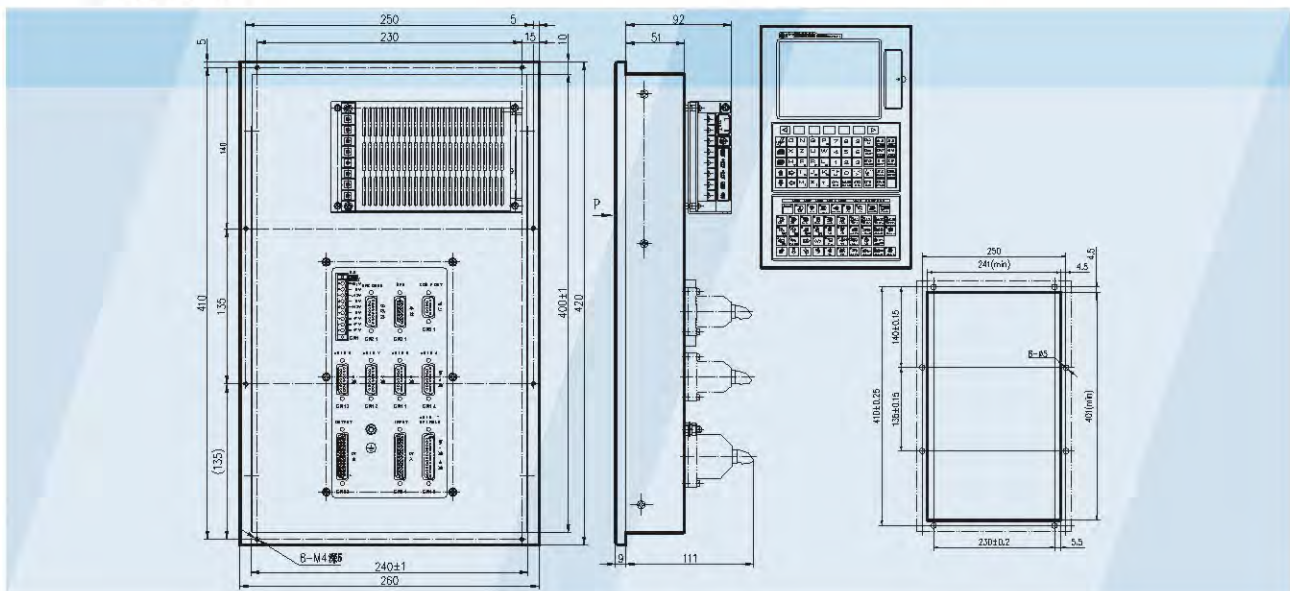


## Installation Dimension of System Panel

980TDc



980TDc-V



# CNCmakers Limited

Address: No.168, Xiadu Road, Haizhu District, Guangzhou, China 510300

Email: [info@CNCmakers.com](mailto:info@CNCmakers.com)

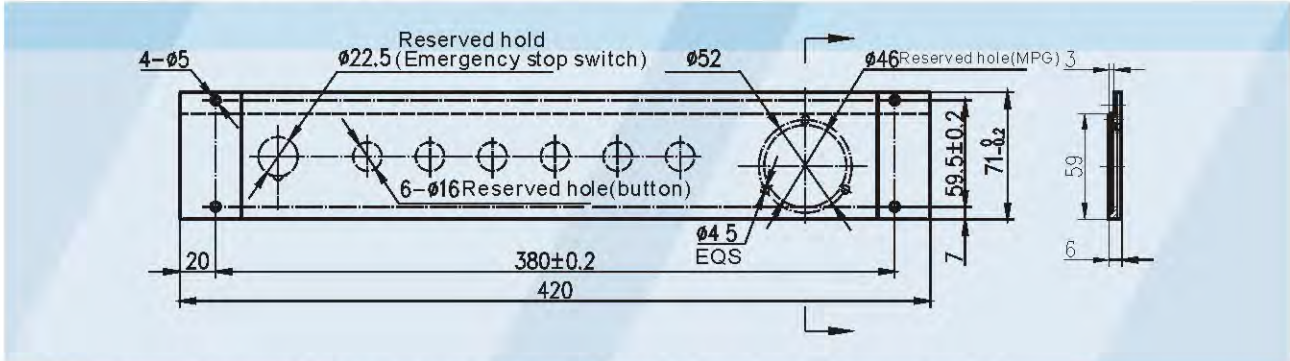
Website: [www.CNCmakers.com](http://www.CNCmakers.com)

Tel: +86-138-24444158

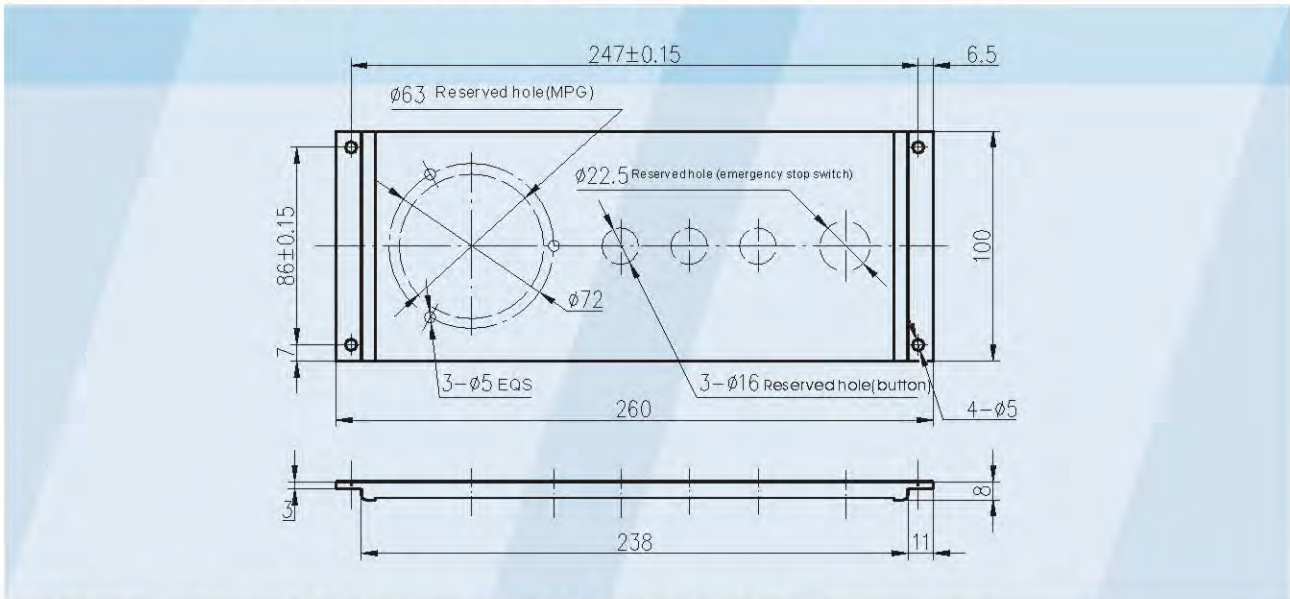
Fax: +86-20-84185336

## ● Installation Dimension of Additional Panel (Optional part)

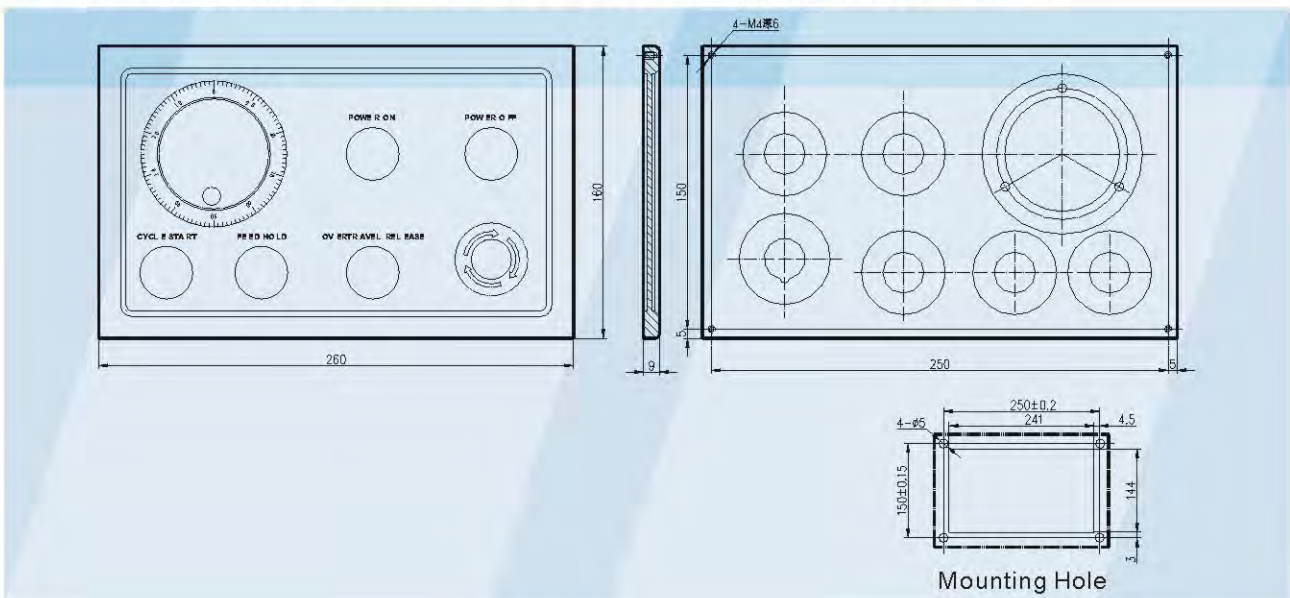
- Additional panel AP01 (opt for GSK980TDc, installing below)



- Additional panel AP02 (opt for GSK980TDc, installing at side)



- Additional panel Ap03 (opt for GSK980TDc-V, installing below)



# CNCmakers Limited

Address: No.168, Xiadu Road, Haizhu District, Guangzhou, China 510300

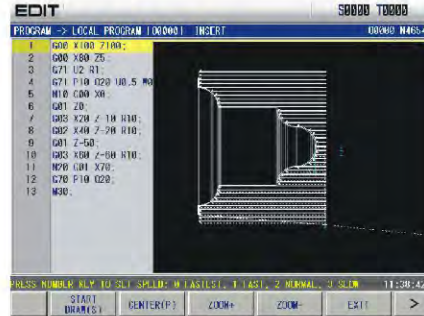
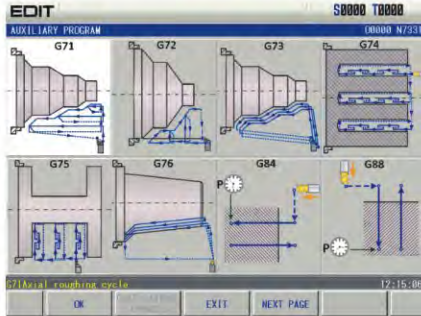
Email: info@CNCmakers.com

Website: www.CNCmakers.com

Tel: +86-138-24444158

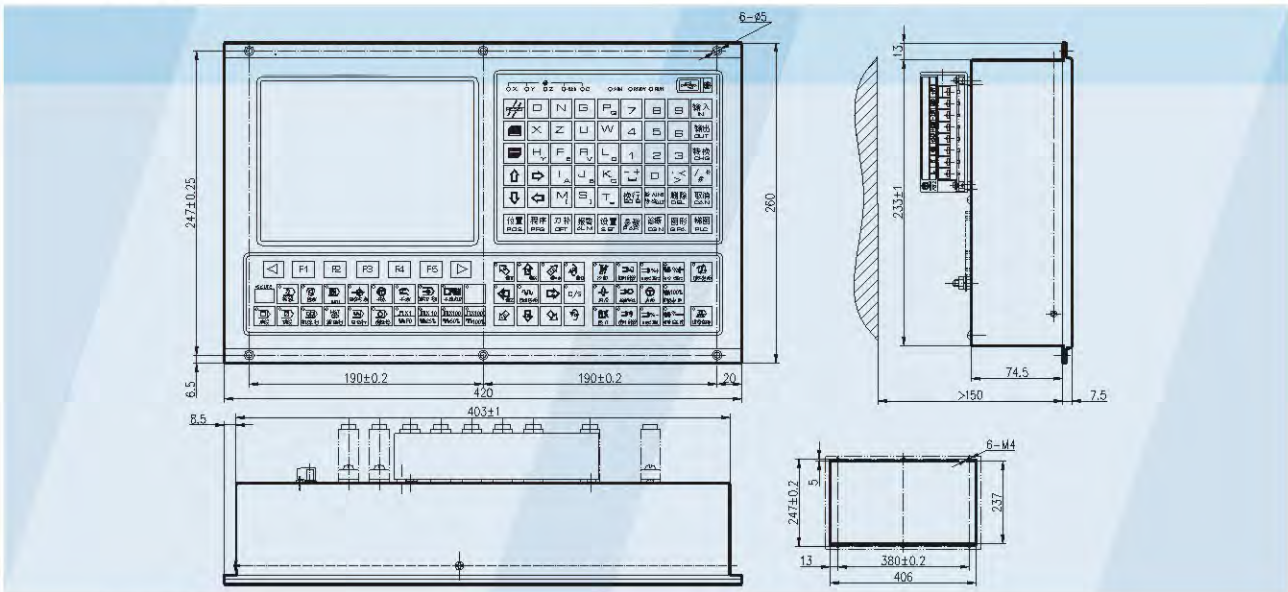
Fax: +86-20-84185336

## Edit programming

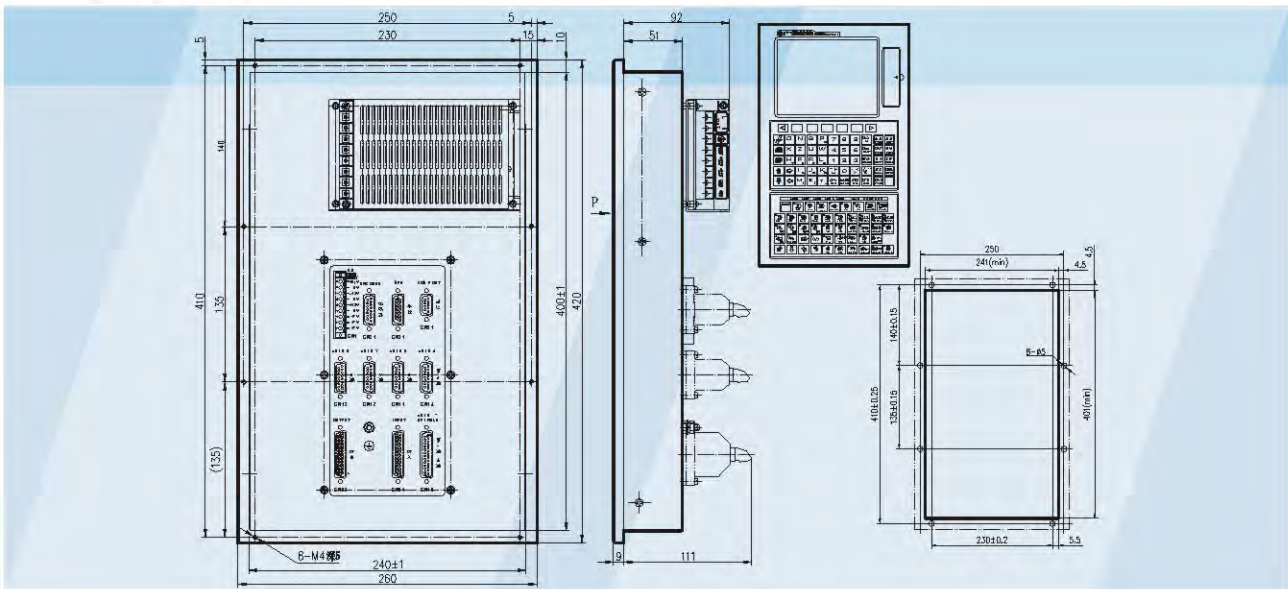


## Installation Dimension of System Panel

980TDc



980TDc-V



# CNCmakers Limited

Address: No.168, Xiadu Road, Haizhu District, Guangzhou, China 510300

Email: [info@CNCmakers.com](mailto:info@CNCmakers.com)

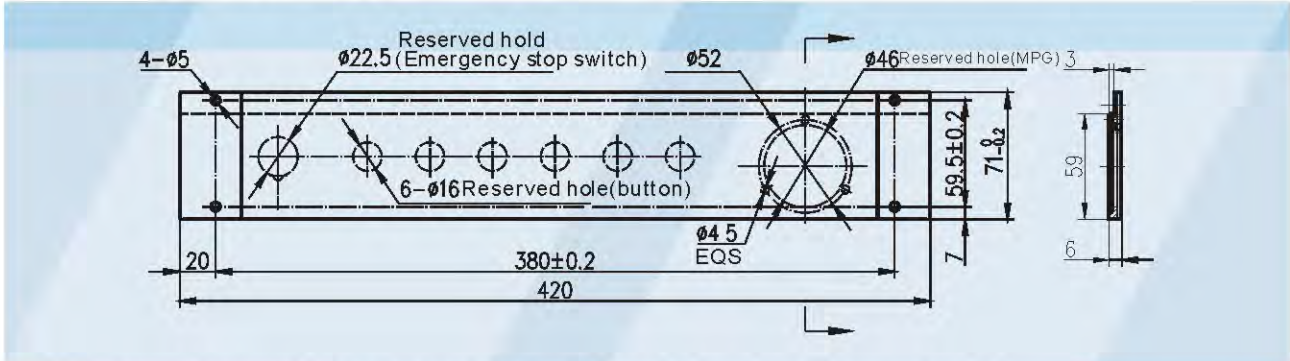
Website: [www.CNCmakers.com](http://www.CNCmakers.com)

Tel: +86-138-24444158

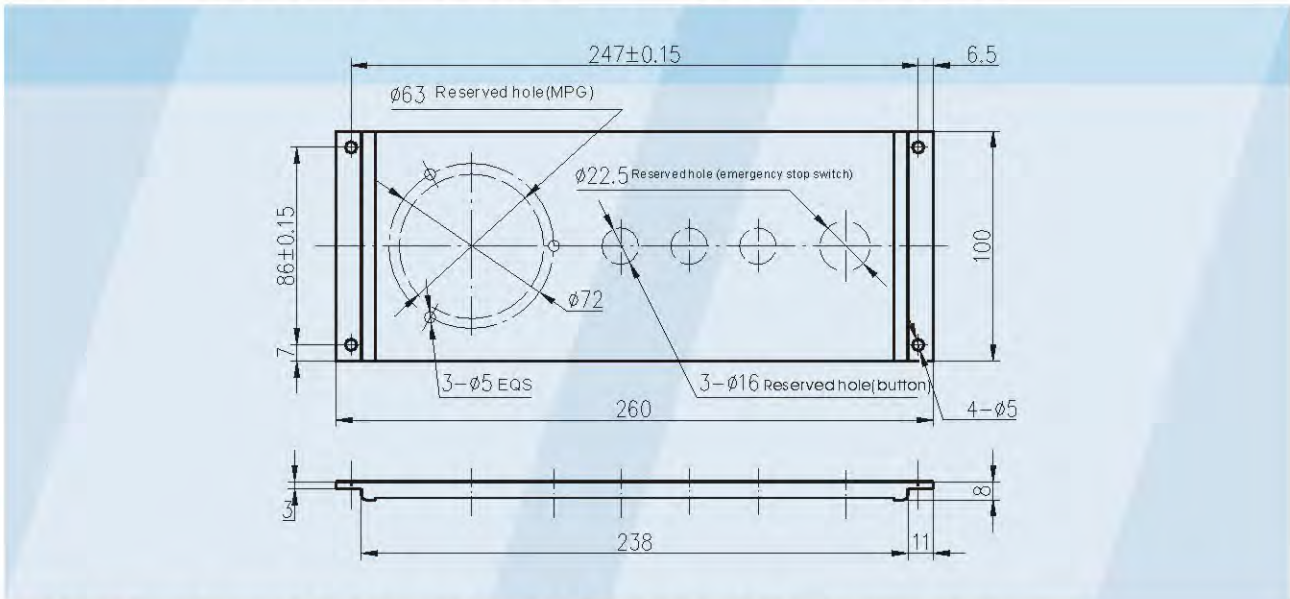
Fax: +86-20-84185336

## ● Installation Dimension of Additional Panel (Optional part)

- Additional panel AP01 (opt for GSK980TDc, installing below)



- Additional panel AP02 (opt for GSK980TDc, installing at side)



- Additional panel AP03 (opt for GSK980TDc-V, installing below)

