

GSK

Command the Future_



ISO9001:2000



▶ CNC SYSTEM CATALOGUE

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AGENT

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GSK CNC EQUIPMENT CO., LTD.



GSK CNC EQUIPMENT CO., LTD. (hereafter “GSK”) was founded in 1991. Over 20 years, we are professional and concentrate on the R&D and manufacturing of CNC systems, servo drivers and motors; striving to explore the two areas -- industrial robots and precise all-electric injection molding machine. Now we are the biggest CNC designer and manufacturer in China.

GSK has become the most preferred brand in CNC industry in China. Our products are sold to more than 40 countries such as USA, Canada, Mexico, Brazil, Argentina, Peru, Columbia, Australia, New Zealand, United Arab Emirates, Jordan, Thailand, Singapore, Malaysia, India, Korea, Russia, Poland, Turkey, Ukraine, Portugal, Egypt, South Africa, etc. The annual sales volume occupies over 50% in domestic market. More than 300 machine tools factories assemble CNC machines with GSK CNC Systems. Since 2000, the annual production and sales volume has been on the Top 1 in the past 12 years in China.

We are continuously focusing on the overseas market. We have taken part in many overseas exhibitions and are upsizing up our business throughout the world. In order to provide customers with best technical supports and consultation services, we have set up oversea service offices and agencies in over 40 countries, formed a complete service network.

Guided by the company concept “Building Century Enterprise, Creating Golden Brand” and service spirit “Seeking for greater perfection, satisfying our customers”, we are striving for promoting our users' products value and efficiency by CNC systems through our continuous technological improvement and innovation.



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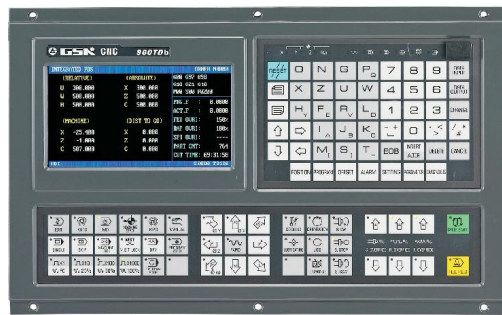
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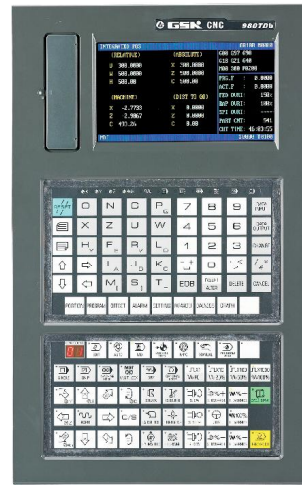
GSK980TDb TURNING MACHINE CNC SYSTEM

Brief Introduction

GSK980TDb, controls 5 feeding axes (including C axis), 2 analog spindles, 2ms interpolation in high speed, 0.1 μm control precision, which obviously improve the efficiency, precision and surface quality of parts processing. With new USB interface, it supports the file operation and program running in USB.



GSK980TDb



GSK980TDb-V

Characteristics

- Five axes of x, z, y, 4th and 5th control, the axial name and type of y, 4th and 5th can be defined.
- 2ms interpolation cycle, precision of 1 μm or 0.1 μm can be selected.
- Max. rapid speed 60m/min (when it is 0.1 μm, the maximum speed is 24m/min).
- Equipped with servo spindle can realize spindle continuous position, rigid tapping, rigid thread processing.
- With many PLC programs built in, the current running PLC program can be selected
- G71 command supports the cycle cutting of groove shape outline
- Supports the programming of macro command in sentence type and the calling of macro program with parameter.
- Supports programming in metric system/inch system, with function of auto tool-setting, auto chamfering, tool life management.
- Displays in Chinese/ English/ Spanish/ Russian, which can be set 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 handwheel, supporting external MPG.
- Common input in 41 points/common output in 36 points

Technical Specification

◆ Number of control axes

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

◆ Feeding axes function

- Minimum command unit: 0.001mm or 0.0001mm is selectable
- Position command range: ±99,999,999 × minimum command unit
- Rapid traverse speed: When the command unit is 0.001mm, the maximum speed is 60m/min; 0.0001mm, the maximum speed is 24m/min.
- Rapid override: Total four levels: F0, 25%, 50% and 100%, real-time adjusting
- Feeding override: Total 16 levels: 0~150%, real-time adjusting
- Interpolation mode: Interpolation of linear, arc (support arc interpolation of three points), thread, cylindrical, polar coordinate, ellipse and parabola and rigid tapping.
- Auto chamfering

◆ Thread function

- Common thread (follow the spindle)/rigid thread
- Single-headed/multiple thread of straight, taper and end surface in metric system/inch system, equal and variable pitch thread
- Thread retraction length, angle and speed characteristics can be set
- Thread pitch: 0.01mm~500mm or 0.06 tooth/inch~25,400 tooth/inch

◆ Acceleration and deceleration function

- Cutting feeding: Linear type or index type is selectable.
- 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.

◆ Spindle function

- Analog voltage 0V~10V output in two channels, support two-spindle control.
- Spindle encoder feedback in one channel, the resolution of spindle encoder can be set (100p/r~5000p/r) .
- The transmission ratio between encoder and spindle is: (1~255) : (1~255)
- Spindle speed: It is set by S code or PLC signal, the speed range is 0rpm~9999rpm.
- Spindle override: Total 8 levels: 50%~120%, real-time adjusting
- Spindle constant surface speed control
- Rigid tapping

◆ Tool function

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



◆ Precision compensation

- Backlash compensation
- Pitch error compensation in memory type

◆ PLC function

- PLC program in two levels, maximum 5,000 steps, the refresh cycle of the 1st level program: 8ms
- PLC program communication download
- Support PLC warning and PLC alarm
- Support many PLC programs (max 16), the current running PLC program can be selected
- Basic I/O: input in 41 points/output in 36 points

◆ Human machine interface

- 7.4" colored LCD
- Display in Chinese, English, Spanish or Russian, etc
- Display in 2D tool path graph
- Real-time clock

◆ Operation management

- Operation mode: Edit, Auto, MDI, Machine zero-return, MPG, Single step, Manual, Program Zero-return
- Multiple-level password management
- Alarm record

◆ Editing program

- Program capacity: 40MB, 10,000 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.
- Calling program: 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, Serial Ports of software upgrade.
- USB: File operation, support PLC programs, software upgrade.

◆ Safety function

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

List of G codes

CODE	FUNCTION
G00	Rapid positioning
G01	Linear interpolation
G02	CW arc interpolation
G03	CCW arc interpolation

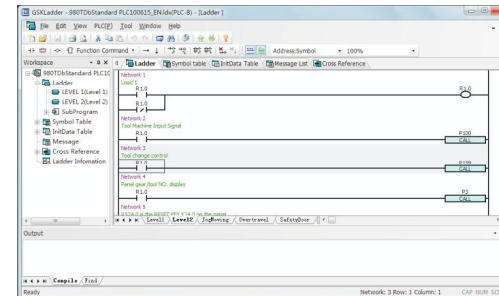
CODE	FUNCTION
G41	Tool nose radius left compensation
G42	Tool nose radius right compensation
G50	Set work piece coordinate system
G65	Macro command non-mode calling

CODE	FUNCTION
G04	Dwell, exact stop
G05	Arc interpolation of three points
G6.2	CW ellipse interpolation
G6.3	CCW ellipse interpolation
G7.1	Cylindrical interpolation
G7.2	CW parabola interpolation
G7.3	CCW parabola interpolation
G10	Data input mode is valid
G11	Cancel data input mode
G12.1	Polar coordinate interpolation
G13.1	Polar coordinate interpolation
G17	Plane selection
G18	Plane selection
G19	Plane selection
G20	Select unit in inch system
G21	Select unit in metric system
G28	Auto return to mechanical zero point
G30	Reference point 2nd, 3rd and 4th return on machine
G31	Jumping function
G32	Equal thread pitch cutting
G32.1	Rigid thread cutting
G33	Z axis tapping in cycle

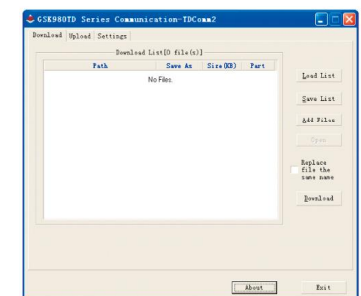
CODE	FUNCTION
G34	Variable thread pitch cutting
G36	Auto tool compensating and measuring X
G37	Auto tool compensating and measuring Z
G40	Cancel tool nose radius compensation
G66	Macro program mode calling
G67	Cancel macro program mode calling
G70	Finishing cycle
G71	Axial roughing in cycle (support groove cycle)
G72	Radial roughing cycle
G73	Close cutting cycle
G74	Axial grooving cycle
G75	Radial grooving cycle
G76	Multiple thread cutting cycle
G80	Cancel rigid tapping state
G84	Axial rigid tapping
G88	Radial rigid tapping
G90	Axial cutting cycle
G92	Thread cutting cycle
G94	Radial cutting cycle
G96	Constant surface speed control
G97	Cancel constant surface speed control
G98	Feeding/min
G99	Feeding/rev

Communication Software TDComm and PLC Ladder Diagram Editing Software GSKLadder

Through TDComm, the programs files, parameter, tool compensation, and pitch error compensation, etc., can be edited on PC and transmitted between PC and CNC by users. The PLC ladder diagram can be edited in GSKLadder by machine manufacturers, and PLC programs can be uploaded and downloaded between PC and CNC as well.



PLC ladder diagram editing software (GSKLadder)

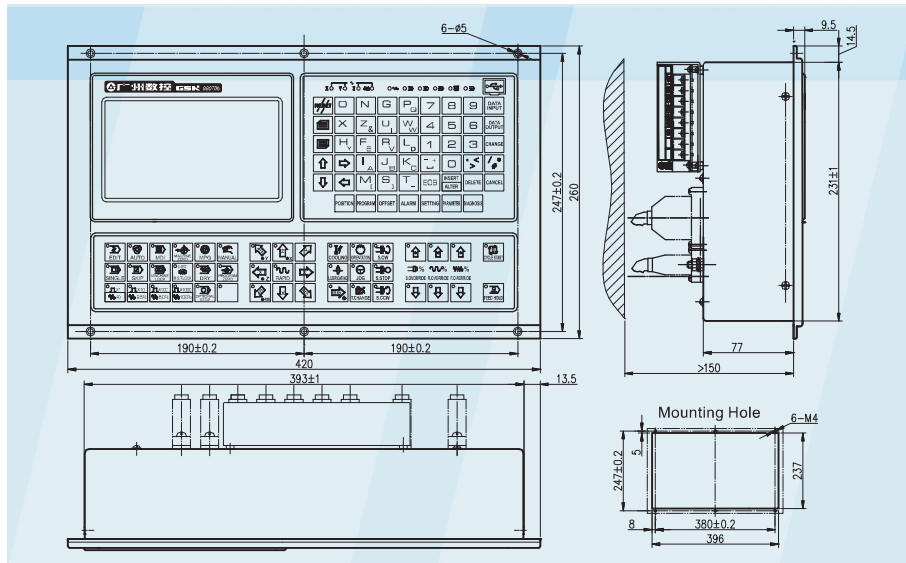


Communication software (TDComm)

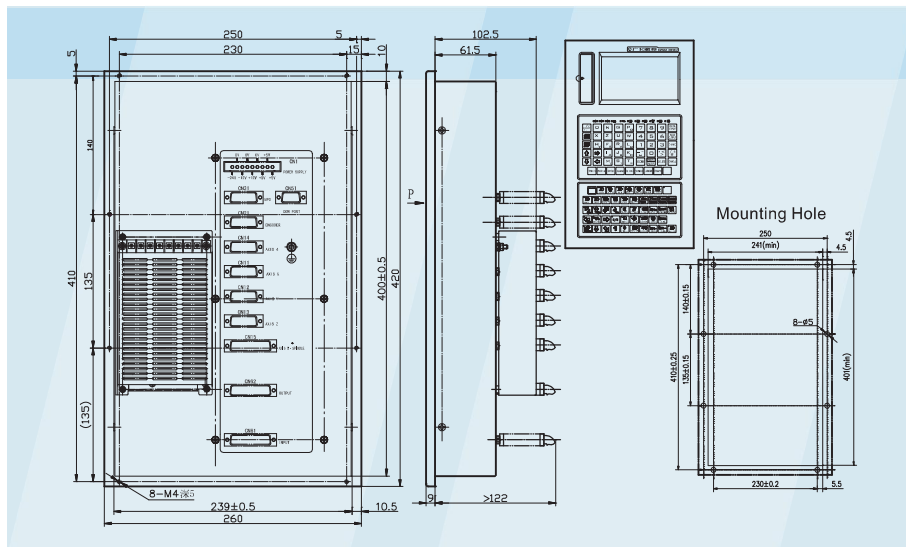


Overall Installation Dimension

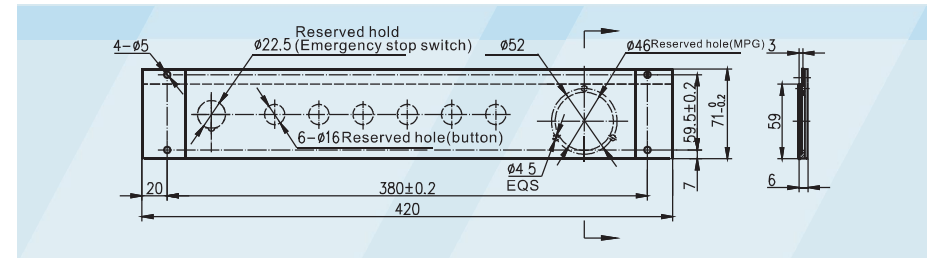
• GSK 980TDb (Horizontal type)



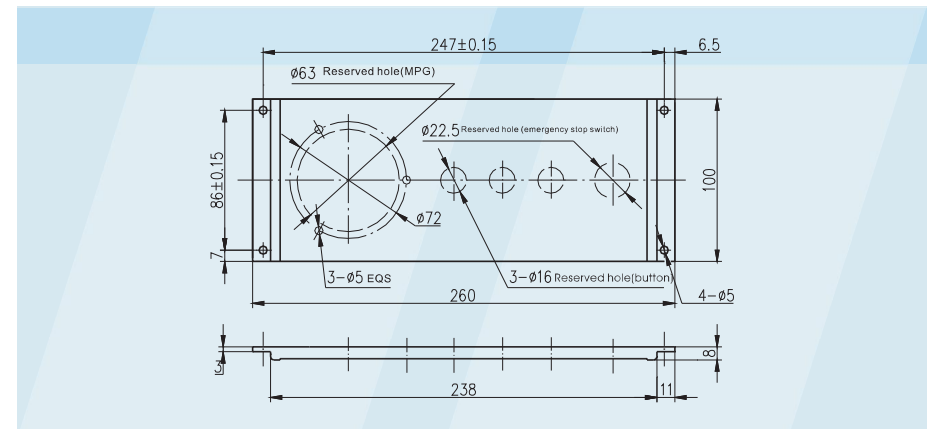
• GSK980TDb-V (Vertical type)



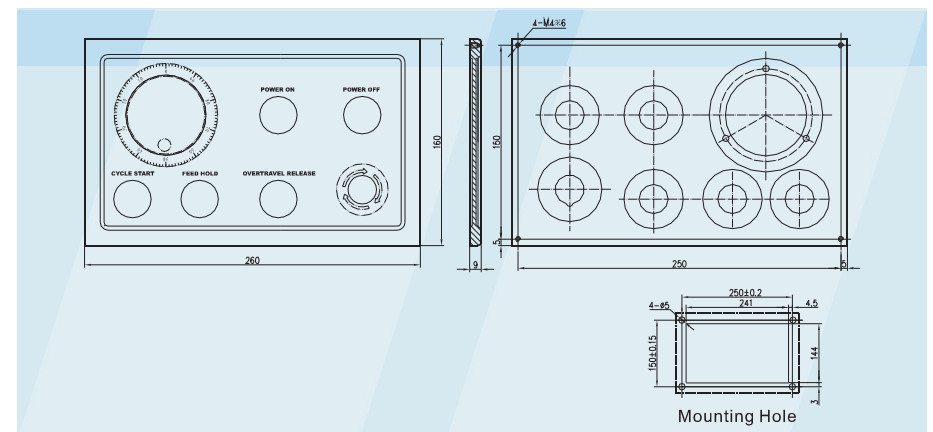
• Additional panel AP01 (Bottom installation for GSK980TDb)



• Additional panel AP02 (Side installation for GSK980TDb)



• Additional panel AP03 (Bottom installation for GSK980TD-V)





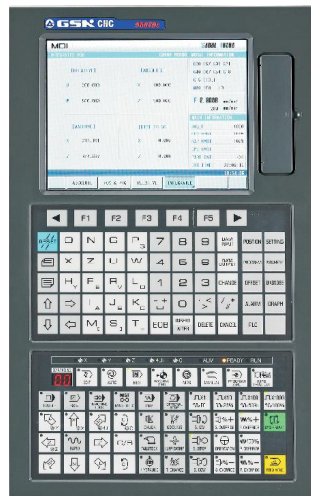
GSK980TDc TURNING MACHINE CNC SYSTEM

Brief Introduction

GSK980TDc 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 μm. 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.



GSK980TDc



GSK980TDc-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 μm, 0.1 μm
- Max. speed 60m/min (up to 24m/min in 0.1 μm)
- 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.

- 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, 4th and 5th)
- 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 (deg)	0.001 (mm) 0.001 (deg)	0.0001 (mm) 0.0001 (deg)
	inch input (G20)	0.0001 (inch) 0.001 (deg)	0.001 (mm) 0.001 (deg)	0.00001 (inch) 0.0001 (deg)
Machine tool (inch system)	metric input (G21)	0.001 (mm) 0.001 (deg)	0.0001 (inch) 0.0001 (deg)	0.00001 (inch) 0.0001 (deg)
	inch input (G20)	0.0001 (inch) 0.001 (deg)	0.0001 (inch) 0.001 (deg)	0.00001 (inch) 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) -9999.999 ~ 9999.999 (deg)
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)	0.1 μ 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)	0.1 μ grade (IS-C)
Machine tool (metric system)	Feed/rev.(G98)	0 mm/min ~15000 mm/min
	feed/min.(G99)	0.001 mm/r ~500 mm/r
Machine tool (inch system)	feed/rev.(G98)	0 inch/min ~5800 inch/min
	feed/min.(G99)	0.0001 inch/r ~ 50inch/r



- 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

◆ 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

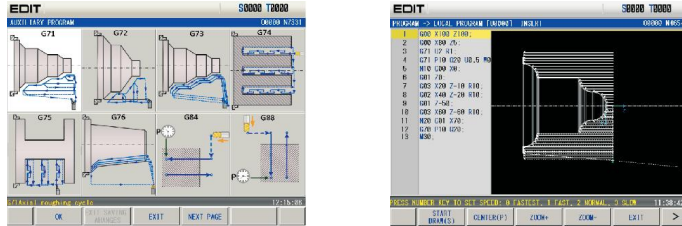
List of G codes



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		



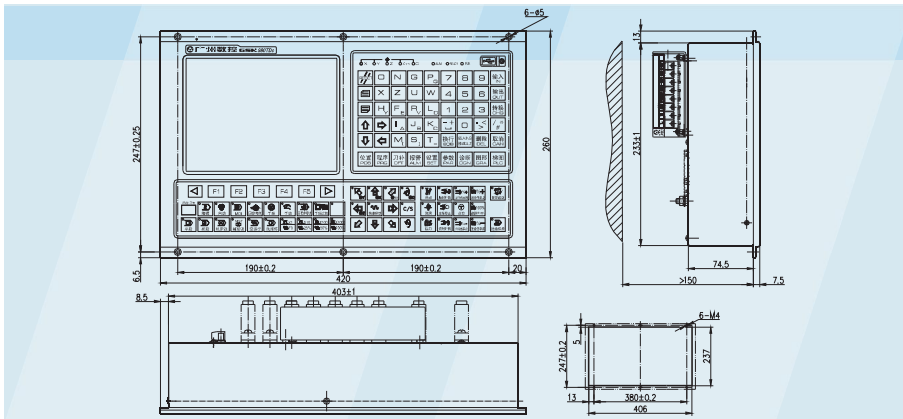
Edit programming



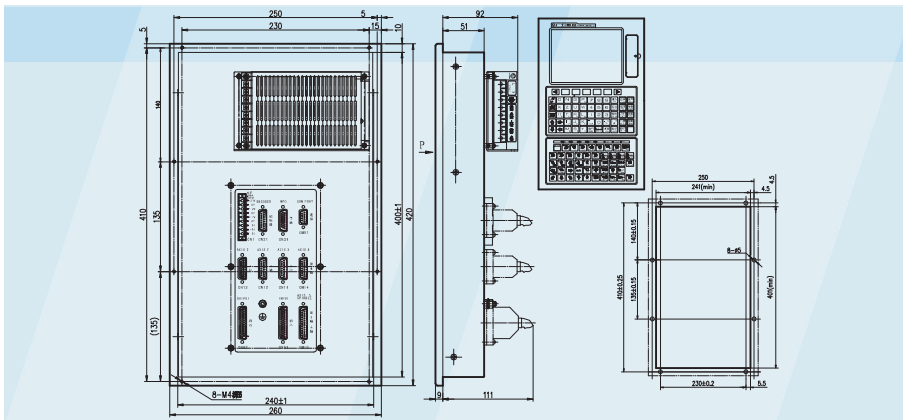
Installation Dimension of System Panel



GSK980Tdc

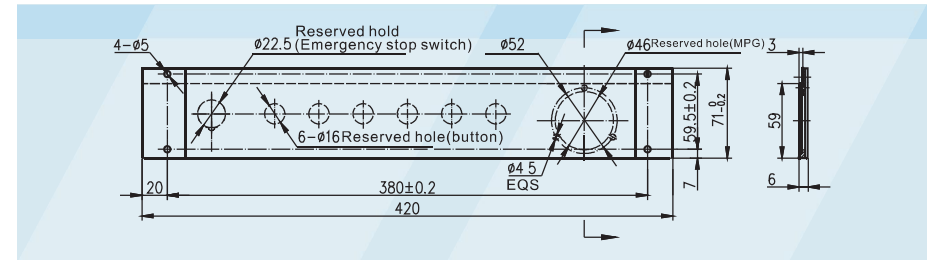


GSK980Tdc-V

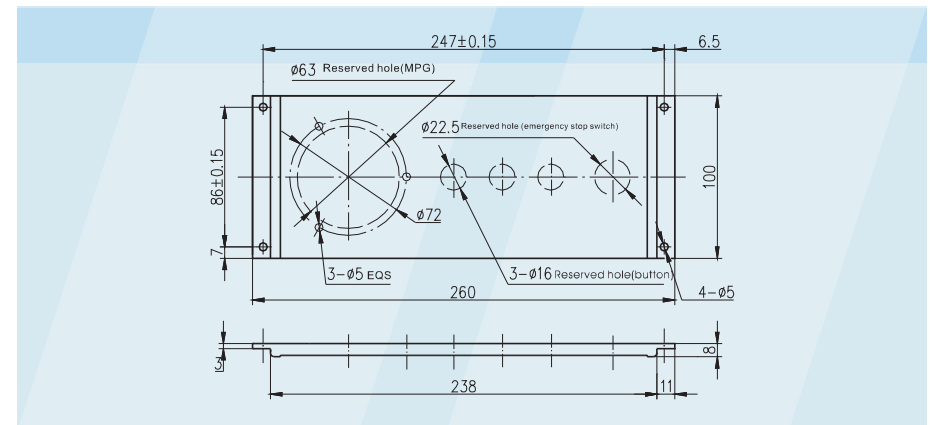


Installation Dimension of Additional Panel (Optional part)

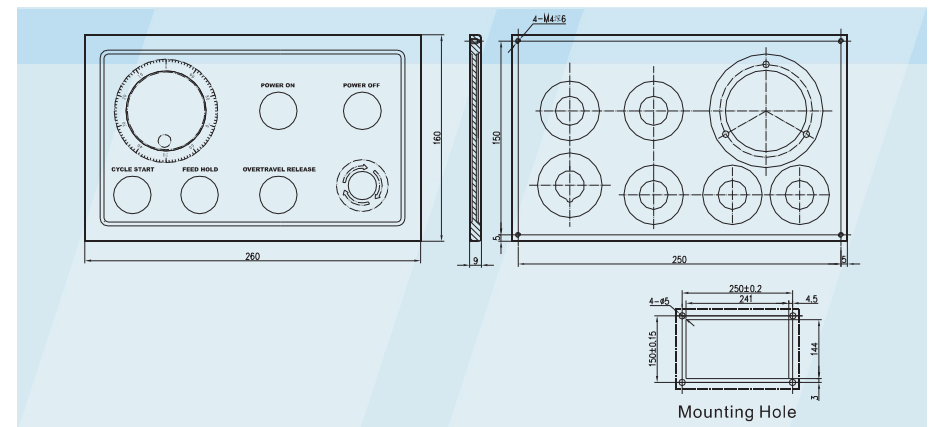
Additional panel AP01 (opt for GSK980Tdc, installing below)



Additional panel AP02 (opt for GSK980Tdc, installing at side)



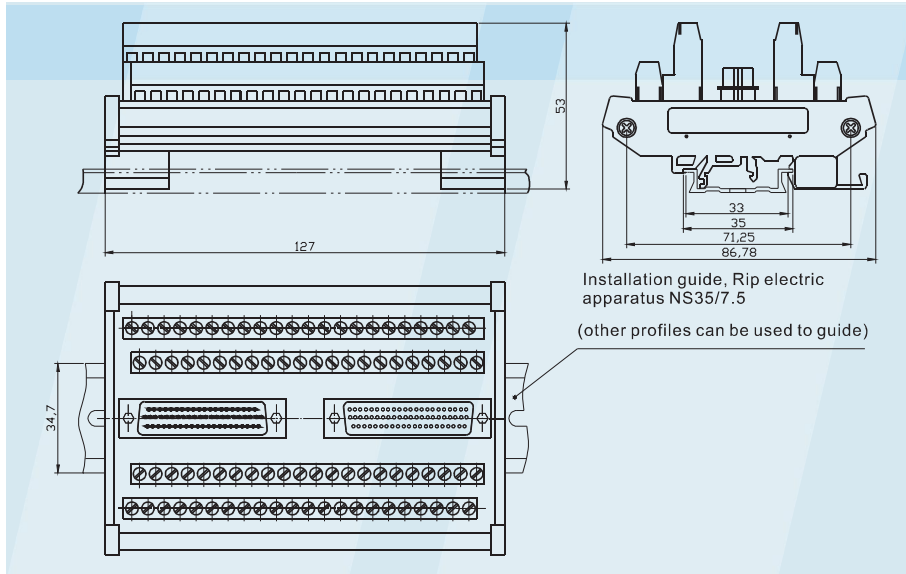
Additional panel Ap03 (opt for GSK980Tdc-V, installing below)



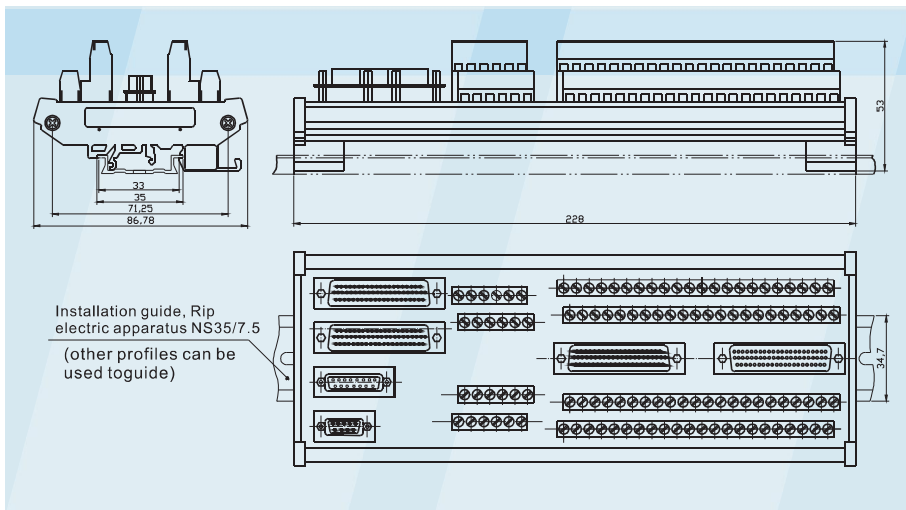


Installation Dimension of I/O Deconcentrator (optional part)

MCT01B (without relay)

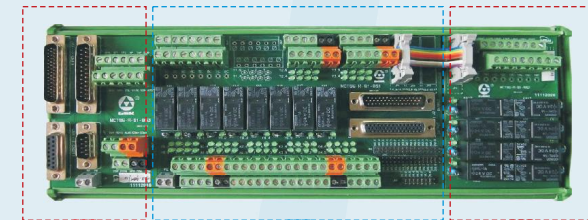


MCT01B (without relay)

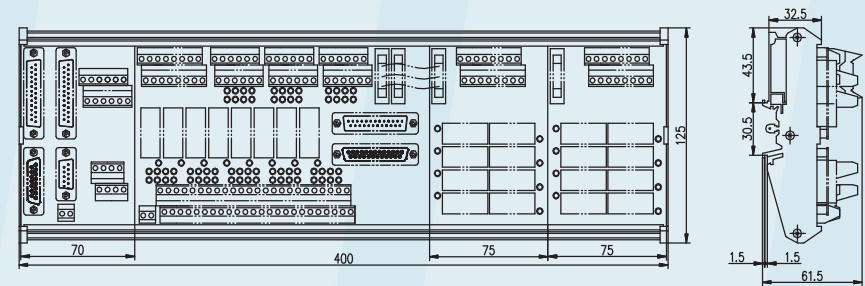


MCT06-R Deconcentrator (with Relay)

To get convenient installation, debugging and maintenance and reduce abnormal run caused by improper connection and elements to be damaged, GSK has researched I/O Deconcentrator MCT06-R with relay. MCT06-R is composed of one or several of basic module of Deconcentrator, extension module of relay and commutator module of servo spindle, which can configure 8 kind of deconcentrator according to user's requirements.



Commutator module of servo spindle (spindle with C/S axis) Basic module of deconcentrator Extension module of relay (up to 3)



Type		MCT06-R1	MCT06-R2	MCT06-R3	MCT06-R4	MCT06-R1S	MCT06-R2S	MCT06-R3S	MCT06-R4S
Contour dimension (mm*mm)		180 x 125	255 x 125	330 x 125	405 x 125	250 x 125	325 x 125	400 x 125	475 x 125
Com-position	Basic module of deconcentrator	1PC	1PC	1PC	1PC	1PC	1PC	1PC	1PC
	Commutator module of servo spindle	0PC	0PC	0PC	0PC	1PC	1PC	1PC	1PC
	Extension module of relay	0PC	1PC	2PCS	3PCS	0PC	1PC	2PCS	3PCS



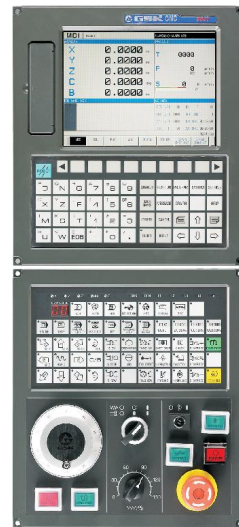
GSK988T TURNING CENTER CNC SYSTEM

Brief Introduction

GSK988T, a new CNC product (esp. for slant bed CNC turning center), adopts micro processor of 400MHz, controls five feeding axes (including Cs axis), two analog spindles, and can achieve real-time communication between GSKCAN serial bus and servo unit, the adapted servo motor adopts absolute encoder with high resolution, realizes 0.1 μm position precision, and satisfies the requirements of combined processing of turning and milling in high precision. Equipped with internet interface, GSK988T supports remote monitor and file transmission, meets the requirements of internet education and workshop management. GSK988T is the best choice for slant bed CNC turning center.



GSK988T-H



GSK988T

Characteristics

- Five feeding axes (including Cs axis), any three axes linkage, two analog spindles, support combined processing of turning and milling.
- Command unit: 1 μm or 0.1 μm can be selected, max. rapid speed is 60m/min; when it is 0.1 μm, and the max. rapid traverse speed is 24m/min.
- Adapted with GSK-CAN servo unit, it can realize servo parameter setting and servo unit real-time monitor.
- Built-in many PLC programs, PLC ladder diagram is edited on-line, real-time monitor.
- Background edit part program.
- Supports internet interface, support file transmission and remote monitor.
- With USB interface, it supports file operation, system configuration and software upgrade in flash disk.
- 8.4" true color LCD, it supports 2D traverse path graph.

Technical Specification

◆ Control axes

- Maximum axes: 5 axes (including Cs axis)
- Maximum linkage axes: 3 axes
- Number of PLC control axes: 5 axes

◆ Feeding axis function

- Min. command unit: 0.001mm or 0.0001mm is selected.
- Position command range: 99999999 min. command unit
- Rapid traverse speed unit: when the command unit is 0.001mm, the maximum speed is 60m/min; When the precision is 0.0001mm, the maximum speed is 24m/min.
- Rapid override: total 4 levels: F0, 25%, 50% and 100%, real-time adjusting
- Feeding override: total 16 levels: 0~150%, real-time adjusting
- Interpolation mode: linear, arc, spiral and polar coordinate interpolation and rigid tapping

◆ Thread function

- Common thread (following the spindle)/rigid thread
- Single-headed/multiple thread of straight, taper and terminal surface in metric system/inch system, equal and variable pitch thread
- Thread retraction length, angle and speed characteristics can be set
- Thread pitch: 0.01mm~500mm or 0.01inch~9.99inch

◆ Acceleration and deceleration function

- Cutting feeding: Linear type or index type is selectable.
- Rapid traverse: Linear 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.

◆ Spindle function

- Analog voltage 0V~10V output in two channels, spindle encoder feedback in two channels and two-spindle control
- Spindle speed: It is set by S code or PLC signal, the speed range is 0rpm~20,000rpm
- Spindle override: Total 8 levels: 50%~120%, real-time adjusting
- Spindle constant surface speed control
- Rigid tapping

◆ Tool function

- Tool length compensation: 99 sets
- Tool wearing compensation: 99 sets of data
- Tool nose radius compensation (C type)
- Tool life management
- Methods of setting tools: fixed position, trial cutting, reference point return.
- Tool offset mode: rewriting coordinate mode, tool traverse mode

◆ Precision compensation

- Backlash compensation: range (-9999~+9999) × detection unit
- Pitch error compensation in memory type: 1024 compensation points in total, the number of points of each axis is determined by the parameter, and the compensation range of each point (-700~+700) × detection unit



◆ PLC function

- 13 types of basic commands, 30 types of function commands
- PLC ladder diagram edit on-line, real-time monitor
- PLC program in two levels, maximum 5,000 steps, the refresh cycle of the 1st level program: 8ms.
- Support PLC warning and PLC alarm
- Support many PLC programs (maximum 16), the current running PLC program can be selected by parameter

◆ I/O unit

- Basic I/O: Input in 40 points/output in 32 points
- Operational panel I/O: input in 96 points/output in 96 points

◆ Human machine interface

- Display in Chinese and English, etc.
- Display in 2D tool path graph
- Servo state monitor
- Servo parameter configuration on-line
- Many system configurations can be selected
- Real-time clock
- Help on-line
- 8.4" colored LCD

◆ Operation management

- Operation mode: Auto, Manual, Edit, MDI, DNC, MPG and reference point return
- Multiple levels password management
- Alarm record
- Multi-turn off management

◆ Editing program

- Program memory capacity: 36MB, 10,000 programs (including subprograms, macro programs)
- Editing function: Edit in full screen, support the background edit of part program
- Editing function: Program/block/character research, rewriting, deleting, block copy/block deleting
- Program format: ISO codes, it supports the commands without space, hybrid programming of relative coordinate and absolute coordinate.
- Macro command: Support macro command programming in sentence type
- Calling program: Support the macro program calling with parameter, subprogram nesting of 12 layers
- Grammar check: Check grammar after editing the programs. (without running program)

◆ Communication function

- RS232: Transmit the files of part program and parameter, etc, DNC processing, support PLC program and software serial port upgrade.
- USB: File operation, directly process files and support PLC programs and software upgrade.
- LAN: Remote monitor, internet DNC processing, file transmissions, support part program, system parameter, servo parameter of PLC program

◆ Safety function

- Emergency stop
- Hardware travel limit
- Travel limit in many memory types
- Data backup and recovering

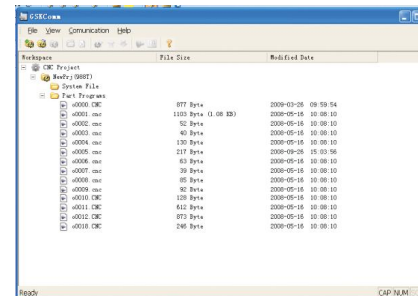
List of G codes

CODE	FUNCTION
G00	Rapid traverse
G01	Linear interpolation
G02	CW arc interpolation
G03	CCW arc interpolation
G04	Dwell, exact stop
G12.1	Polar coordinates interpolation
G13.1	Cancel polar coordinates interpolation
G17	Select XpYp plane
G18	Select ZpXp plane
G19	Select YpZp plane
G20	Input system inch
G21	Input system metric
G22	Check memory travel
G23	Cancel memory travel check
G28	Reference point return
G30	Reference points of 2nd, 3rd and 4th return
G31	Jumping function
G32	Cut in equal thread pitch
G34	Cut in variable thread pitch
G40	Cancel tool nose radius compensation
G41	Tool nose radius left compensation
G42	Tool nose radius right compensation
G50	Set work piece coordinate system
G52	Set part coordinate system
G53	Set machine coordinate system
G54	Select work piece coordinate system 1

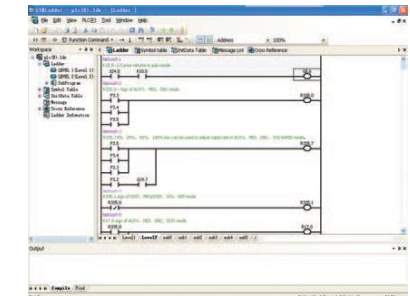
CODE	FUNCTION
G55	Select work piece coordinate system 2
G56	Select work piece coordinate system 3
G57	Select work piece coordinate system 4
G58	Select work piece coordinate system 5
G59	Select work piece coordinate system 6
G65	Macro program non-mode calling
G66	Macro program mode calling
G67	Cancel macro program mode calling
G70	Finishing cycle
G71	Axial roughing cycle
G72	Radial roughing cycle
G73	Close cutting cycle
G74	Axial grooving cycle
G75	Radial grooving cycle
G76	Multiple thread cutting cycle
G80	Cancel tapping cycle
G84	Tapping cycle on face
G88	Tapping cycle on side
G90	Axial cutting cycle
G92	Thread cutting cycle
G94	Radial cutting cycle
G96	Constant surface speed control
G97	Cancel constant surface speed control
G98	Feeding/min
G99	Feeding/rev

Communication Software GSKComm and PLC Ladder Diagram Editing Software GSKLadder

GSK988T adopts GSKComm and GSKLadder. They both run under WIN98/2000/XP. Through GSKComm, the programs files, parameter, tool compensation, and pitch error compensation, etc., can be edited on PC and transmitted between PC and CNC by users, and the DNC real-time processing can be realized as well. Through GSKLadder, the ladder diagram can be edited on PC by machine manufacturers. Also, the PLC programs can be uploaded and downloaded between PC and CNC.



Communication software GSKComm

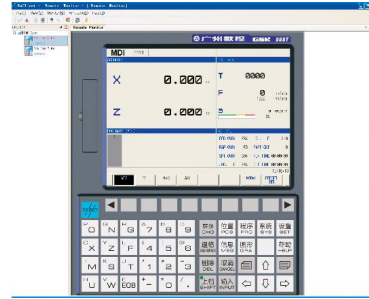


PLC Ladder diagram editing software GSKLadder



Remote Monitor Software: GSKMonitor

GSKMonitor runs under WIN98/2000/XP, and supports remote assistance and monitor and five transmission through GSK988T LAN interface.

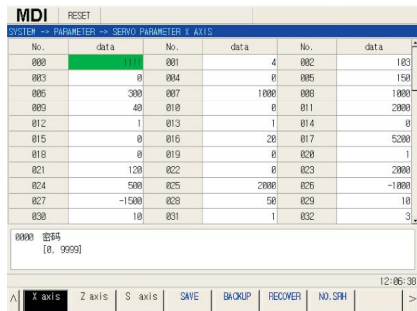


Servo State Diagnosis and Monitor

Through GSK-CAN, GSK988T realizes diagnosis and monitor of servo state (command position, feedback position, motor speed and motor current, etc).



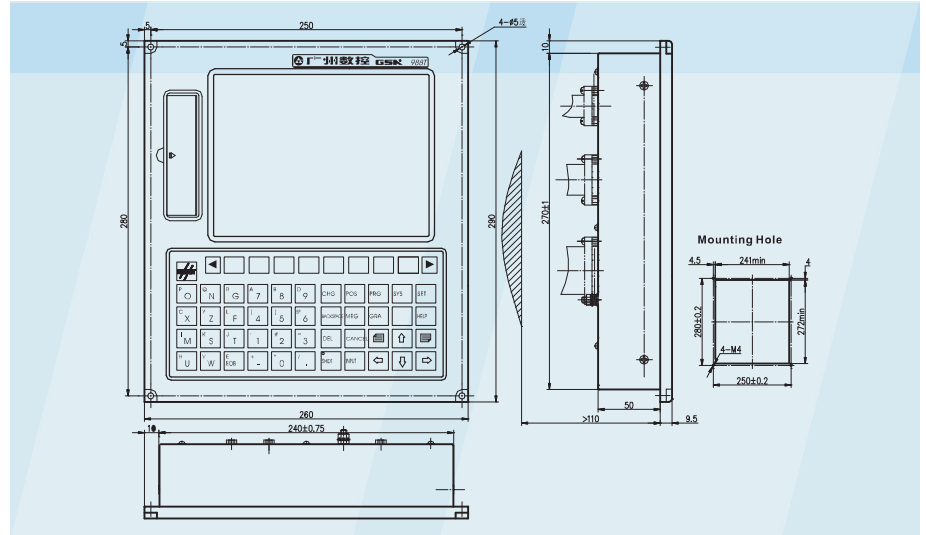
Servo state diagnosis interface



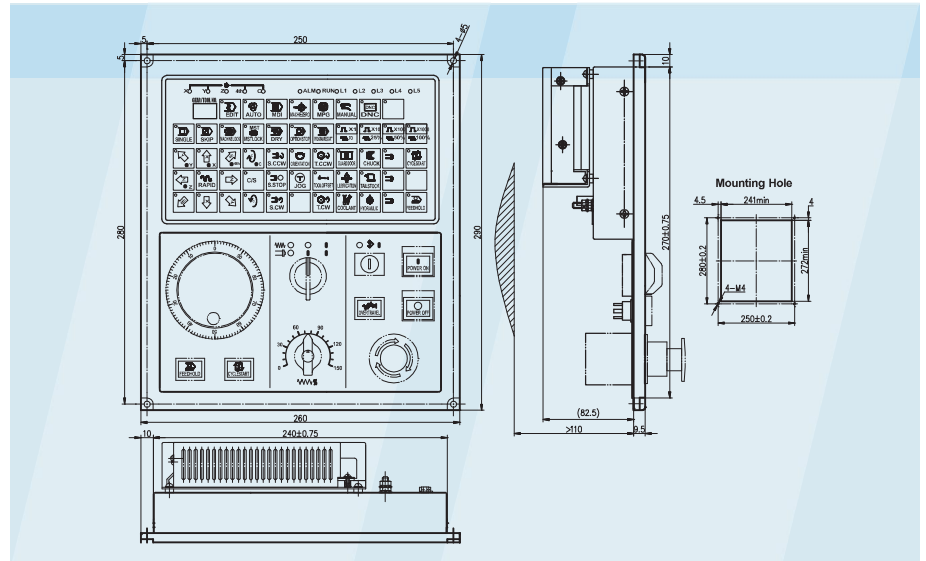
Servo parameter configuration interface

Overall Installation Dimension

GSK988T

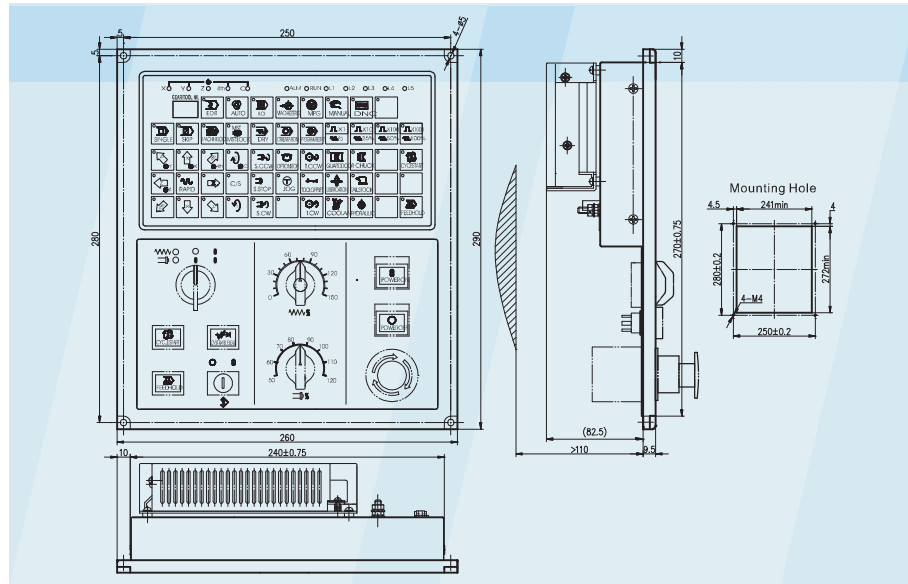


Additional panel MPU02A (for GSK988T)

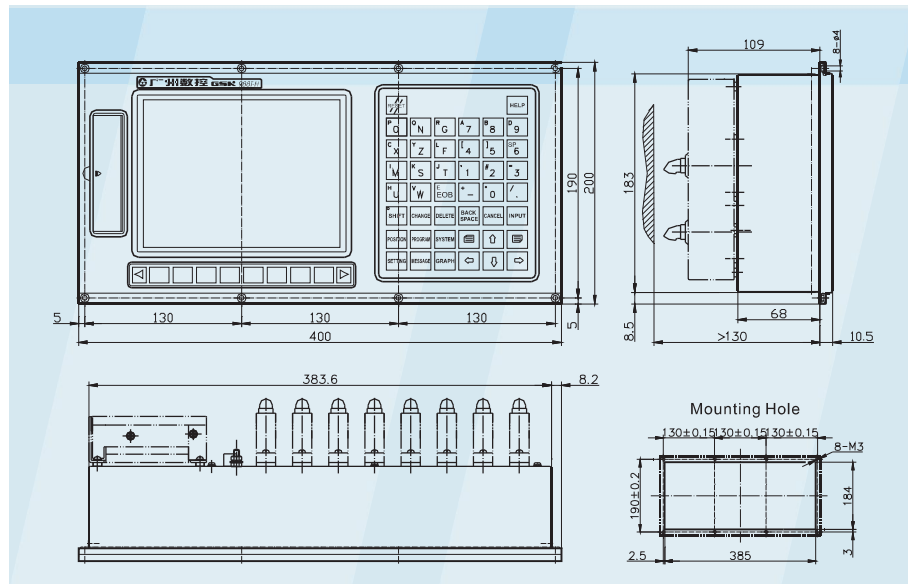




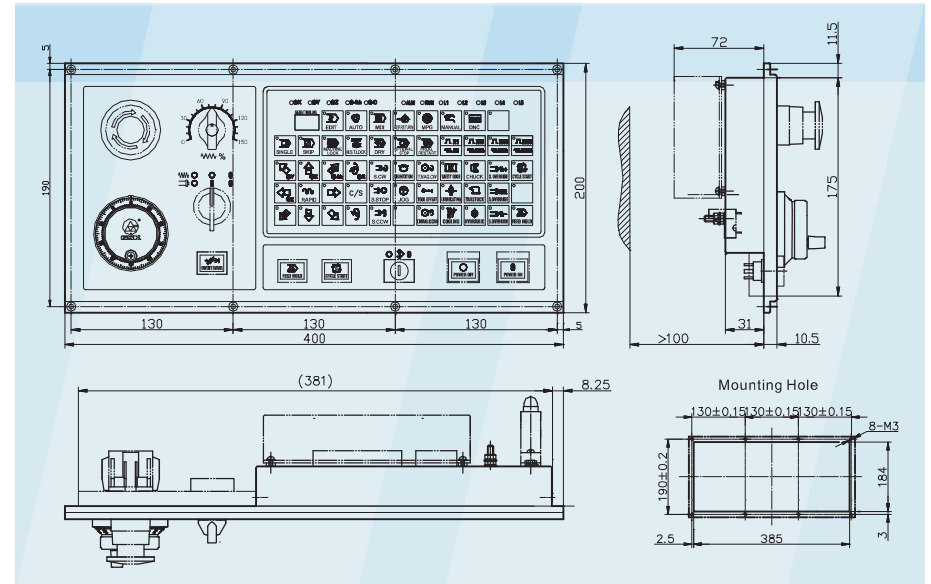
■ Additional panel MPU02B (for GSK988T)



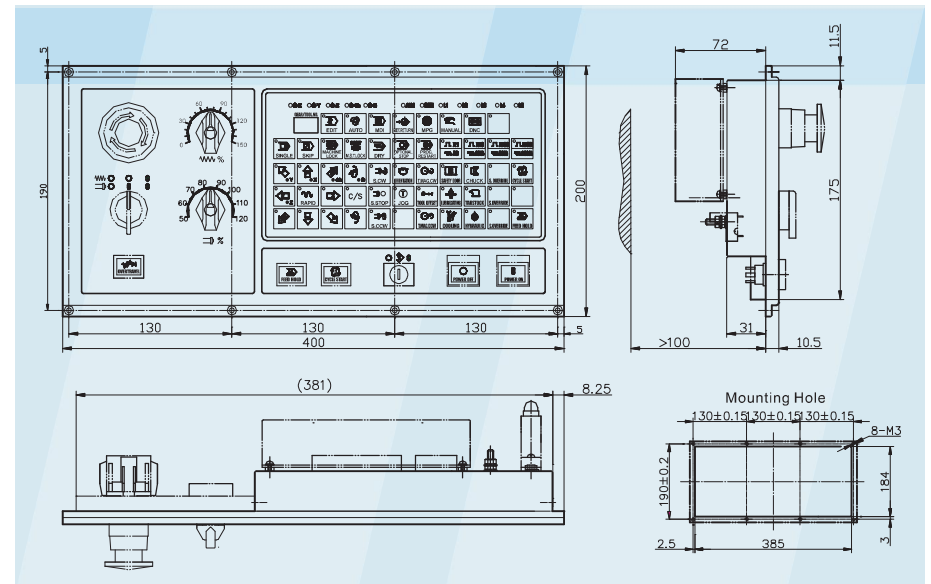
■ GSK988T-H



■ Additional panel: MPU03A (for GSK988T-H)



■ Additional panel: MPU03B (for GSK988T-H)





GSK928TEa TURNING MACHINE CNC SYSTEM

Brief Introduction

GSK928TEa adopts CPU with 32-bit high capacity industrial grade composing a control core, and achieves the μ m level accuracy motion control. It is characterized by multiple functions, stability and easy operation.



Characteristics

- Z, X and Y 3 axes control, two axes linkage, support the Y axis or the servo spindle, 0.001mm interpolation accuracy, and the max. cutting speed is 15,000 mm/min; the Max. rapid traverse speed is 30,000 mm/min.
- Total interface: input 23 points/ output 18 points; the miscellaneous function: max. 16 total posts, spindle, cooling, chuck, tailstock, feeding, tri-color light, automatic lubricating, external MPG, defense door and low-pressure detection; each equipment can be defined arbitrarily by the I/O interface till it is selected fully; the free I/O point can be defined by user through M command to control other accessories.
- The max. radius of the arc machining is up to 1,000 m.
- Manual tapping and thread repair functions.
- Backlash compensation, tool length compensation, tool radius compensation and pitch error compensation.
- The electronic gear ratio is $(1 \sim 99,999) / (1 \sim 99,999)$.
- Automatic chamfering function.
- Arc miscellaneous calculation function.
- Look-ahead function: max. pre-read blocks is up to 80 sections.
- Special MPG functions: moving axis in Manual mode, rapidly browsing in Edit mode, program try-running and override adjusting in Auto mode.
- Memorizing the tool-setting point in Manual mode.
- The tool path can be simultaneously drawn in Edit mode, and the local movement path can be zoomed in/out.

- Macro command in sentence type: realizing the complicated program machining (ellipse and parabola, etc.); defining special M commands, and defining the I/O point (similar to the PLC functions) and process monitoring.
- USB and RS232 interfaces.
- Multiple levels password management.
- Supports speed/position control of the servo spindle.

Technical Specification

Motion control	Controllable axis: X, Z and Y axis; linkage axis: two axes
	Interpolation function: X, Z two axes linear, arc and thread interpolation; Z/Y or X/Y two axes linear interpolation
	Position command range: -9999.999 mm~9999.999mm; the minimum unit: 0.001mm
	Electronic gear ratio: command multiple coefficient 1~99,999, command frequency-division coefficient 1~99,999
	Max. rapid traverse speed: 30,000mm/min; rapid override: 4 levels real-time adjustment (25%, 50%, 75% and 100%)
	Max. feeding speed: 15000mm/min; feeding override: 0~150% 16 levels real-time adjustment
G code	Manual traverse speed: 0mm/min~1,260mm/min 16 levels real-time adjustment or defined by user.
	MPG feeding override: 0.001mm, 0.01mm and 0.1mm (3 level)
	Acceleration/deceleration: exponential type or linear type.
	34 kinds: G00, G01, G02, G03, G04, G05, (G22/G80), G26, G28, G30, G31, G32, G33, G34, G40, G41, G42, G50, G51, G52, G71, G72, G73, G74, G75, G76, G90, G92, G94, G96, G97, G98 and G99
Thread machining	Single/multiple, metric/inch straight thread, cone thread and end surface, variable pitch thread; the thread retraction length, angle and speed can be set; thread pitch: 0.001mm~500mm or 0.06 tooth/inch ~25400 tooth/inch; consecutive thread machining and tapping.
	Spindle encoder: resolution range: 100 p/r~5000p/r; Transmission ratio between encoder and spindle is 1:1.
Precision compensation	Backlash compensation: 0 mm~10.000mm
	Pitch error compensation: Max. 300 compensation points for each axis; adopting the constant interval description or inflection point description to perform a fine linear compensation.
	Tool offset: 16 positions, 64 sets tool length compensation and radius compensation. Tool setting mode: trial cutting tool-setting and fixed point tool-setting; Tool offset executing mode: rewriting coordinate mode, tool traverse mode
M code	M00, M02, M20, M30, M03, M04, M05, M08, M09, M10, M11, M12, M32, M33, M41, M42, M43, M44, M47, M48, M78, M79, M80, M96, M97, M98, M99, M91, M92, M93, M94, M21, M22, M23 and M24; M60~M74 codes can be defined by user for special function.
	T code Max. 16 positions; tool change type is selected by parameter.
Spindle speed control	Speed switch control mode: S01-S04 (4-gear directly output) S00-S15 (16-gear BCD code output)
	Analog voltage: 0~10V voltage output; supporting 4-grade gear spindle (M41~M44); Constant surface speed control
	Supporting speed/position control of servo spindle, the servo spindle can link simultaneously with Z or X axis.



I/O function	I/O diagnoses I/O: 23 points input / 18 points output
Macro command program	Macro command in sentence type: assignment statement (assignment, multiple arithmetic, logic calculation, etc.) Conditional statement: (conditional judge, jump, etc.)
Display	480×234 colorful LCD, Chinese or English display interface is set by parameter. Real-time tool path graph
Program edit	Program capacity: 255 programs, total 4400KB Full screen edit in Edit mode: calling sub-program multiple nesting Programming of the relative coordinate, absolute coordinate and hybrid coordinate Detecting the program by simulation graph
Communication	USB and RS232 interface; Transmitting or receiving programs, parameters, tool compensations, system softwares and system memory data in LST format
Matched driver	AC servo with pulse + direction signal input or step driver

GSK96 MULTI-FUNCTION POSITION CONTROL SYSTEM

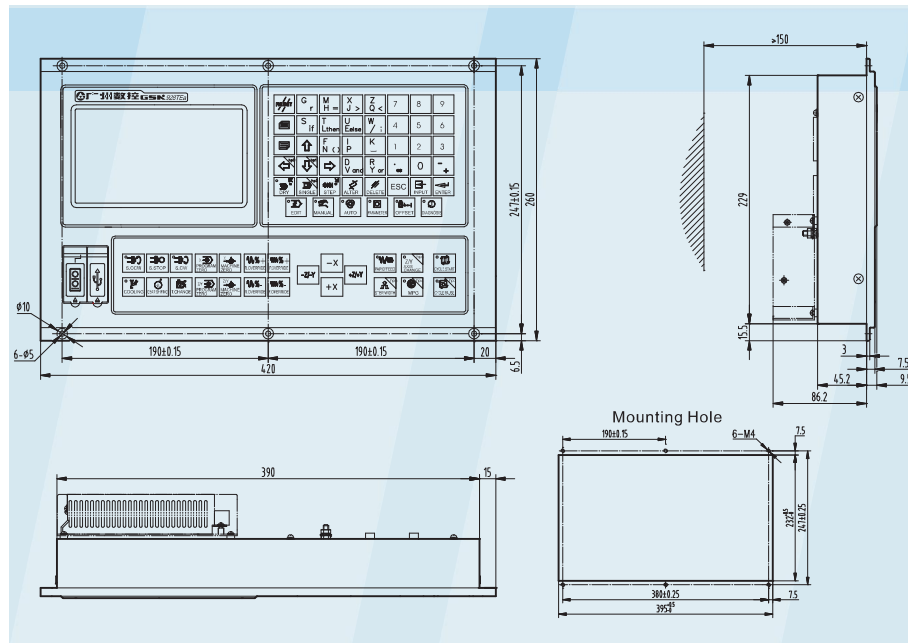
Brief Introduction

As a position control system with multiple-axis function, GSK96 system can control Z/X/Y three axes with a control precision of 0.001mm. It can be set as single-axis, double-axis or three-axis control mode with parameters, thus realizing a variety of motion functions, such as positioning and feeding, two-axis simultaneous movement, taping, rotation indexing as well as servo spindle control. Also, it provides plentiful input/output signal control functions, helping it realize the complicated control of multi-signal detection and output.

GSK96 system is applicable to a variety of machine control, such as the indexing drilling, grinding, taping, feeding, cutting and soldering.

This product is featured by its simple operation, concise interface display, powerful functions and stable performance. It is also characterized by its outstanding system operation, safety, machining precision and machining efficiency.

Overall Installation Dimension



Characteristics

- Z, X, Y three axes control, with two-axis linear linkage; interpolation precision: 0.001mm; system cutting speed: up to 15000mm/min; max. rapid traverse rate for positioning: up to 30000 mm/min.
- Input/output point: DI/DO 23/18 points; auxiliary functions: spindle, coolant, chuck, tailstock, feeding, tricolor light, automatic lubrication, external MPG, safety door, low-pressure detection; all kinds of device are freely selected through I/O interfaces without limitation until all are selected; it is possible to compile M instructions freely for unused I/O pins to control other accessories.
- High-efficiency machining and flexible real-time detection parallel execution processing mechanism; transition between blocks dose not take time; auxiliary instructions and positioning instructions can be executed simultaneously; efficiency and safety can also be enhanced by flexible use of system statement programming function.
- Safety precautions: Provides multiple types of parameter options relative to safety, ensuring the safe operation; with double soft limit protection function (machine coordinate soft limit and tool nose coordinate soft limit).

- Manual taping, thread repairing functions.
- Backlash compensation, tool length compensation functions.
- Electronic gear function. Electronic gear ratio: (1~99999) / (1~99999) .
- Flexible and various help functions.
- Multiple functions of MPG: Coordinate axis movement in MANUAL mode, program browse in EDIT mode, program execution control in AUTO mode.
- Tool setting point can be memorized in manual tool setting.
- In automatic operation, it is available to browse the entire part program, to view the "information window", and to repeat the execution during M, T function alarm.
- Signal changing process observable when executing auxiliary functions.
- Statement macro instruction: Display interface construction realizable; packaging statements as an M instruction realizable; I/O control (resembling PLC function) and process monitoring realizable.
- With USB interface: Support for communication of parameters and part programs; support for upgrade of system software and system memory.
- Convenient device management: Multi-level parameter passwords; parameter lock, program lock, automatic machining total time lock; parameter fixing, program fixing functions.
- Support for control mode switching between servo spindle speed/position.
- Full-screen program editing, advance error check; 4400KB program storage capacity, which can store 255 programs.
- LCD brightness adjustable; Chinese/English interface switch.

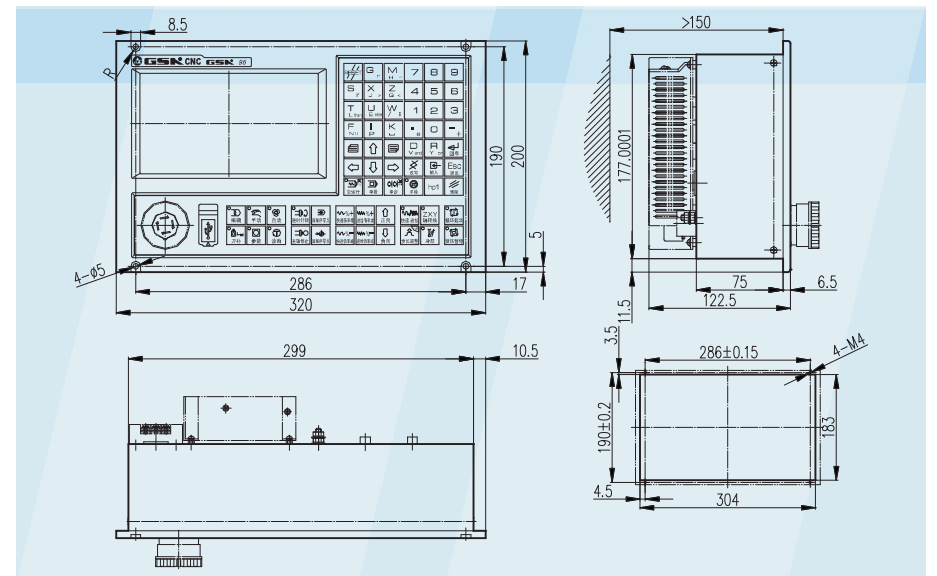


Specifications

Motion control	Controlled axis: X axis, Z axis, Y axis; simultaneously-controlled axis (interpolation axis): 2 axes.
	Interpolation function: any two-axis linear interpolation, any single-axis thread interpolation
	Position instruction range: -9999.999 mm~9999.999mm; least command increment: 0.001mm
	Electronic gear: Instruction multiplier: 1~99999; instruction division: 1~99999
	Rapid traverse rate: max. 30000mm/min; rapid override: F0, 25%, 50%, 100% four-level real-time adjustment
	Cutting feedrate: 15000mm/min; feedrate override: 16-level real-time adjustment from 0~150% (increment: 10%)
G code	Manual feedrate: 16-level real-time adjustment from 0mm/min~1260mm/min, or feedrate defined by user in real time
	MPG feed: 0.001mm, 0.01mm, 0.1mm
Thread machining	23 kinds of G code: G00, G01, G04, G06, G07, (G22/G80), G26, G28, G30, G31, G32, G33, G34, G50, G51, G52, G81, G83, G96, G97, G98, G99
	Single/multiple metric straight thread, variable-lead thread machining; thread pitch: 0.001mm~500mm or 0.06 teeth/inch~25400 teeth/inch; continuous thread machining; tapping
Precision compensation	Spindle encoder: Setting range of encoder lines: 100 p/r~5000p/r; drive ration between encoder and spindle: 1:1
	Backlash compensation: 0 mm~10.000mm Tool compensation: 64 groups of tool length compensations Tool setting mode: Trial-cutting mode, fixed point mode; Tool compensation can be modified during program execution; tool compensation can be modified using statement instructions
M code	M00, M02, M20, M30, M03, M04, M05, M08, M09, M10, M11, M12, M32, M33, M41, M42, M43, M44, M47, M48, M78, M79, M80, M81, M82, M83, M96, M97, M98, M99, M91, M92, M93, M94, M21, M22, M23, M24; User-defined M instructions: M60~M74, which are for realizing special function control.

T code	Up to 16 tool numbers; selecting the control process of tool change by setting tool post type parameters (the system is not provided with the integrated function of the electric tool post used in the turning machine) No tool change action is performed when the tool post type is set to 0; the system calls M60 instruction to execute tool change when the type is set to 9.
Spindle speed control	Spindle switch value control mode: S instruction 4-gear direct control output range: S01~S04; or 16-gear BCD coded output range: S00~S15 Speed analog voltage control mode: S instruction code specifies spindle speed per minute or cutting linear speed (constant surface speed), and the CNC outputs 0~10V voltage to spindle converter, realizing spindle stepless speed changing, which supports 4-gear spindle mechanical gears M41~M44 Support for DAP03 servo spindle speed/position control mode switching; spindle and Z axis or X axis simultaneously-controlled function realizable.
I/O function	I/O diagnoses I/O: 23 points input / 18 points output
Macro command program	Statement macro instruction: assignment statement: for completing assignment, multiple arithmetic and logic operations Conditional statement: for completing condition judgment, jump.
Display	Display: 800×480 lattice, true color LCD, with LED or CCFL backlight Display mode: Chinese/English display interface, set by parameters
Program edit	Total program storage capacity: 4400KB, which can store up to 255 programs; Edit mode: Full-screen edit, support for relative/absolute coordinate mixed programming, program calling, as well as subprogram multi-level nesting.
Communication	With USB interface; Support for sending or receiving programs, parameters, system software and system memory data in LST text format;
Matched driver	servo or stepper driver device with pulse + direction signal input

Dimension and installation for GSK96

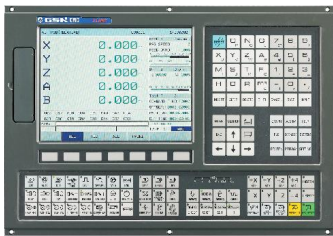




GSK218MC MACHINING CENTER CNC SYSTEM

Brief Introduction

GSK218MC series CNC systems are upgraded products from GSK218M. As the high-speed spline interpolation algorithm is employed in the system, the machining speed and precision and surface fineness are greatly improved. The new-designed interface is user-friendly: The CNC system supports GSK-Link Ethernet bus function and it is much easier to connect; and supports macro programs of statement type (macro B), which makes the programming more concise. The CNC system can be applied in such areas as Milling Machine, Machining Center, high-speed Engraving, Grinding Machine and Gear Hobbing Machine.



GSK218MC



GSK218MC-H

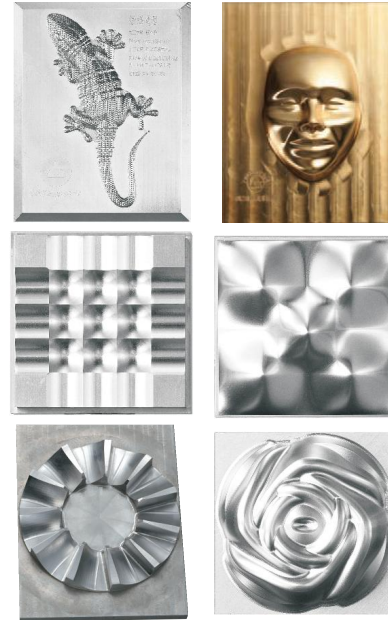


GSK218MC-V

Characteristics

- Excellent high-precision and high-speed interpolation performance; complex curve surface machining effective speed: 8m/min; optimum machining speed: 4m/min;
- Max. Positioning speed: 60m/min; max. feedrate: 15m/min;
- Up to 1000 blocks look-ahead capacity, powerful pre-processing function, featuring high speed, high precision and good finish.
- There are three structural types: horizontal, vertical and integrated, which adopting 8.4" or 10.4" color LCD with 800×600 resolution.
- The interface is comfortable, friendly and easy to use.
- Support Chinese, English, Russian, Spanish and Turkish language.
- Support PLC online monitoring, edit, compile and signal follow functions.
- Support turret type, circular and servo tool magazines etc.
- Support Statement type macro programs (macro B), which makes the programming more concise.
- With abundant help information and a big amount of prompt information, it is easy for user to learn, operate and debug.
- Support RS232, USB and network interfaces and realize data transfer, DNC machining and USB on-line machining.

Machined Parts



MJB Deconcentrator



Input of MJB Deconcentrator (Without Relay)

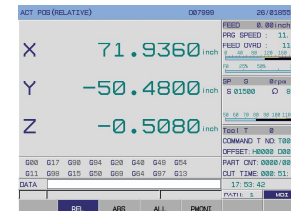


Output of MJB Deconcentrator (Without Relay)

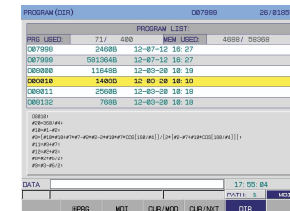


Output of MJB Deconcentrator (With Relay)

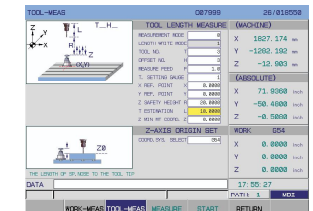
Interface



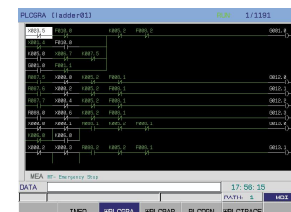
Real-time monitoring of the running state



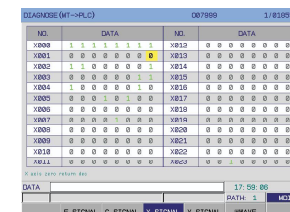
Machining program preview



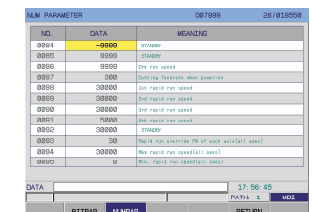
Auto tool setting



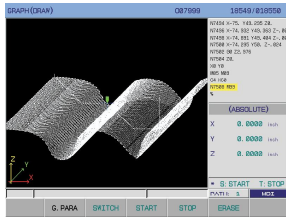
Support ladder monitoring and edit online



Prompt a big amount of information



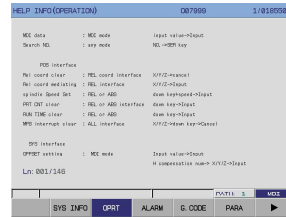
Clear meaning of parameters



3D wireframe processing graphic display



Abundant alarm information



Detailed help function

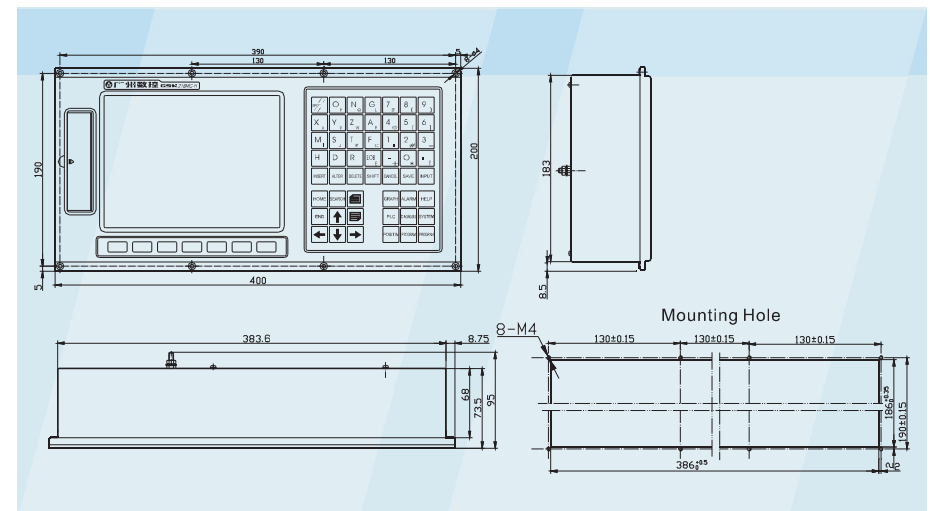
Technical Specification

Motion control	Controlled and linked axes: standard: 4-axis with 3-axis linkage (standard) and 4-axis linkage (option); each axis can be set to rotary or linear axis by parameter.
	Interpolation type: positioning (G00), linear (G01), arc (G02, G03), helical interpolation
	Position instruction range: Metric: -99999.999mm~99999.999mm, min. Input increment: 0.001 mm Inch: -9999.9999inch~9999.9999inch, min. Input increment: 0.0001 inch
	Electronic gear: instruction multiplication coefficient 1~65536, instruction division coefficient 1~65536
Acceleration and deceleration	Rapid traverse speed: max. 60m/min
	Rapid override: F0, 25%, 50%, 100% real-time adjustment in 4 levels
	Cutting feedrate: max. 15m/min (G94) or 500.00mm/r (G95)
	Feed override: 0~200% real-time adjustment in 21 levels, can be controlled by band
Miscellaneous function	MPG feedrate: 0.001mm, 0.01mm, 0.1mm, 3 levels;
	Single step feedrate: 0.001mm, 0.01mm, 0.1mm, 1mm, 4 levels;
	Pre acceleration/deceleration: The acceleration/deceleration before interpolation can select the linear or S type, and the acceleration/deceleration time constant can be set by parameter
	Post acceleration/deceleration: the acceleration/deceleration after interpolation can select the linear or exponential type, and the acceleration/deceleration time constant can be set by parameter
Tool function	Post acceleration and deceleration is default in manual, MPG and step mode.
	Pre acceleration/deceleration or Post acceleration/deceleration type can be selected in cutting and rapid positioning.
	M function can be specified by address M and 2 digits, M function can be user-defined.
	M instructions (cannot be defined again):end of program M02, M30; program stop M00; optional stop M01; tool magazine calling M06; subprogram calling M98; end of subprogram M99
Spindle function	M codes defined by the standard PLC: M03, M04, M05, M08, M09, M10, M11, M16, M17, M18, M19, M20, M21, M22, M23, M24, M26, M27, M28, M29, M35, M36, M44, M45, M50, M51
	T and 4 digits select the tool ●256 sets tool offset value ● tool length compensation ● wear compensation ● tool nose radius compensation (C type)
	●S 2 digits (I/O gear control) / S 5 digits (analog output) ● max spindle speed limit ● constant surface speed
	Spindle encoder: resolutions can be set (100~5000p/r) Transmission ratio between encoder and spindle: (1~255) : (1~255)
Automatic compensation	Spindle rate: 500~120%, real-time adjustment in 8 levels real-time adjustment in 8 levels, can be controlled by band
	Tapping cycle: Rigid tapping and flexible tapping
	●Pitch error compensation: interval and origin point of compensation can be set Range: - 999~+999 pulse equivalent
	●Backlash compensation: compensated by fixed frequency or acceleration / deceleration type can be selected
	●Tool length compensation: the type (A or B type) can be selected by parameter
	●Tool radius compensation: C type tool compensation
	Max. compensation value: ±999.999mm or ±99.9999inch

Reliability and safety	State signals: ●emergency stop ●overtravel ●stored stroke limit ●NC ready signal ●servo ready signal ●MST completion signal ●automatic run start light signal ● automatic running signal ●feed hold light signal
	Self-diagnosis function: ● signal abnormality ●system abnormality● position control abnormality● servo abnormality ● communication abnormality ● spindle abnormality and so on.
Operation function	NC alarm: ●program error ●operation error ●overtravel error; ●servo error; ●connection error ●PLC error ●memory (ROM and RAM) error
	●edit ● auto ● MDI ● zero return ●Manual ● step ●MPG ● DNC ● single block ●skip ● dry run ● M.S.T. Lock ●program restart ●MPG interruption ● step interruption ●Manual intervention ● machine lock ● interlock ● feed hold ● cycle start ● emergency stop ●external reset signal ● external power switch (ON/OFF)
Display	● GSK218MC and GSK218MC-V adopt 10.4 ● color LCD with 800×600 resolution; ● GSK218MC-H adopt 8.4 ● color LCD with 800×600 resolution; ● Chinese, English, Russian, Spanish and Turkish interfaces can be selected by parameter.
	● Position message ●User program● system setting ●PLC● diagnosis information● system parameter ● graph ● alarm information ●Help ●actual federate and spindle speed● real-time wave diagnosis ●System running time and other NC instructions and state messages
Program edit	Program capacity: 57MB, max. 400 programs; ● program preview ●program edit ●Background edit
PLC function	PLC processing speed: 3 μs/ per step; up to 4700 steps; including 10 basic instructions and 35 functional instructions; ladder can be edited on-line; I/O: 48 input / 48 output, expandable
Communication	Support RS-232 serial port, USB and network interface, can realize data transfer, DNC machining (serial port or net interface) and USB on-line machining.
Optional drive unit	DA98 series and GS series digital AC Servo etc.

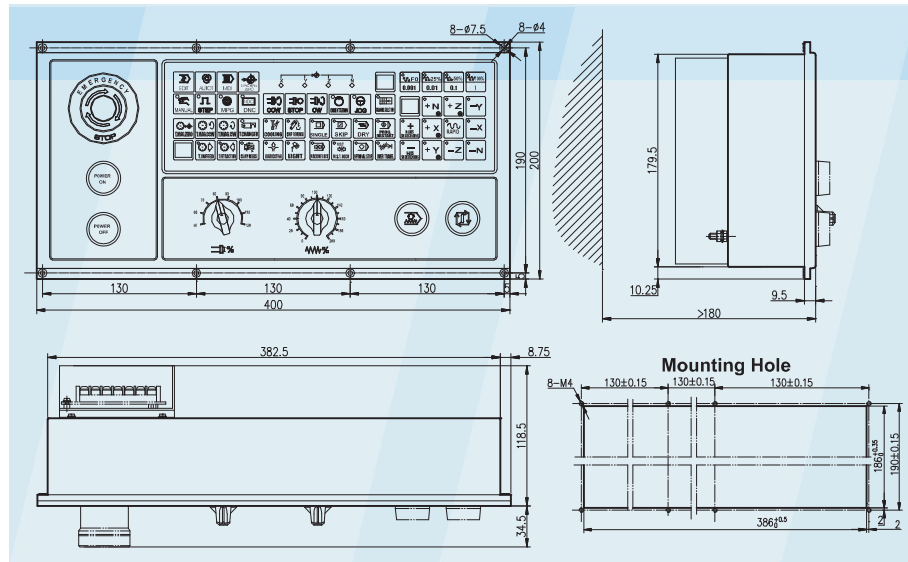
Overall Installation Dimensions

●GSK218MC-H NC Unit

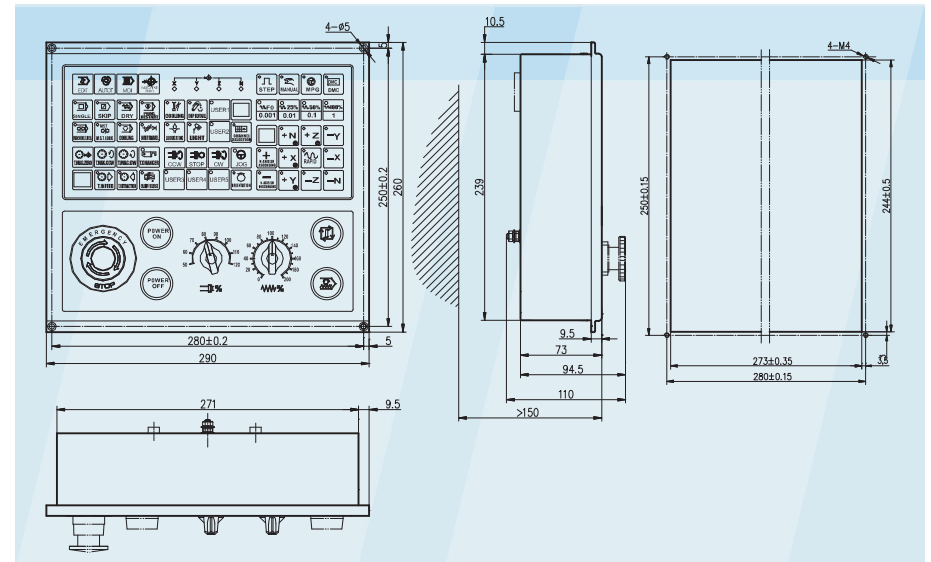




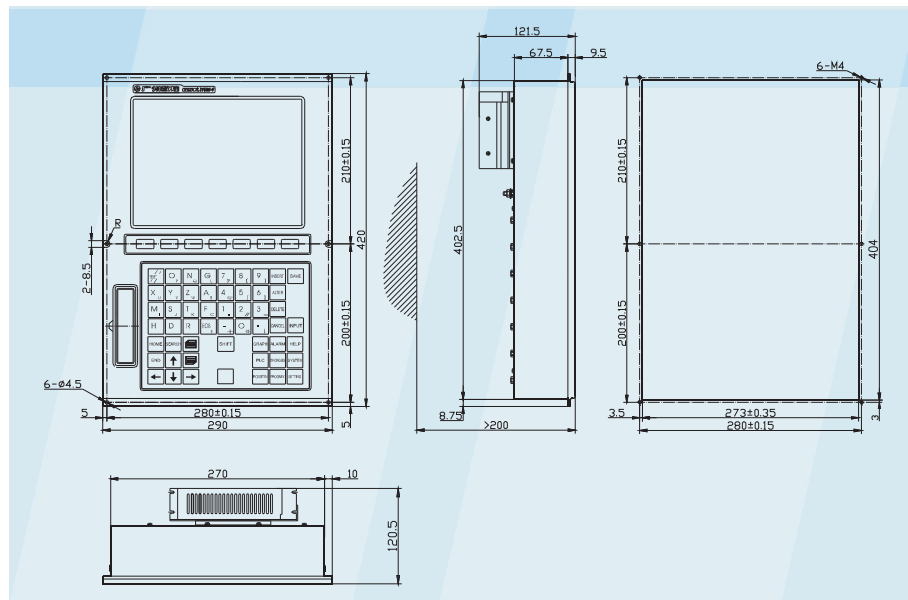
● GSK218MC-H Operation Panel



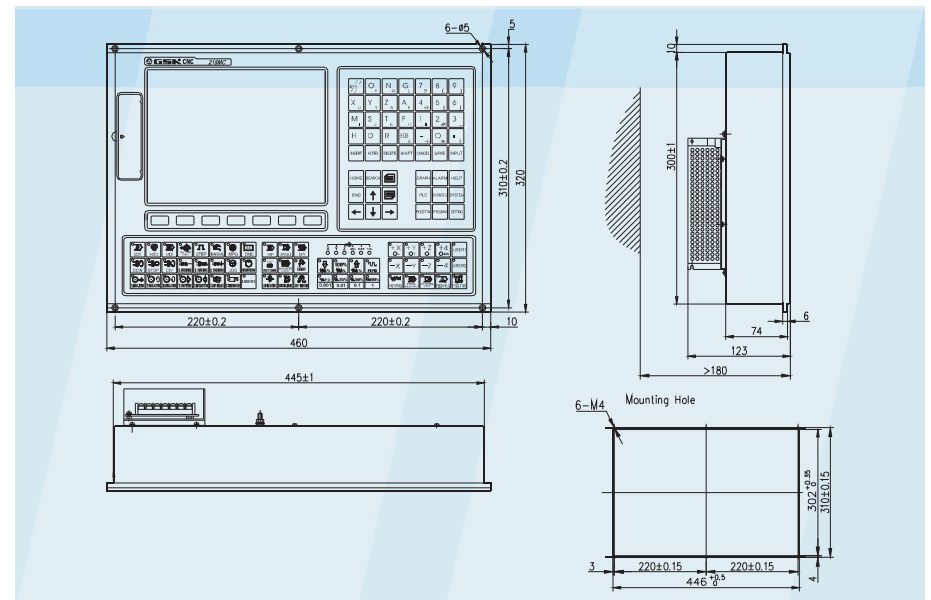
● GSK 218MC-V Operation Panel



● GSK218MC-V NC UNIT



● GSK218MC NC UNIT





GSK983MA-H/V MACHINING CENTER CNC SYSTEM

Brief Introduction

GSK983Ma-H/V Machining Center CNC System is a product of great-lead-forward development based on the previous GSK983M series CNC products. Its installation is compatible with GSK 983M-H. It is improved by various designs, such as integrated structure design, and more USB interfaces. A new non-volatile component (without battery), Wince operation system with multi-language are applied. It uses the multi-level password protection function, and the USB to import/export the user's ladder. Its software USB has been upgraded and its interpolation speed has been increased. Compared to the previous GSK983 series system, its usability, reliability and Performance have been fully improved and upgraded to achieve excellent cost-performance.



GSK983Ma-H



GSK983Ma-V

Newly added and improved functions for GSK983Ma

- New design for user interface with richer colors and easier operation;
- New design for the display page of PLC dynamic diagnosis;
- U disk function: parameters, PLC parameters, import and export of machining programs, upgrade for software and PLC;
- Addition of DNC memory area with 163MB memory capacity;
- Addition of parameter switch and time setting page;
- Addition of display for diagnosis annotation and version information;
- Improvement for the graphic display function;
- Smaller and more compact I/O units for convenient installation and connection; whether high/low level of I/O input point is valid is selected by user;
- Directly display the detailed information of NC alarm and external alarm, convenient for trouble judgment.
- Support multiple-language by software setting (only support Chinese and English currently);
- Three authority levels, including user, machine tool builder and system factory. Corresponding password is set to each level for convenient management and maintenance;
- On-line explanation for system parameters for convenient debugging and maintenance without Any manual.

Product features

◆ High-precision machining

High-performance control chip of position closed loop and high-precision position detecting components are applied to realize high-precision and fast-response position control. Drive-chain mechanical errors (e.g., ballscrew pitch error) can be offset by stored pitch error compensation, and feedrate override can be adjusted automatically when machining corner contour.

◆ High-speed machining

System resolution: 1 μm, maximum rapid traverse speed: 60,000mm/min, feed rate: 30,000mm/min. It is applicable for the control of milling machine and machining center. Continuous high-speed machining to small blocks is realized due to the distributed process by multiple high-speed CPUs. Up to 500 blocks can be processed per second.

◆ Multiple control functions

Max. 5 feeding axes and one spindle control, scaling up and down, mirror image, coordinate system rotation, compound canned cycle, background editing, graphic display and Type B macro program. Some special mechanical machining can be performed easily by using these functions.

◆ Ultra mini and ultra thin integrated CNC

The mainframe unit is integrated into the MDI unit as the NC unit to improve the integrated level and the reliability of the system, which facilitates and simplifies installation and connection.



◆ Modularized I/O unit

Max. 64/40 I/O point. I/O unit is connected to CNC with high-speed serial link. Input signal can realize high/low level selection while output signal can directly drive a relay and other loads. Therefore, simple circuit design as well as rapid and convenient troubleshooting is realized, meanwhile, the space and wires are saved.

◆ Machine operator's panel

Max. 56 buttons and 2 band switches, each button corresponding to one LED indicator can be defined by PLC program compiling. In addition, its connection to external hand wheel is available. It uses the separate structure, and is connected to the CNC system by the high-speed serial communication interface. There is no need for user to assemble another operator's panel, so the cost is greatly saved.

◆ Wince operation system

The IT performance of the system has been greatly improved by applying Wince operation system (e.g., USB function, FAT 32 file system, multi-language support, windows type user interfaces and various display functions).

Technical Specification

NC function		
Controlled axis	Control axes and universal drive shafts: 5 feed axes at most plus one spindle control Standard configuration: three-axis linkage. Configuration selection: four axes with three-axis linkage, four-axis linkage, five axes with three-axis linkage or five axes with four-axis linkage can be selected according to order requirement.	
	interpolation mode: linear(G01), circular(G02,G03), sine(G07)	
	Maximum command value: metric: 99,999.999mm; inch: 9,999.9999inch	
	Setting unit	Least input unit: 0.001mm/metric 0.0001inch/inch
		Least motion unit: X axis: 0.001mm(metric) 0.0001inch(inch) Y axis: 0.001mm(metric) 0.0001inch(inch) Z axis: 0.001mm(metric) 0.0001inch(inch)
		4 th axis: 0.001deg(rotary axis) 0.001mm/0.0001inch(linear axis)
		5 th axis: 0.001deg(rotary axis) 0.001mm/0.0001inch(linear axis)
	Rapid feedrate	60,000mm/min or 24,000 inch/min
	Cutting feedrate	G94: 30,000mm/min or 1,200.00inch /min
		G95: 500.00mm/rev or 50.0000inch/rev
Automatic acceleration/deceleration: linear acceleration/deceleration is automatically performed during rapid feed in manual or auto operation to shorten positioning time.		
Automatic acceleration and deceleration in cutting feed: The time constant of exponential acceleration/deceleration function in cutting feed and manual feed is set by parameter within the range from 2ms to 4000ms.		
Flexible tapping function; rigid tapping function, time adjustment for acceleration/ deceleration of rigid tapping: the stability of rigid tapping is improved.		
Buffer register: commands of the next two blocks are pre-read to prevent NC command action from being interrupted by command reading, which raises working efficiency. Industrial Ethernet bus control technology: the connection between CNC and servo is simplified and the system reliability is enhanced. (also provided in 983 Me)		
MSTB function	Tool function: ●T2 bit /T4 bit ●200 groups of tool offset ● tool position offset ● tool length compensation ● tool radius compensation B/C●tool offset value communication input ● tool length measurement	

MSTB function	Spindle function: ●S2 bit ●S4 bit A (12 bits BCD output/analog output) ●S4 bit B (12 bits BCD output/analog output) (four-level gear input) ● upper limit of spindle speed ● spindle speed real-time display ● automatic shift between high gear and low gear.
	Miscellaneous function: specified by address M with 2 digits. Program end: M02, M30, program stop: M00, optional stop: M01, subprogram call: M98, subprogram end: M99. Other M functions are defined by user with PLC provided by the system.
	The secondary auxiliary function: specified by address B with three digits. The BCD code signals of the digits are sent to machine side. This function is used for the positioning of index table.
Precision compensation	Stored pitch error compensation: errors caused by machine position, for example, pitch error of feed screw, are offset to improve machining precision. Compensation data is saved into memorizer as parameters.
	Backlash compensation: the loss of momentum of the machine is offset.
	Tool length compensation and tool radius compensation: tool length compensation (G43, G44, G49) and tool radius compensation (G43, G44, G49) can be performed by specified G codes and the compensation value of each tool is saved into memorizer. Maximum compensation value is 999.999mm or 99.9999inch
Reliability and safety	emergency stop; ●overtravel ;●stored stroke limit;●NC Ready signal; ●Servo Ready signal; ●MST Function Completion signal; ●Auto Operation Start Indicator signal;●Auto Operation in Progress signal; ●Feed Hold Indicator signal; ●door interlock;
	NC alarm: ●program error and operation error; ●overtravel error; ●servo system error; ●IO communication error; ●PLC error; ●memorizer (ROM and RAM) error; Nearly 1000 alarm numbers in 5 categories to ensure reliable system operation and rapid system troubleshooting.
	Self-diagnosis function: the diagnoses below can be performed: ●system abnormality checking ● position control part abnormality ●servo system abnormality ●CPU abnormality ●ROM abnormality ●RAM abnormality ●connection to IO unit and machine operator's panel abnormality ●RS232 read-in abnormality ●PC data transmission abnormality etc.
Operation function	●Dry run ●interlock ●single block ●optional block skip ●manual absolute value ON/OFF ● auxiliary function lock ●machine lock ●feed hold ●cycle start ●override cancel ●emergency stop ●external reset signal ●external power supply ON/OFF ●manual continuous feed ● incremental feed ●manual pulse generator ●skip function ●Additional skipping over selected blocks ●rapid feed override ●manual insertion function ●sequence number search ●program number search ●external workpiece number search ●external data input ●sequence number comparison and stop●program restart ●menu switch ●graphic display ●external position display ●Workpiece coordinate system measurement ●1/2 coordinates ●coordinate clearance
	●Horizontal installation H/vertical installation V: 8.4inch /10.4inch 800×600 color LCD screen, no need to adjust contrast ratio. ●machine coordinates, absolute coordinates, relative coordinates ●current operation mode ● System parameter, diagnosis number, alarm number, macro variable value, tool offset setting, MDI command, MST state ●actual feedrate, spindle rotation ●graphic display for machining path ●system running time and other information about NC commands and state ●Various help information: NC parameter, PC parameter, diagnosis information, NC alarm information, etc. ● Current time display
PLC function	Control mode: cyclical motion; processing speed: 15us/step basic command; input/output: maximum 192/128; capacity: 5,000 steps (having display function for the information of Chinese and English external alarm as well as user operation)
	Development method: PLC; user PLC is written into the system directly with U disk (programming); user PLC can be dynamically displayed in the system; user PLC can be edited and debugged directly in the system (developing)
	36 commands: 12 basic commands; 24 functional commands (functional commands for displaying DISP information and DISPB Chinese and English information are newly added)
DNC function	The first method (recommended): copy the program to be machined to system DNC volume with U disk, choose corresponding NC file in the DNC volume, then start machining by pressing Cycle Start button. DNC volume capacity is 160 Mb without limiting the number of files. The second method (traditional): perform DNC machining to the files transmitted from PC with RS232 interface. Transmission baudrate: 38.4k
USB function	●Input and output of parameter, PLC parameter and machining program; ●software and PLC upgrade;

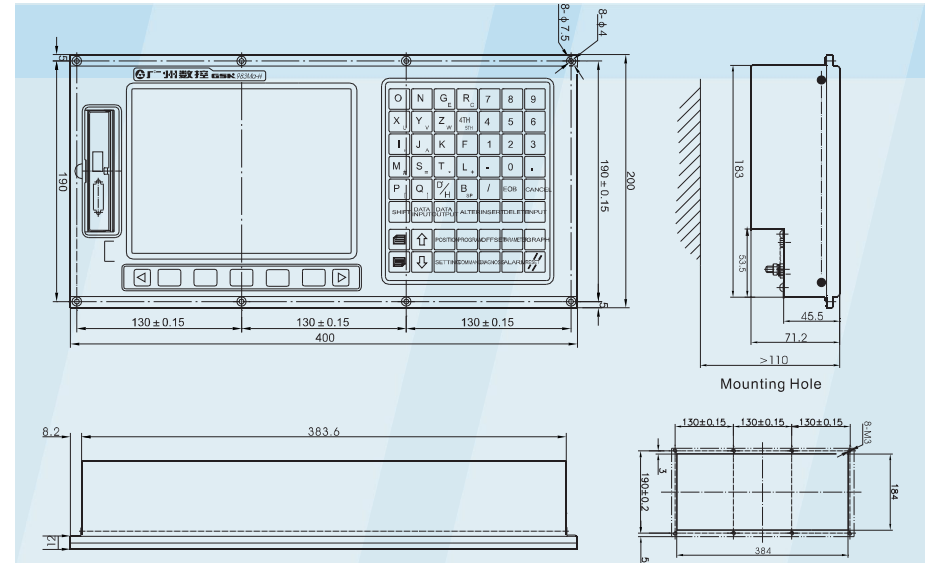


List of G codes

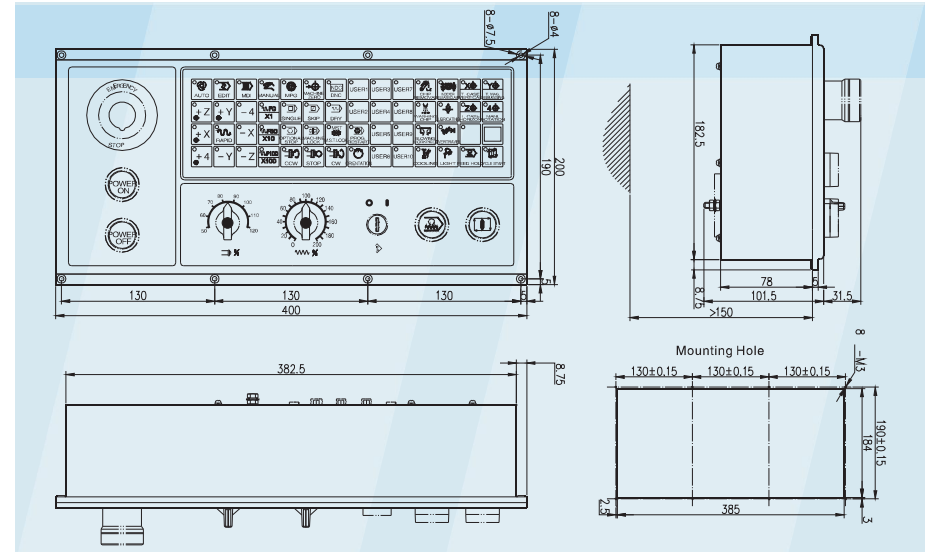
G code	Group	Function	G code	Group	Function
G00	01	Positioning	G56	12	Workpiece coordinate system 3 selection
G01		Linear interpolation	G57		Workpiece coordinate system 4 selection
G02		CW circular interpolation	G58		Workpiece coordinate system 5 selection
G03	00	CCW circular interpolation	G59	00	Workpiece coordinate system 6 selection
G04		Dwell	G60		Unidirectional positioning
G07	00	Sine-curve interpolation (imaginary axis is specified)	G61	13	Accurate positioning detecting mode
G09		Accurate positioning verifying	G62		Automatic corner adjustment
G10	02	Offset value and workpiece origin offset value setting	G64	00	Continuous cutting mode
G17		XY plane selection	G65		Simple recall of custom macro program
G18	06	ZX plane selection	G66	14	Modal recall of custom macro program
G19		YZ plane selection	G67		modal recall of custom macro program cancel
G20	04	Input in inch	G68	16	Coordinate system rotation ON
G21		Input in mm	G69		Coordinate system rotation OFF
G22	00	Stored stroke limit ON	G73	09	Peck drilling cycle
G23		Stored stroke limit OFF	G74		Left-hand tapping cycle
G27	01	Reference position return check	G76	08	Finish boring
G28		Reference position return	G80		Canned cycle cancel
G29	01	Return from reference position	G81	09	Drilling cycle, center hole drilling
G30		Return to 2nd, 3rd and 4th reference position	G82		Drilling cycle, reverse boring
G31	01	Cutting skip	G83	09	Peck drilling cycle
G33		Thread cutting	G84		Tapping cycle
G40	08	Tool radius compensation cancel	G85	10	Boring cycle
G41		Tool radius left compensation	G86		Boring cycle
G42	08	Tool radius right compensation	G87	10	Reverse boring
G43		Tool length positive compensation	G88		Boring cycle
G44	07	Tool length negative compensation	G89	05	Boring cycle
G49		Tool length compensation cancel	G90		Absolute programming
G45	00	Increase tool position offset (+)	G91	03	Incremental programming
G46		Reduce tool position offset (-)	G92		Coordinate system setting
G47	05	Increase tool position offset by twice	G94	05	Feed per minute
G48		Reduce tool position offset by twice	G95		Feed per revolution
G50	11	Scaling OFF	G98	10	Return to initial point in canned cycle
G51		Scaling ON	G99		Return to point R in Canned cycle
G54	12	Workpiece coordinate system 1 selection	G180	17	Rigid tapping cycle cancel
G55		Workpiece coordinate system 2 selection	G184		Rigid tapping cycle

Overall Installation Dimension

• GSK983Ma-H NC Unit

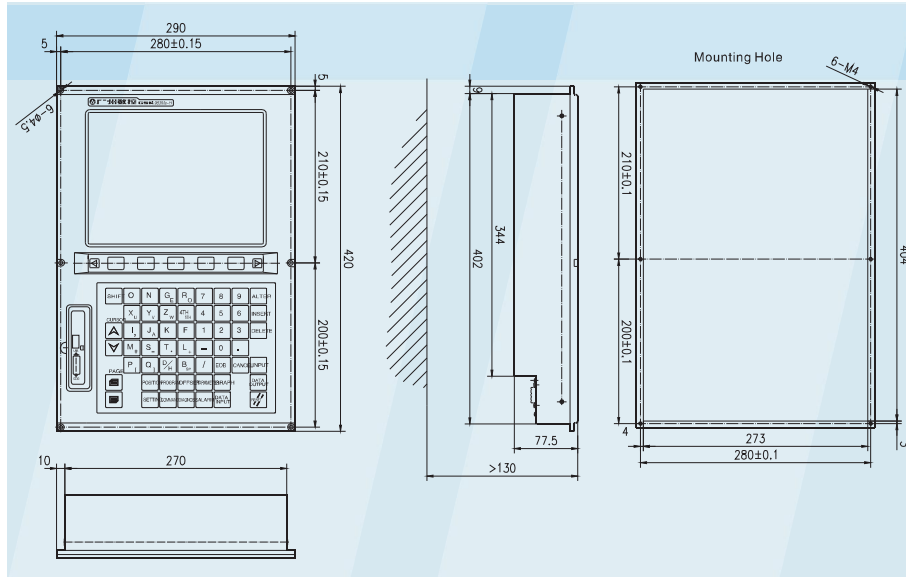


• GSK983Ma-H Operation Panel

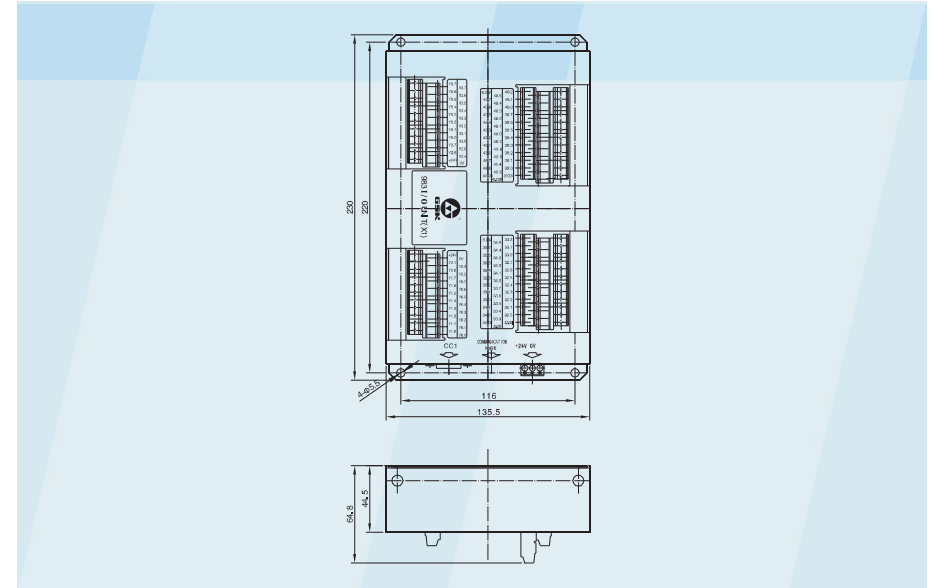




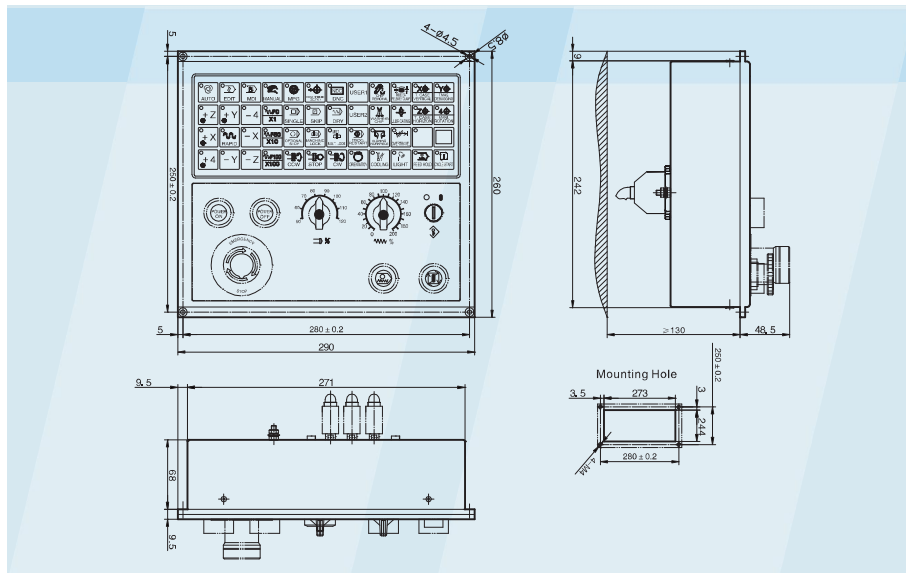
● GSK983Ma-V NC UNIT



● GSK983Ma-H/V I/O UNIT



● GSK983Ma-V Operation Panel





GSK980MDa DRILLING AND MILLING MACHINE CNC SYSTEM

Brief Introduction

GSK980MDa can control five feeding axes (including C axis), two analog spindles, 2ms interpolation in high speed, 0.1 μ m precision, which obviously improve the efficiency, precision and surface quality of processing parts. The new USB interface, supports the file operation and program running in flash disk. It provides 26 cycle commands of rigid tapping, drilling, boring and milling, etc. It supports the macro command in sentence type and calls the macro program with parameter. The command function is powerful, convenient and flexible in programming.



Characteristics

- The five axes of X, Z, Y, 4th and 5th control, any three axes linkage movement, the axial name and the axial type of 4th and 5th can be defined.
- 2ms interpolation cycle, the precision of 1 μ m or 0.1 μ m can be selected.
- Maximum speed: 60m/min When, it is 0.1 μ m, the maximum speed is 24m/min
- Multiple functions, it can realize the drilling/boring, roughing of round groove/rectangle groove, finishing of full circle/rectangle, continuous drilling of straight line/rectangle/arc, and support spiral, cylindrical and polar coordinate interpolation, etc.
- Adapted servo spindle can realize spindle continuous position, rigid tapping function.
- Built-in many PLC programs, PLC programs can be selected, edited, uploaded and downloaded.
- Memory capacity: 40MB, total 10,000 part programs.
- Support macro command programming in sentence type and the calling of macro program with the parameter.

- Support metric system/inch system, with the function of scaling, programmable mirror, coordinate system rotation, auto chamfering and tool life management.
- Display in Chinese, English, Spanish, and Russian, which can be selected by the parameter.
- With USB interface, support USB file processing, system configuration and software upgrade.
- DNC in high speed, realize part program real-time transmission processing.
- Analog voltage output of 0V 10V in two channels, support two-spindle control.
- One channel for handwheel, supporting external MPG.
- Common input in 41 points/output in 36 points, which meet the requirements of the logic control for the circular disc tool magazine and umbrella-type tool magazine

Technical Specification

◆ Control axes

- Control axes: 5 axes (X, Z, Y, 4th and 5th)
- Interpolation axes: X, Y, Z, 4th and 5th linear interpolation; X, Y and Z three axes linear and spiral interpolation, any two axes arc interpolation;

◆ Feeding axis function

- Minimum command unit: 0.001mm or 0.0001mm can be selected
- Position command range: 99999999 minimum command unit
- Rapid traverse speed: When the command unit is 0.001mm, the maximum speed is 60m/min; 0.0001mm, the maximum speed is 24m/min.
- Rapid override: F0, 25%, 50% and 100%, total four levels, real-time adjustment;
- Feeding override: total 16 levels: 0 150%, real-time adjustment;
- Interpolation mode: linear, arc and spiral interpolation, cylindrical, polar coordinate interpolation and rigid tapping
- Auto chamfering

◆ Acceleration and deceleration function

- Cutting feeding: index type
- Rapid traverse: linear type
- Tapping: linear type/index type
- The starting speed, finishing speed and time of acceleration and deceleration are set by the parameter.

◆ Spindle function

- Analog voltage 0V~10V output in two channels, support two-spindle control Spindle encoder feed back in one channel, the resolution of spindle encoder can be set (0 or 100p/r~5000p/r)
- Transmission ratio between encoder and spindle is: (1~255) : (1~255)
- Spindle speed: It is specified by S code or PLC signal, the speed range is 0rpm~9999rpm.
- Spindle override: total 8 levels: 50%~120%, real-time adjustment
- Spindle constant surface speed control
- Tapping cycle/rigid tapping



◆ Tool function

- Tool length compensation: 32 sets
- Tool radius compensation (C type): 32 sets
- Tool wearing compensation: 32 sets
- Tool life management: 32 sets (8 types per set)

◆ Precision compensation

- Backlash compensation
- Pitch error compensation in memory type

◆ PLC function

- PLC program in two levels, maximum 5,000 steps, the refresh cycle of the 1st level program: 8ms.
- PLC program communication download
- Support PLC warning and PLC alarm
- Support many PLC programs (maximum 16), the current running PLC program can be selected by parameter
- Basic I/O: input in 41 points/output in 36 points

◆ Human machine interface

- 7.4 colored LCD, the resolution is 234×480
- Display in Chinese, English, Spanish or Russian, etc
- Display in processing path and it can real-time zoom in and out, translation and scroll lock.
- Real-time clock

◆ Operation management

- Operation mode: Edit, AUTO, MDI, machine zero-return, MPG/single step, manual and DNC.
- Operation authority of multiple levels management
- Alarm record

◆ Editing program

- Program capacity: 40M, 10,000 programs (including subprograms, macro programs)
- Editing function: program/block/characters research, rewrite and delete
- Program format: ISO code, support macro command programming in sentence type
- Calling program: It supports 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, DNC real-time processing, support PLC program, serial ports of system software upgrade.
- USB: File operation, directly processing files in USB, support PLC program, system software upgrade by USB.

◆ Safety function

- Emergency stop
- Hardware travel limit

- Software travel limit
- Data restoring and recovering

List of G codes

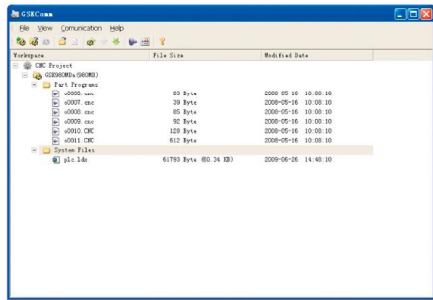
CODE	FUNCTION
G00	Positioning (rapid traverse)
G01	Linear interpolation (cutting feeding)
G02	CW arc/spiral interpolation
G03	CCW arc/spiral interpolation
G04	Dwell, exact stop
G10	Set the compensation value
G11	Tool life management end
G15	Polar coordinate command mode cancel
G16	Polar coordinate command mode start
G17	Select XY plane
G18	Select ZY plane
G19	Select YZ plane
G20	Input system inch
G21	Input system metric
G28	Reference point return
G29	Return from reference point
G30	Reference points 2nd,3rd and 4th return
G31	Jumping function
G40	Cancel tool radius compensation
G41	Tool radius left compensation
G42	Tool radius right compensation
G43	Tool length positive compensation
G44	Tool length negative compensation
G49	Cancel tool length compensation
G50	Zooming cancel
G50.1	Programmable mirror image cancel
G51	Zooming start
G51.1	Programmable mirror image start
G52	Partial coordinate system setting
G53	Select coordinates system for machine tool
G54	Work piece coordinate system 1
G55	Work piece coordinate system 2
G56	Work piece coordinate system 3
G57	Work piece coordinate system 4
G58	Work piece coordinate system 5
G59	Work piece coordinate system 6
G65	Macro command

CODE	FUNCTION
G66	Macro program modal call
G67	Macro program modal call cancel
G73	Deep hole processing cycle in high speed
G74	Laevorotatory tapping cycle
G80	Cancel fixed cycle
G81	Drilling hole in cycle (dot drilling cycle)
G82	Drilling in cycle (boring stage hole cycle)
G83	Deep hole drilling in cycle
G84	Tapping in cycle
G85	Boring hole in cycle
G86	Drilling hole in cycle
G88	Boring hole in cycle
G89	Boring hole in cycle
G90	Absolute value programming
G91	Increment value programming
G92	Set coordinate system
G94	Feeding/min
G95	Feeding/rev
G98	Return to initialization plane during fixed cycle
G99	Return to point R plane during fixed cycle
G110	CCW round groove roughing
G111	CW round groove roughing
G112	Finishing in CCW full circle
G113	Finishing in CW full circle
G114	CCW outer circle finishing
G115	CW outer circle finishing
G134	CCW rectangle groove roughing
G135	CW rectangle groove roughing
G136	CCW rectangle groove finishing
G137	CW rectangle groove finishing
G138	CCW rectangle outer finishing
G139	CW rectangle outer finishing
G140	CW rectangle continuous drilling
G141	CCW rectangle continuous drilling
G142	CW arc continuous drilling
G143	CCW arc continuous drilling

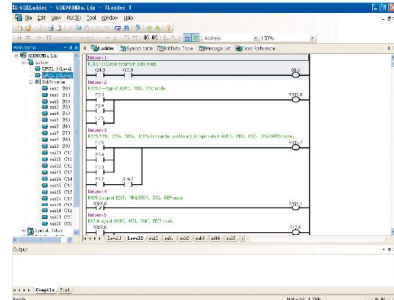


Communication Software GSKComm and PLC Ladder Diagram Editing Software GSKLadder

GSK980MDa adopts GSKComm and GSKLadder. They both run under WIN98/2000/XP. Through GSKComm, the programs files, parameter, tool compensation, and pitch error compensation, etc., can be edited on PC and transmitted between PC and CNC, as well as uploaded and downloaded by users, and the DNC real-time processing can be realized. Through GSKLadder, the ladder diagram can be edited on PC by machine manufacturers. Also, PLC programs can be uploaded and downloaded between PC and CNC.



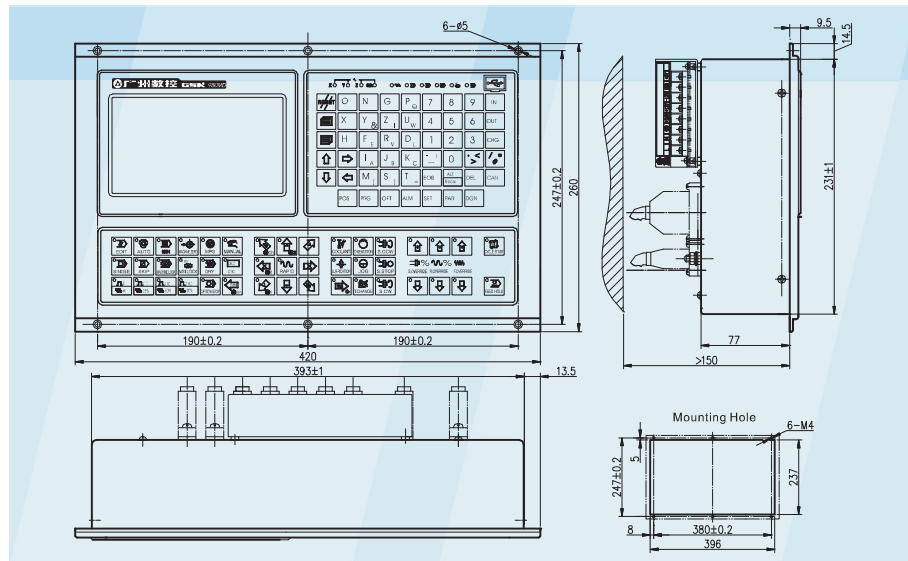
Communication software GSKComm interface



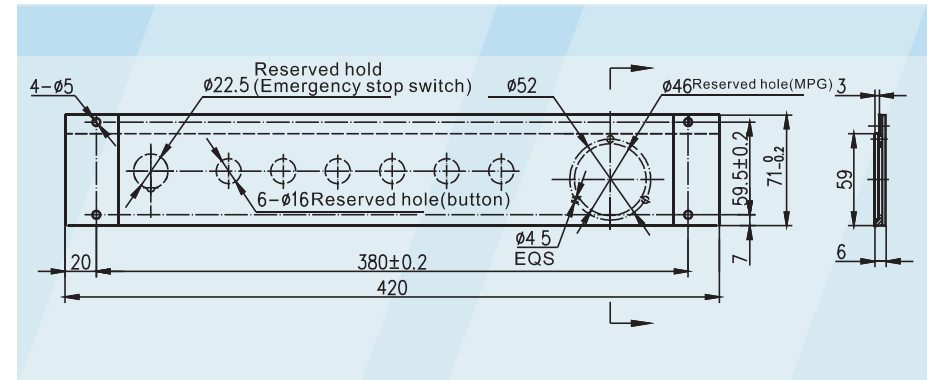
PLC Ladder diagram editing software GSKLadder interface

Overall Installation Dimensions

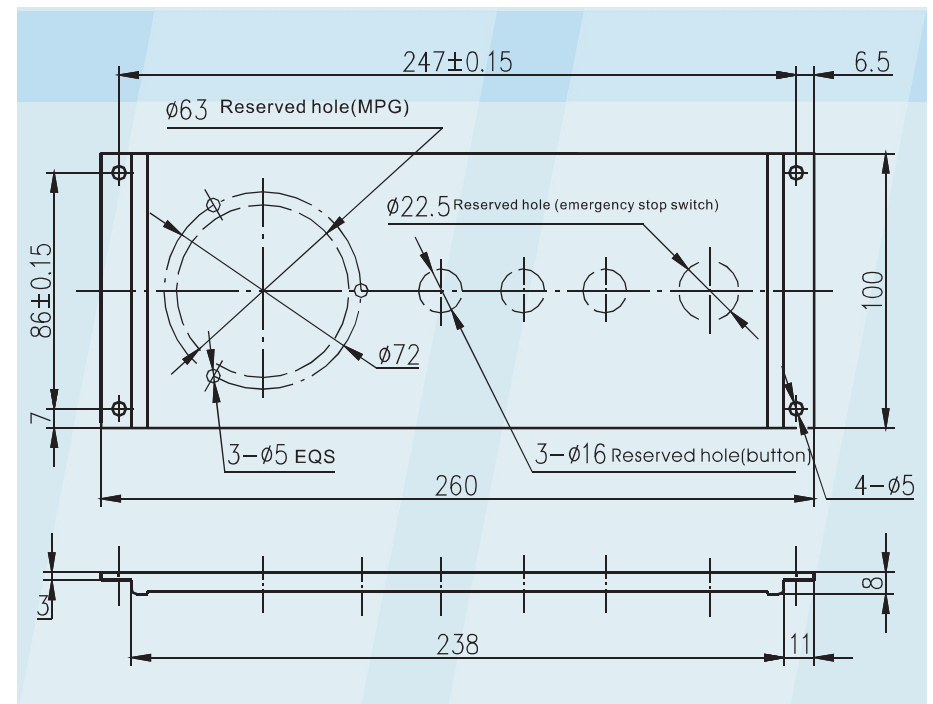
GSK980MDa



Additional panel Ap01 (bottom installation)



Additional panel Ap02 (side installation)





GSK980MDc Milling and Drilling CNC System

Brief Introduction

GSK980MDc is a new product upgraded from GSK980MDa (including software and hardware). Its structure is divided into horizontal and vertical type, with 8.4" colored LCD, 5 feed axes (including C axis) and 2 analog spindles. The minimum command unit is 0.1 μm. It has graphic auxiliary programming, multiple time-limit stop functions, supports MDI multi-block execution, common parameter customization, PLC ladder on-line display and real-time monitoring. As an upgraded product of GSK980MDa, GSK980MDc CNC Milling system is the best choice for CNC milling machine technology upgrade.



GSK980MDc



GSK980MDc-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 μm, 0.1 μm
- Max. speed 60m/min (up to 24m/min in 0.1 μm)
- Drilling/boring, circle groove/rectangular groove roughing, full-circle/rectangular finishing, linear/rectangular/arc continuous drilling and so on, spiral interpolation, cylindrical interpolation and polar coordinate command
- Adapted to servo spindle can realize spindle continuously positioning and rigid tapping
- Built-in multi PLC programs, the currently running PLC program can be selected
- Display on-line, monitor in real-time PLC
- Adapting to the servo spindle to realize the spindle continuously positioning, rigid tapping
- Graphic auxiliary programming
- multiple time-limit stop function
- MDI multi-block execution
- Counter
- Built-in multi PLC programs, PLC ladder on-line display, and real-time display
- Controllable disc tool magazine and umbrella-type tool magazine

- Support the programming of macro command in sentence type and the calling of macro program with parameter.
- Metric/inch programming, scaling, programmable image, automatic chamfer, tool life management function
- 8.4" color LCD, Chinese, English, Spanish, Russian and Portuguese display can be selected by parameter
- With USB interface, it supports file operation in USB, system configuration and software upgrade.
- High-speed DNC, real-time transmitting part programs to machine
- 2-channel 0V~10V analog voltage output, analog input/output can be extended
- 1-channel handwheel input, handheld electronic MPG
- Panel size, mounting holes position, command system are compatible with GSK980MDa, mounting holes dimension has minor difference.

Technical Specification

Control axes

- Control axes: 5 (X, Z, Y, 4th, 5th)
- Interpolation axes: X, Y, Z, 4th, 5th linear interpolation; X, Y, Z spiral interpolation, two of X, Y, Z arc interpolation
- PLC control axes: 5

Feeding axes function

- Min. input/output unit

ITEM	μ grade (IS-B)		0.1 μ 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) -9999.999 ~ 9999.999 (deg)
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)	0.1 μ 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)	0.1 μ grade (IS-C)
Machine tool (metric system)	Feed/rev.(G98)	0 mm/min ~ 30000 mm/min
	feed/min.(G99)	0.001 mm/r ~ 500 mm/r
Machine tool (inch system)	feed/rev.(G98)	0 mm/min ~ 1200 inch/min
	feed/min.(G99)	0.0001 inch/r ~ 50 inch/r



◆ Feeding axes function

- Feedrate override: 0~150%, 16 grades tuning in real time
- Interpolation mode: linear interpolation, arc interpolation, spiral interpolation, cylindrical interpolation, and rigid tapping
- Automatic chamfer function

◆ Acceleration/Deceleration Function

- Cutting feeding: linear
- Rapid traverse: linear
- Tapping cutting: exponential or linear
- Initial speed, termination speed, the time of acceleration/deceleration can be set by parameter

◆ Spindle Function

- 2-channel 0V~10V analog voltage output, two-spindle control
- 1-channel spindle encoder feedback, spindle encoder line can be set (100p/r~5000p/r)
- Transmission ratio between encoder and spindle: (1~255) : (1~255)
- Spindle speed: it is set by S or PLC, speed range: 0r/min~9999r/min
- Spindle override: 50%~120% divided into 8-grade tuning
- Tapping cycle/rigid tapping
- Analog spindle M type function

◆ Tool Function

- Tool length compensation: 32 sets
- Tool nose radius compensation(C) : 32 sets
- Tool wear compensation: 32 sets
- Tool life management: 32 sets(8 types/sets)

◆ Precision Compensation

- Backlash compensation: backlash compensation mode and compensation frequency is set by parameter, compensation range: (0 mm~2 mm) or (0 inch~0.2 inch)
- Memory pitch error compensation: 256 compensation points per axis, compensation range of each point (-255~255)×least output equivalent

◆ PLC Function

- Two-level PLC program, up to 5000 steps, the 1st program refresh period 8ms
- PLC programs being displayed on-line and monitored in real time
- PLC program communication download
- PLC warning and PLC alarm
- Basic I/O: 41 input signals /36 output signals, I/O contacts can be extended

◆ Human machine interface

- 8.4" color screen LCD
- Display in Chinese, English, Spanish, Russian, Portugal, etc.
- Machining path display, machining path scaling up/down, translation, viewpoint shifting
- Real-time clock
- Soft function key operation
- Counter
- Support MDI multi-block execution

◆ 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: USB operation, USB directly machining, DNC processing, PLC program, system software ,can be upgraded by USB

◆ Safety Function

- Emergency stop
- Hardware travel limit
- Software travel check
- Data backup and recovery

◆ Operation Management

- Operation mode: edit, auto, MDI, machine zero return, MPG/step, Manual, DNC
- Multi-level operation authorization management
- Multiple time-limit stop
- Alarm log
- Common parameter customization

◆ Program Edit

- Program capacity: 40MB, 1000 programs(including subprograms and macro programs)
- Edit function: search, modify and delete programs/blocks/words
- Program format: ISO command, statement macro command programming, relative coordinate, absolute coordinate and hybrid coordinate programming
- Program calling: Support macro program with parameter, subprogram nesting of 4 layers.

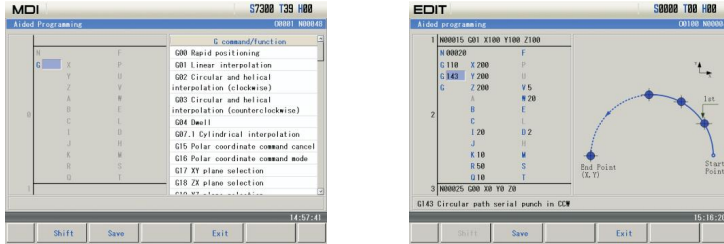
List of G codes



List of G codes			
G00	Rapid traverse (positioning)	G69	Coordinate rotation cancel
G01	Linear interpolation (cutting feed)	G73	High-speed peck drilling
G02	CW circular / spiral interpolation	G74	left-hand tapping cycle
G03	CCW circular / spiral interpolation	G76	Finishing boring cycle
G07.1	Cylindrical interpolation	G80	Fixed cycle cancel
G04	Dwell, exact stop	G81	Drilling cycle (spot drilling cycle)
G10	Programmable data input	G82	Drilling cycle (stepped hole boring cycle)
G15	Polar coordinate command cancel	G83	Peck drilling cycle
G16	Polar coordinate command	G84	Tapping cycle
G17	XY plane selection	G85	Boring cycle
G18	ZX plane selection	G86	Drilling cycle
G19	YZ plane selection	G87	Back boring cycle
G20	Inch input	G88	Boring cycle
G21	Metric input	G89	Boring cycle
G28	Reference point return	G90	Absolute programming
G29	Return from reference point	G91	Incremental programming
G30	2nd, 3rd, 4th reference point return	G92	Coordinate system setting
G31	Skip function	G94	Feed per minute
G40	Tool radius compensation cancel	G95	Feed per rotation
G41	Tool radius compensation left	G98	Return to initial plane in canned cycle
G42	Tool radius compensation right	G99	Return to R point in canned cycle
G43	Tool length compensation +	G110	Inner circle groove roughing (CCW)
G44	Tool length compensation -	G111	Inner circle groove roughing (CW)
G49	Tool length compensation cancel	G112	Inner circle finishing (CCW)
G50	Scaling cancel	G113	Inner circle finishing (CW)
G51	Scaling ON	G114	Circular outer finish milling (CW)
G50.1	Programming image cancel	G115	Outer circle finishing (CCW)
G51.1	Programming image	G134	Rectangular groove roughing (CCW)
G52	Local coordinate system setting	G135	Rectangular groove roughing (CW)
G53	Machine coordinate system selection	G136	Rectangular groove inner finishing (CCW)
G54	Workpiece coordinate system 1	G137	Rectangular groove inner finishing (CW)
G55	Workpiece coordinate system 2	G138	Rectangular outer finishing (CCW)
G56	Workpiece coordinate system 3	G139	Rectangular outer finishing (CW)
G57	Workpiece coordinate system 4	G140	Rectangular continuous drilling (CW)
G58	Workpiece coordinate system 5	G141	Rectangular continuous drilling (CCW)
G59	Workpiece coordinate system 6	G142	Arc continuous drilling (CW)
G65	Macro command	G143	Arc continuous drilling (CCW)
G68	Coordinate rotation		

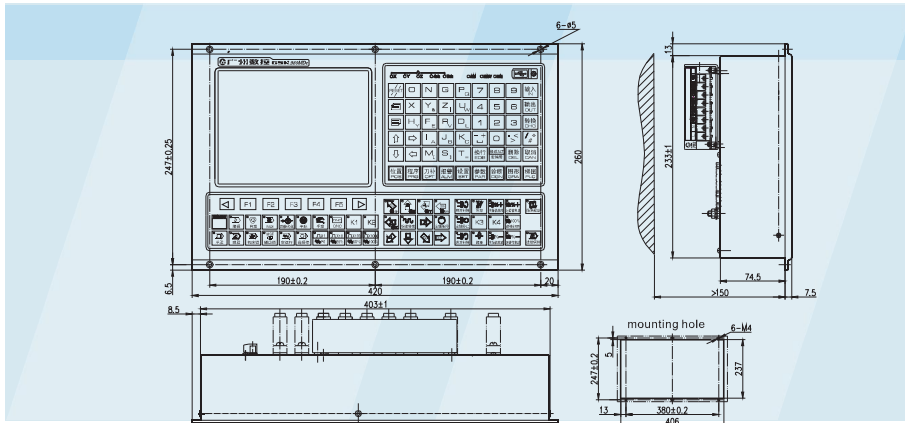


Edit programming

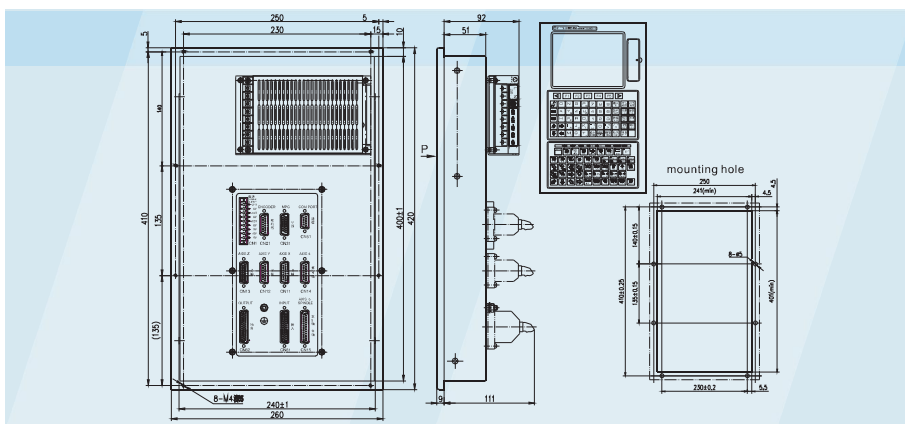


Installation Dimension of System Panel

GSK980MDC

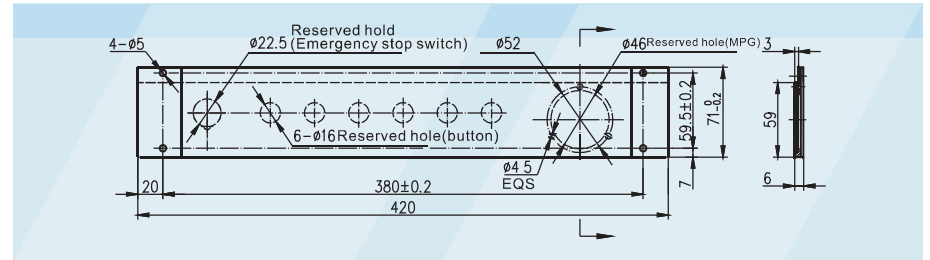


GSK980MDC-V

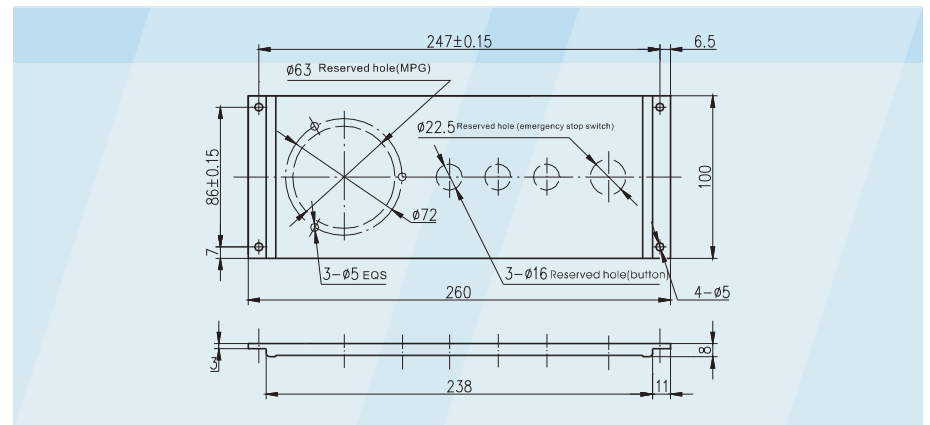


Installation Dimension of Additional Panel (Optional part)

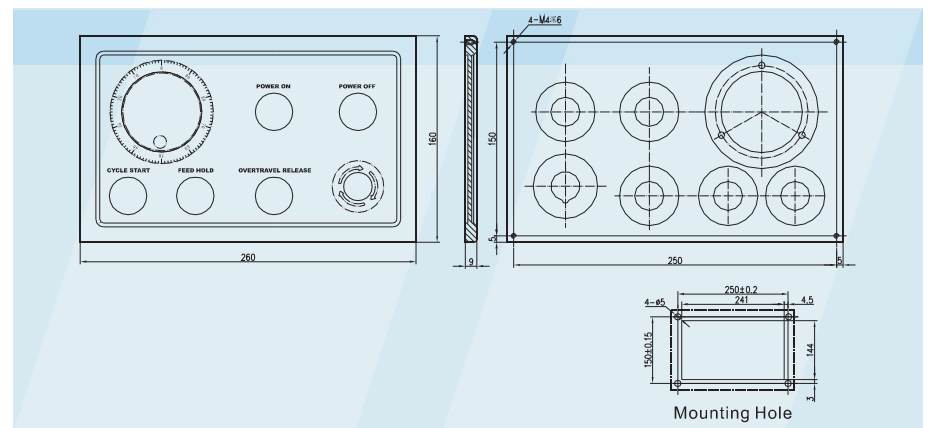
Additional panel AP01 (opt for GSK980MDC, installing below)



Additional panel AP02 (opt for GSK980MDC, installing at side)



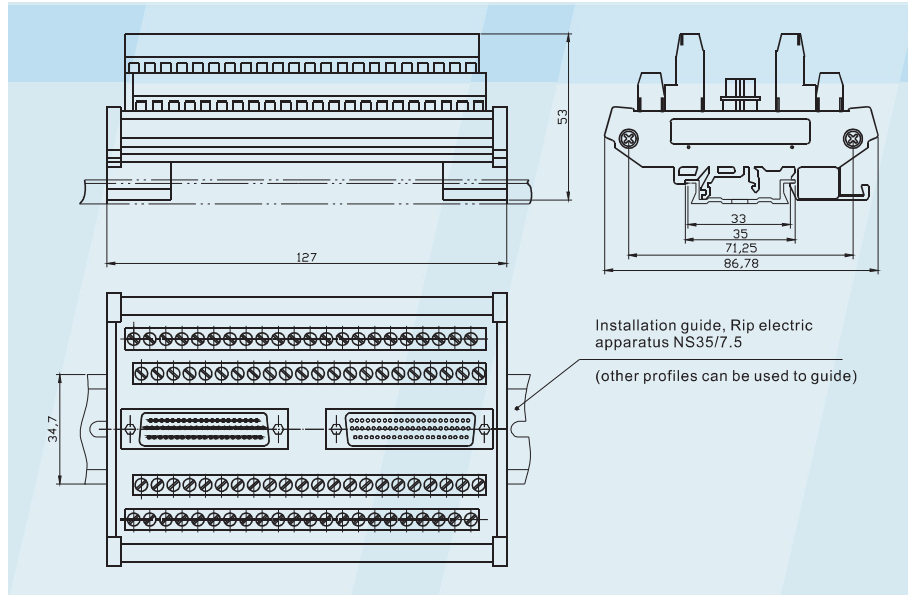
Additional panel AP02 (opt for GSK980MDC-V, installing below)



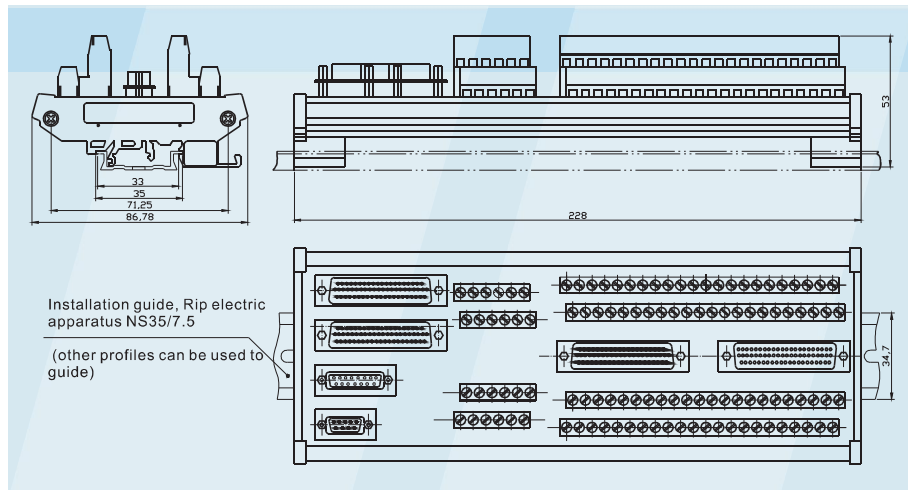


Installation Dimension of I/O Deconcentrator (optional part)

MCT01B (without relay)

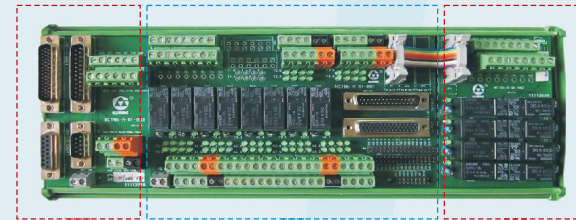


MCT01B (without relay)

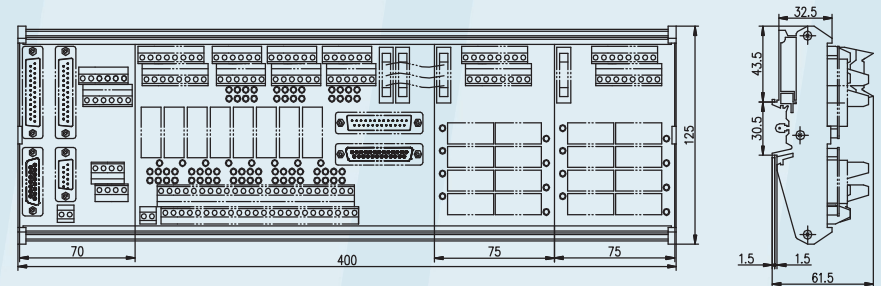


MCT06-R Deconcentrator (with Relay)

To get convenient installation, debugging and maintenance and reduce abnormal run caused by improper connection and elements to be damaged, GSK has researched I/O Deconcentrator MCT06-R with relay. MCT06-R is composed of one or several of basic module of Deconcentrator, extension module of relay and commutator module of servo spindle, which can configure 8 kind of deconcentrator according to user's requirements.



Commutator module of servo spindle (spindle with C/S axis) Basic module of deconcentrator Extension module of relay (up to 3)



Type		MCT06-R1	MCT06-R2	MCT06-R3	MCT06-R4	MCT06-R1S	MCT06-R2S	MCT06-R3S	MCT06-R4S
Contour dimension (mm*mm)		180 × 125	255 × 125	330 × 125	405 × 125	250 × 125	325 × 125	400 × 125	475 × 125
Composition	Basic module of deconcentrator	1PC	1PC	1PC	1PC	1PC	1PC	1PC	1PC
	Commutator module of servo spindle	0PC	0PC	0PC	0PC	1PC	1PC	1PC	1PC
	Extension module of relay	0PC	1PC	2PCS	3PCS	0PC	1PC	2PCS	3PCS