

## Series 0i-MD CNC

### Axis Control

Digital Servo Function	
1 Controlled Path	
Simultaneously controlled axes: Up to maximum of 4; 3 if Contouring Spindle Configured	
PMC Axis Control	
Simple synchronous control	
Tandem control	
Serial Encoder Interface	
Axis Name	Selected from X,Y,Z and U,V,W,A,B,C
Spindle	Up to two Spindles
Least input increment	0.001mm, 0.001deg, 0.0001inch
Increment system 1/10	0.0001mm, 0.0001deg, 0.00001inch
Flexible feed gear	Optional DMR
Fine Acc & Dec control	
Inch/metric conversion	
Interlock	All axes/each axis/each direction/block start/cutting block start
Machine lock	All axes/each axis
Emergency stop	
Overtravel	
Stored stroke check 1	
Stored stroke check 2	
Stroke limit external setting	
Mirror image	Each axis
Follow-up	
Servo off	
Backlash compensation	
Backlash compensation for each rapid traverse and cutting feed	
Stored pitch error compensation	
Position switch	
Unexpected disturbance torque detection function	

### Operation

Automatic operation (memory)	
DNC operation	Reader/puncher interface is required.
MDI operation	
Schedule function	
Program number search	
Sequence number search	
Sequence number comparison and stop	
Program restart	
Manual intervention and return	
Retraction for rigid tapping	
Buffer register	
Dry run	
Single block	
JOG feed	
Manual reference position return	
Reference position setting without DOG	
Reference position setting with mechanical stopper	
Reference position shift	
Manual handle feed	Max. 3 units <i>(requires MPG - order from IOetc Sheet)</i>
Manual handle feed rate	x 1, x 10, x m, x n m: 0 ~ 127, n: 0 ~ 1000
Manual handle interruption	
Incremental feed	x 1, x 10, x 100, x 1000
Jog and handle simultaneous mode	

### Interpolation

Positioning	G00 (Linear interpolation type positioning is possible)
Single direction positioning	G60
Exact stop mode	G61
Exact stop	G09
Linear interpolation	
Circular interpolation	Multi-quadrant is possible
Dwell	Dwell in seconds
	Dwell per revolution (synchronous cutting function is required.)

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Cylindrical interpolation	
Helical interpolation	Circular interpolation plus max. 2 axes linear interpolation
Skip	G31
High-speed skip	Input signal is 1 point
Reference position return	G28
Reference position return check	G27
2nd reference position return	
3rd/4th reference position return	
Normal direction control	
Index table indexing	
General purpose retract	
Nano Interpolation	

#### Feed Function

Rapid traverse rate	Max. 240m/min (1 $\mu$ m)	Max. 100m/min (0.1 $\mu$ m)
Rapid traverse override	Fo, 25, 50, 100%	
Feed per minute		
Feed per revolution		
Tangential speed constant control		
Cutting feedrate clamp		
Automatic acceleration/deceleration		Rapid traverse: linear; Cutting feed: exponential
Rapid traverse bell-shaped acceleration/deceleration		
Linear acceleration/deceleration after cutting feed interpolation		
Feedrate override	0 ~ 254%	
One-digit F code feed		
Jog override	0 ~ 655.34%	
Override cancel		
Cutting mode		
Tapping mode		
Rapid traverse block overlap		
External deceleration		
AI advanced preview control		

#### Programming

Tape code	EIA RS244/ISO840
Label skip	
Parity check	Horizontal and vertical parity
Control in/out	
Optional block skip (9)	
Max. programmable dimension	$\pm$ 8-digit
Program number	O4-digit
External memory and sub program calling function	
Sequence number	N5-digit
Absolute/incremental programming	Combined use in the same block
Decimal point programming/ pocket calculator type decimal point programming	
Input unit 10 time multiply	
Plane selection	G17, G18, G19
Rotary axis designation	
Rotary axis roll-over	
Polar coordinate command	
Coordinate system setting	
Automatic coordinate system setting	
Workpiece coordinate system	G52 ~ G59
Workpiece coordinate system preset	
Addition of workpiece coordinate 48 pairs	
Direct input of workpiece origin offset value measured	
Manual absolute on and off	
Optional chamfering/corner R	
Programmable data input	G10
Sub program call	4 folds nested
Custom macro B	
Addition of custom macro common variables	#100 ~ #199, #500 ~ #999
Pattern data input	
Interruption type custom macro	
Canned cycles for drilling	

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Small-hole peck drilling cycle  
Circular interpolation by R programming  
Automatic corner override  
Automatic corner deceleration  
Feedrate clamp based on arc radius  
Scaling  
Coordinate system rotation  
Programmable mirror image  
Tape format for FANUC Series 10/11

### Auxiliary and Spindle Functions

Auxiliary function	M8-digit	
2nd auxiliary function	B8-digit	
Auxiliary function lock		
High-speed M/S/T/B interface		
Multiple command of auxiliary function		3
Spindle speed function	S5-digit, binary output	
Spindle serial output	S5-digit, serial output	
Constant surface speed control		
Spindle override	0 ~ 254%	
1st spindle orientation		
1st spindle output switching function		
2nd spindle orientation		
2nd spindle output switching function		
Spindle synchronous control		
Rigid tapping		

### Tool Functions and Tool Compensation

Tool Function	T8 digits	
Tool offset pairs	±6 digits	400
Tool offset memory C	Distinction between geometry and wear, or between cutter and tool length compensation.	
Tool length compensation		
Tool offset		
Cutter compensation C		
Tool life management		
Extended tool life management		
Tool length measurement		
Automatic tool length measurement		

### Part Program Storage & Editing

Part Program Storage	320kB in Pkg #1, 512KB in Pkg #2 & Pkg #3
Number of registerable programs	400
Part program editing	
Program protect	
Background editing	
Extended part program editing	
Playback	
Password function	

### Display

Status display	
Clock function	
Current position display	
Program display	Program name 31 characters
Parameter setting and display	
Self-diagnosis function	
Alarm display	
Alarm history display	
Operator message history display	
Operation history display	
Help function	
Run hour and parts count display	
Actual cutting feedrate display	
Directory display of floppy cassette	
Directory display and punch for each group	
Servo setting screen	
Display of hardware and software configuration	

**Series 0i-MD CNC**

Periodic maintenance screen  
 Maintenance information screen  
 Trouble diagnosis  
 Software operator's panel  
 Software operator's panel general purpose switch  
 English Language Display (as shipped) Multiple Languages Selectable  
 Data protection key 4 types  
 Erase CRT screen display

**Data Input/Output and Communications**

I/O Link Interface  
 Punch Panel with 2m Cable  
 Reader/Punch Interface 1 (RS-232) 2nd Channel may be activated  
 External I/O device control  
 External data input: External tool offset External message External machine zero point shift  
 External key input  
 External program input  
 External workpiece number search 9999  
 Expanded external workpiece number search  
 External program number search 1 ~ 9999  
 Memory card input/output for maintenance  
 Power Mate CNC manager  
 Embedded Ethernet

**Other**

CD-ROM containing Product Manuals  
 24V Power Cable  
 Spare Fuses  
 Cable Clamps  
 Grounding Bar  
 Miscellaneous Solder Connectors

**SERIES 0i-MD PACKAGE CHOICES**

Package #1	Package #2	Package #3	
4 Axes	4 Axes	4 Axes	Pkg #1 uses A02B-0319-B522 Basic Unit and Horizontal LCD/MDI A02B-0319-H144#M
8.4" Color LCD/MDI	10.4" Color LCD	10.4" Color LCD w/ Touch Panel	Pkg #2 uses A02B-0319-B522 Basic Unit, A02B-0319-H140 10.4" LCD and Horizontal MDI A02B-0319-C125.
Basic Unit with 2 slots	Basic Unit with 2 slots	Basic Unit 2 slots	Pkg #3 uses A02B-0319-B522 Basic Unit, A02B-0319-H141 10.4" LCD w/ Touch Panel and Horizontal MDI A02B-0319-C125.
PMC 5K Steps Approx 800m PPS	PMC 24K Steps Approx 1280m PPS	PMC 24K Steps Approx 1280m PPS	
HRV3 Servo Control	HRV3 Servo Control	HRV3 servo control	
PACKAGE DEPENDENT OPTIONS			
	AI Contour Control Bell Acc/Dec Pre-Interp Manual Guide <i>i</i> PROFIBUS DP Master PROFIBUS DP Slave Approx 5120m PPS	AI Contour Control Bell Acc/Dec Pre-Interp Touch Panel C PROFIBUS DP Master PROFIBUS DP Slave Approx 5120m PPS	<b>0i-MD requires at least Version 5.7 of FANUC Ladder III</b>

shading indicates restrictions, see Package Options for details

**Series 0i-MD CNC  
ORDER FORM**

<input type="checkbox"/>	Series 0i-MD CNC Express Package #1 8.4" Color LCD Mount	
<input type="checkbox"/>	Series 0i-MD CNC Express Package #2 10.4" Color LCD Mount	<i>Must choose only one.</i>
<input type="checkbox"/>	Series 0i-MD CNC Express Package #3 10.4" Color LCD w/ Touch Screen	
<b>Package #2 Unique Options</b>		
<input type="checkbox"/>	Manual Guide <i>i</i> (S790) (includes Manuals) Cannot order J973, S772	
<b>Package #3 Unique Options</b>		
<input type="checkbox"/>	Touch Panel C (S881) Replaces J682. Cannot order J888,J734,S772,R644. Req's Development Tools.	
<b>Package #2 or #3 Options</b>		
<input type="checkbox"/>	AI Contour Control	
<input type="checkbox"/>	Bell-Shaped Acc/Dec Before Interpolation	<i>Requires AI Contour Control</i>
<input type="checkbox"/>	Part Program Storage Size 2MB (J948) Approximately 5120m	
<input type="checkbox"/>	PROFIBUS DP Master	Includes PROFIBUS DP Master Board <i>uses one option slot</i>
<input type="checkbox"/>	PROFIBUS DP Slave	Includes PROFIBUS DP Slave Board <i>uses one option slot</i>
<input type="checkbox"/>	Separate Type MDI (Standard key) (Vertical)	A02B-0319-C126 or equivalent
<b>Options Compatible with Packages #1, #2 &amp; #3</b>		
<input type="checkbox"/>	5th Axis Control - Only four axes can be controlled simultaneously. If using HRV3, 2 FSSB Links for CNC to Servo Amps are required. Without HRV3, all axes are on one FSSB link.	
<input type="checkbox"/>	Analog Spindle Interface (serial spindle interface is standard)	
<input type="checkbox"/>	Dual Position Feedback (J704)	
<input type="checkbox"/>	Linear Scale I/F w/ absolute address reference mark (J670). Requires Separate Detector I/F.	
<input type="checkbox"/>	Bi-Directional Pitch Error Compensation (S656)	
<input type="checkbox"/>	Retrace (J730)	
<input type="checkbox"/>	Manual Handle Retrace (J998)	
<input type="checkbox"/>	Manual Handle Interface using Beta I/O Link (S722)	
<input type="checkbox"/>	Extended PMC ladder instruction function (R851)	
<input type="checkbox"/>	Dynamic Graphic Display (J973) Not with Manual Guide <i>i</i> . (enhanced tool path plotting, solid model display, preview cutting path)	
<input type="checkbox"/>	Grinding Function A (S682) (includes multi-step skip, canned cycles for grinding, continuous dressing, infeed control)	
<input type="checkbox"/>	Grinding Function B (S683) incl's Angular Axis Control in addition to the features in Grinding Func A.	
<b>Option Boards</b>		
<input type="checkbox"/>	Ethernet without Data Server (Uses FOCAS Protocol) (Use Industrial PC Worksheet for PC selection)	<i>uses one option slot</i>
<input type="checkbox"/>	Data Server Function (req's ATA Flash Card) (Uses FTP for data transfer) Compact Flash Card Kit 1GB ( <i>suggested for use with Data Server</i> )	<i>uses one option slot</i>
<input type="checkbox"/>	Ethernet (Requires Data Server Function) (Uses FOCAS Protocol)	
<b>Options Available Only with Ethernet</b>		
<input type="checkbox"/>	Basic Operation Package (BOP2) Function (J814)	
<input type="checkbox"/>	Dual CNC Screen Disp (S884) (CNC Screen Disp and Enlarged Screen Disp 1024x768, are Basic.)	
<input type="checkbox"/>	K776 Disk for CNC Screen Display - Ethernet. Req'd for CNC Screen Disp or Dual CNC Screen Disp.	
<input type="checkbox"/>	Machining Status Monitor Package Function (J870) Application Disk for Ethernet	
<input type="checkbox"/>	Ladder Edit Package Function (J820)	
<b>Manual Guide 0i</b>		
<input type="checkbox"/>	Manual Guide 0i (S772) Not available with Manual Guide <i>i</i> or Touch Panel C.	
<b>Macro Executor Related Options - require Development Tools. (See Tools Page)</b>		
<input type="checkbox"/>	Macro Executor (J888) Requires Custom SW size. System SW reserves 96KB.	
<input type="checkbox"/>	Macro Executor & C-lang Executor (J734) Req's >= 2MB Custom SW. System SW reserves 700KB.	
<input type="checkbox"/>	FANUC PICTURE Executor (R644) Requires >3MB Custom SW size. System SW reserves 2MB.	
<input type="checkbox"/>	Custom SW size 512KB. (J738#512K)	
<input type="checkbox"/>	Custom SW size 2MB. (J738#2M)	<b>Choose the appropriate Custom SW size to support the ordered Macro Executor.</b>
<input type="checkbox"/>	Custom SW size 4MB. (J738#4M)	
<input type="checkbox"/>	Custom SW size 6MB. (J738#6M)	
<input type="checkbox"/>		
<b>Flash Card</b>		
<input type="checkbox"/>	Compact Flash Card Kit 128MB	
<b>I/O unit for 0i</b>		
<input type="checkbox"/>	I/O unit for 0i This is compatible with the DI/DO I/F of I/O card of Series 0i-B. DI/DO : 96/64 pts. See the IOetc page for the available I/O Link signal cables.	