

# VICTOR's FANUC 0i/21i/18i-M Control SPECIFICATIONS

## Standard:

ITEM	SPECIFICATION	DESCRIPTION
<b>Controlled Axes:</b>		
1.	Controlled Axes	3 Axes (X, Y, Z)
2.	Simultaneous Controlled Axes	Position/Linear interpolation/Circular interpolation (3/3/2)
3.	Least Input Increment	0.001mm / 0.0001 inch / 0.001 deg.
4.	Max. command value	±99999.999mm(±9999.999in)
5.	Fine Acceleration & Deceleration Control	Std.
6.	HRV Control	Std.
7.	Inch / Metric Conversion	Std.(G20/G21)
8.	Interlock	All Axes / Each Axis / Cutting Block Start
9.	Machine Lock	All Axes / Each Axis
10.	Emergency Stop	Std.
11.	Over-travel	Std.
12.	Stored Stroke Check 1	Std.
13.	Mirror Image	Each Axis
14.	Mirror Image M73, M74, M75, M76	X, Y Axes
15.	Follow-up	Std.

## Operation:

1.	Automatic Operation	Std.
2.	MDI Operation	MDI B
3.	DNC Operation	Reader / Puncher Interface is Required
4.	DNC Operation with Memory Card	PCMCIA Card Attachment is Required
5.	Program Number Search	Std.
6.	Sequence Number Search	Std.
7.	Buffer Register	Std.
8.	Dry Run	Std.
9.	Single Block	Std.
10.	JOG Feed	Std.
11.	Manual Reference Position Return	Std.
12.	Manual Handle Feed	1 Unit / Each Path
13.	Manual Handle Feed Rate	X1, X10, X100
14.	Z Axis Neglect	Std.

## Interpolation:

1.	Positioning	G00
2.	Exact Stop Mode	G61
3.	Exact Stop	G09
4.	Linear Interpolation	G01
5.	Circular Interpolation	G02, G03 (multi-quadrant is possible).
6.	Dwell	G04
7.	Skip Function	G31
8.	Reference Position Return	G28
9.	Reference Position Return Check	G27
10.	2 <sup>ND</sup> Reference Position Return	Std.

## Feed:

1.	Rapid Traverse Rate	Std.
2.	Rapid Traverse Override	F0, 25%, 50%, 100%
3.	Feed Per Minute	G94 (mm / min)
4.	Tangential Speed Constant Control	Std.
5.	Cutting Feed rate Clamp	Std.
6.	Automatic Acceleration / Deceleration	Rapid traverse: linear; Cutting feed: exponential
7.	Feed rate Override	0~150%
8.	Jog Override	0~100%
9.	Feed Stop	Std.
10.	AI advance preview control	20 (0i) blocks
11.	AI contour control (in total)	40 (21i) blocks
12.	AI nano contour control (in total)	80 (21i), 180 <sup>*1</sup> (18i) blocks

## Program Input:

1.	EIA / ISO Automatic Recognition	Std.
2.	Label Skip	Std.
3.	Parity Check	Std.
4.	Control In / Out	Std.
5.	Optional Block Skip	1
6.	Max. Programmable Dimension	±8-Digit
7.	Program Number	O4-Digit
8.	Sequence Number	N5-Digit
9.	Absolute / Incremental Programming	G90/G91
10.	Decimal Point Programming / Pocket Calculator Type Decimal Point Programming	Std.
11.	Input Unit 10 Time Multiply	Std.
12.	Plane Selection	G17, G18, G19
13.	Rotary Axis Designation	Std.
14.	Rotary Axis Roll-Over Function	Std.
15.	Coordinate System Setting	Std.
16.	Automatic Coordinate System Setting	Std.
17.	Work piece Coordinate System	G52, G53, G54~G59
18.	Manual Absolute On And Off	Std.
19.	Sub Program Call	4 folds nested
20.	Circular Interpolation by R Programming	Std.
21.	Program Format	FANUC std. format
22.	Program Stop / Program End	M00 / M01 / M02 / M30
23.	Reset	Std.
24.	Custom macro B	Std.

## Auxiliary Spindle Speed Function:

1.	Auxiliary Function Lock	Std.
2.	High Speed M / S / T Interface	Std.
3.	Spindle Speed Function	Std.
4.	Spindle Override	50~120%
5.	1 <sup>st</sup> Spindle Orientation	Std.
6.	M Code Function	M3 digit
7.	S Code Function	S5 digit
8.	T Code Function	T2 digit
9.	Rigid tapping	Std.

## Tool Function & Tool Compensation:

1.	Tool Function	T8 digit
2.	Tool Offset Pairs	±6-digit 32 pairs
3.	Tool Length Compensation	G43, G44, G49
4.	Cutting Compensation C	Std.
5.	Number of tool offsets (in total)	400 (0i/21i), 999 (18i) sets.

## Accuracy Compensation:

1.	Backlash Compensation	Rapid Traverse / Cutting Feed
2.	Stored Pitch Error Compensation	Std.

## Edit Operation:

1.	Part Program Storage Length (in total)	640m(256Kbyte)(0i), 1280m(21i/18i)
2.	Number of Registerable programs (in total)	400 (0i/21i), 1000 (18i) programs.
3.	Part Program Editing	Std.
4.	Program Protect	Std.
5.	Background Editing	Std.

## Setting and Display:

1.	Status Display	Std.
2.	Clock Function	Std.
3.	Current Position Display	Std.
4.	Program Display	Program name 31 characters
5.	Parameter Setting and Display	Std.
6.	Self Diagnosis Function	Std.
7.	Alarm Display	Std.
8.	Alarm History Display	25
9.	Operation History Display	Std.
10.	Help Function	Std.
11.	Run Hour and Parts Count Display	Std.
12.	Actual Cutting Feedrate Display	Std.
13.	Display of Spindle Speed and T Code At All Screens	Std.
14.	Servo Setting Screen	Std.
15.	Display of Hardware and Software Configuration	Std.
16.	Multi-Language Display	Std.
17.	Data Protection Key	Std.
18.	Erase CRT Screen Display	Std.
19.	Spindle Setting Screen	Std.
20.	Graphic function	Std.
21.	Dynamic graphic display	Std.
22.	Color LCD / MDI	8.4" (0i), 10.4" (21i/18i)

## Data Input / Output:

1.	Reader / Puncher Interface	RS-232 interface
2.	Memory Card Interface	Std.
3.	External Work piece number search	9999

## Miscellaneous:

1.	Status Output Signal	Std.
2.	Connectable Servo Motor	Std.
3.	Connectable Servo Amp.	Std.
4.	Connectable Spindle Motor	Std.
5.	Connectable Spindle Amp.	Std.

## OPTIONS:

ITEM	SPECIFICATION	DESCRIPTION
With hardware included:		
1.	Data server (with PCB and ATA card 320MB)	0i-MB 21i-MB 18i-MB OPT. OPT. STD
2.	High-precision contour control (RISC board is required.)	N.A. N.A. 180 <sup>*1</sup> blocks
3.	AI high-precision contour control (RISC)	N.A. N.A. 600 blocks
4.	AI nano high-precision contour control (RISC)	N.A. N.A. 600 blocks
5.	NURBS interpolation (RISC)	N.A. N.A. STD.
6.	Embedded Ethernet (10Mbps)	N.A. STD. STD.
7.	Fast Ethernet (100Mbps)	N.A. OPT. STD.
8.	Conversational programming (Manual Guide i)	N.A. OPT. STD.
9.	Conversational programming (Super Cap i)	N.A. OPT. OPT.
10.	Optional block skip 9 blocks	<input type="checkbox"/>

Without hardware included:

11.	Addition of work-piece coordinate systems	48 <input type="checkbox"/> 300sets <input type="checkbox"/>
12.	Addition to custom macro common variables	<input type="checkbox"/>
13.	Addition to tool life management sets 512 sets	<input type="checkbox"/>
14.	Automatic corner override	<input type="checkbox"/>
15.	Automatic corner deceleration	<input type="checkbox"/>
16.	Bell-shaped acc/deceleration after cutting feed interpolation	<input type="checkbox"/>
17.	Canned Cycles For Drilling	<input type="checkbox"/>
18.	Coordinate system rotation	<input type="checkbox"/>
19.	Cylindrical interpolation	<input type="checkbox"/>
20.	Exponential interpolation	<input type="checkbox"/>
21.	Feed rate clamp by arc radius	<input type="checkbox"/>
22.	Feed stop	<input type="checkbox"/>
23.	Floating reference position return	<input type="checkbox"/>
24.	Helical interpolation	<input type="checkbox"/>
25.	Hypothetical axis interpolation	<input type="checkbox"/>
26.	Interrupt-type custom macro	<input type="checkbox"/>
27.	Jerk control	<input type="checkbox"/>
28.	Linear acceleration/deceleration after cutting feed interpolation	<input type="checkbox"/>
29.	Machining time stamp	<input type="checkbox"/>
30.	Polar coordinate command	<input type="checkbox"/>
31.	Polar coordinate interpolation	<input type="checkbox"/>
32.	Program restart	<input type="checkbox"/>
33.	Programmable mirror image	<input type="checkbox"/>
34.	Programming resolution multiplied by 1/10	<input type="checkbox"/>
35.	Rapid traverse bell-shaped acc/ deceleration	<input type="checkbox"/>
36.	Scaling	<input type="checkbox"/>
37.	Small-diameter peck drilling cycle	<input type="checkbox"/>
38.	Smooth interpolation	<input type="checkbox"/>
39.	Spiral/conical interpolation	<input type="checkbox"/>
40.	Three-dimensional coordinate conversion	<input type="checkbox"/>
41.	Three-dimensional tool offset <sup>**2</sup>	<input type="checkbox"/>
42.	Tool life management	<input type="checkbox"/>
43.	Tool load monitoring	<input type="checkbox"/>
44.	Tool offset (G45~G48)	<input type="checkbox"/>
45.	Tool retract and return	<input type="checkbox"/>

\*1. Block addressing time:

- 2 ms for AI nano CC (max. cutting feed 30m/min),
- 1 ms for HPCC (max. cutting feed 60 m/min), AI HPCC and AI nano HPCC (150m/min)

\*\*2: Only available on 18i-MB5 where 5 axis simultaneous control is required.

# VICTOR's FANUC 0i/21i/18i-T Control SPECIFICATIONS

## Standard:

ITEM	SPECIFICATION	DESCRIPTION
<b>Controlled Axes:</b>		
1.	Controlled Axes	2 Axes (X,Z)
2.	Simultaneous Controlled Axes	Position/Linear interpolation/Circular interpolation (2/2/2)
3.	Least Input Increment	0.001mm / 0.0001 inch / 0.001 deg.
4.	Max. command value	±99999.999mm(±9999.9999in)
5.	Fine Acceleration & Deceleration Control	Std.
6.	HRV Control	Std.
7.	Inch / Metric Conversion	Std.(G20/G21)
8.	Interlock	All Axes / Each Axis / Cutting Block Start
9.	Machine Lock	All Axes / Each Axis
10.	Emergency Stop	Std.
11.	Over-travel	Std.
12.	Stored Stroke Check 1	Std.
13.	Mirror Image	Each Axis
14.	Mirror Image M73, M74, M75, M76	X, Y Axes
15.	Follow-up	Std.

<b>Operation:</b>		
1.	Automatic Operation	Std.
2.	MDI Operation	MDI B
3.	DNC Operation	Reader / Puncher Interface is Required
4.	DNC Operation with Memory Card	PCMCIA Card Attachment is Required
5.	Program Number Search	Std.
6.	Sequence Number Search	Std.
7.	Buffer Register	Std.
8.	Dry Run	Std.
9.	Single Block	Std.
10.	JOG Feed	Std.
11.	Manual Reference Position Return	Std.
12.	Manual Handle Feed	1 Unit / Each Path
13.	Manual Handle Feed Rate	X1, X10, X100
14.	Z Axis Neglect	Std.

<b>Interpolation:</b>		
1.	Positioning	G00
2.	Threading synchronous cutting	Std
3.	Multiple threading	Std
4.	Threading retract	Std
5.	Continuous threading	Std
6.	Variable threading	Std
7.	Linear Interpolation	G01
8.	Circular Interpolation	G02, G03 (multi-quadrant is possible).
9.	Dwell	G04
10.	Skip Function	G31
11.	Reference Position Return	G28
12.	Reference Position Return Check	G27
13.	2 <sup>ND</sup> Reference Position Return	Std.

<b>Feed:</b>		
1.	Rapid Traverse Rate	Std.
2.	Rapid Traverse Override	F0, 25%, 50%, 100%
3.	Feed Per Minute	G94 ( mm / min )
4.	Feed Per Revolution	G95 (mm/rev)
5.	Tangential Speed Constant Control	Std.
6.	Cutting Feed rate Clamp	Std.
7.	Automatic Acceleration / Deceleration	Rapid traverse: linear; Cutting feed: exponential
8.	Feed rate Override	0~150%
9.	Jog Override	0~100%
10.	Feed Stop	Std.

<b>Program Input:</b>		
1.	EIA / ISO Automatic Recognition	Std.
2.	Label Skip	Std.
3.	Parity Check	Std.
4.	Control In / Out	Std.
5.	Optional Block Skip	1
6.	Max. Programmable Dimension	±8-Digit
7.	Program Number	O4-Digit
8.	Sequence Number	N5-Digit
9.	Absolute / Incremental Programming	G90/G91
10.	Decimal Point Programming / Pocket Calculator Type Decimal Point Programming	Std.
11.	Input Unit 10 Time Multiply	Std.
12.	Diameter/radius programming	Std
13.	Plane Selection	G17, G18, G19
14.	Rotary Axis Designation	Std.
15.	Rotary Axis Roll-Over Function	Std.
16.	Coordinate System Setting	Std.
17.	Automatic Coordinate System Setting	Std.
18.	Work piece Coordinate System	G52, G53, G54~G59
19.	Direct drawing dimension programming	Std
20.	G code system (A/B/C)	Std
21.	Programmable data input	G10
22.	Sub Program Call	4 folds nested
23.	Custom macro B	Std
24.	Canned cycles	Std
25.	Multiple repetitive cycle	Std
26.	Multiple repetitive cycle 2 (Pocket profile)	Std
27.	Canned cycle for drilling	Std
28.	Program Format	FANUC std. format
29.	Program Stop / Program End	M00 / M01 / M02 / M30

### Auxiliary Spindle Speed Function:

1.	Auxiliary Function Lock	Std.
2.	High Speed M / S / T Interface	Std.
3.	Spindle Speed Function	Std.
4.	Spindle Override	50~120%
5.	1 <sup>st</sup> Spindle Orientation	Std.
6.	M Code Function	M3 digit
7.	S Code Function	S5 digit
8.	T Code Function	T2 digit
9.	Rigid tapping	Std.

### Tool Function & Tool Compensation:

1.	Tool Function	T7+1/T6+2digits
2.	Tool Offset Pairs	±6-digit 64 pairs
3.	Tool nose radius compensation	Std
4.	Tool geometry/wear compensation	Std.
5.	Number of tool offsets (in total)	64 sets.

### Accuracy Compensation:

1.	Backlash Compensation	Rapid Traverse / Cutting Feed
2.	Stored Pitch Error Compensation	Std.

### Edit Operation:

1.	Part Program Storage Length (in total)	640m(0i/21i), 1280m(18i)
2.	Number of Registerable programs (in total)	400 (0i/21i), 1000 (18i) sets.
3.	Part Program Editing	Std.
4.	Program Protect	Std.
5.	Background Editing	Std.

### Setting and Display:

1.	Status Display	Std.
2.	Clock Function	Std.
3.	Current Position Display	Std.
4.	Program Display	Program name 31 characters
5.	Parameter Setting and Display	Std.
6.	Self Diagnosis Function	Std.
7.	Alarm Display	Std.
8.	Alarm History Display	25
9.	Operation History Display	Std.
10.	Help Function	Std.
11.	Run Hour and Parts Count Display	Std.
12.	Actual Cutting Feedrate Display	Std.
13.	Display of Spindle Speed and T Code At All Screens	Std.
14.	Servo Setting Screen	Std.
15.	Display of Hardware and Software Configuration	Std.
16.	Multi-Language Display	Std.
17.	Data Protection Key	Std.
18.	Erase CRT Screen Display	Std.
19.	Spindle Setting Screen	Std.
20.	Color LCD / MDI )	8.4" (0i), 10.4" (21i/18i)

### Data Input / Output:

1.	Reader / Puncher Interface	RS-232 interface
2.	Memory Card Interface	Std.
3.	External Work piece number search	9999

### Miscellaneous:

1.	Status Output Signal	Std.
2.	Connectable Servo Motor	Std.
3.	Connectable Servo Amp.	Std.
4.	Connectable Spindle Motor	Std.
5.	Connectable Spindle Amp.	Std.

## OPTIONS:

	0i	21i	18i
With hardware included:			
1.	Data server (with PCB and ATA card 320MB)	Opt.	Opt. Opt.
2.	Embedded Ethernet (10Mbps)	N.A.	Std. Std.
3.	Fast Ethernet (100Mbps)	N.A.	Opt. Opt.
4.	Conversational programming (Manual guide i)	N.A.	Std. Std.
5.	Conversational programming (Super Cap i)	N.A.	Opt. Opt.
6.	Tool load monitoring	Opt.	Opt. Opt.
7.	Rigid tapping (C-axis)	Opt.	Opt. Opt.
8.	Multiple point spindle orientation	Opt	Opt. Opt.
9.	Optional block skip 9 blocks		<input type="checkbox"/>

Without hardware included:			
10.	Addition to custom macro common variables		<input type="checkbox"/>
11.	Automatic corner override		<input type="checkbox"/>
12.	Bell-shaped acceleration/deceleration after cutting feed interpolation		<input type="checkbox"/>
13.	Coordinate system rotation		<input type="checkbox"/>
14.	Cylindrical interpolation		<input type="checkbox"/>
15.	Exponential interpolation		<input type="checkbox"/>
16.	Feed stop		<input type="checkbox"/>
17.	Floating reference position return		<input type="checkbox"/>
18.	Helical interpolation		<input type="checkbox"/>
19.	Hypothetical axis interpolation		<input type="checkbox"/>
20.	Interrupt-type custom macro		<input type="checkbox"/>
21.	Jerk control		<input type="checkbox"/>
22.	Machining time stamp		<input type="checkbox"/>
23.	Polar coordinate command		<input type="checkbox"/>
24.	Polar coordinate interpolation		<input type="checkbox"/>
25.	Program restart		<input type="checkbox"/>
26.	Programming resolution multiplied by 1/10		<input type="checkbox"/>
27.	Programmable mirror image		<input type="checkbox"/>
28.	Rapid traverse bell-shaped acceleration/ deceleration		<input type="checkbox"/>
29.	Scaling		<input type="checkbox"/>
30.	Smooth interpolation*5*6		<input type="checkbox"/>
31.	Spiral/conical interpolation*3*4		<input type="checkbox"/>
32.	Three-dimensional coordinate conversion		<input type="checkbox"/>
33.	Tool life management		<input type="checkbox"/>
34.	Tool retract and return		<input type="checkbox"/>