

**Series 32i -B CNC for Turning**  
**STANDARD FEATURES**

**Axis Control**

Digital Servo Function  
1 Controlled Path  
2 (up to maximum of 4) Simultaneously Controllable Axes (J801) (J803)  
Serial Encoder Interface  
Axis Names Selected from X,Y,Z,A,B,C  
Least Input Increment of 0.001mm, 0.0001", 0.001deg  
Inch/Metric Conversion (J876)  
Interlock per Axis  
Machine Lock  
Emergency Stop  
Overtravel Signal  
Stored Stroke Check 1  
Mirror Image  
Follow-up Function  
Servo Off  
Mechanical Handle Feed  
Backlash Compensation  
Stored Pitch Error Compensation (J841)

**Operation**

Memory Operation  
DNC Operation  
MDI Operation  
Program Number Search  
Sequence Number Search  
Buffer Register  
Dry Run Mode  
Single Block Mode  
Manual Feed Mode (Jog)  
Manual Reference Point Return  
Manual Handle Feed (J835) *(requires MPG)*  
Incremental Feed

**Interpolation**

Positioning (G00)  
Linear Interpolation  
Circular Interpolation  
Dwell (G04)  
Threading  
Skip Function (G31)  
Torque-limit Skip  
Automatic Reference Point Return (G28, G29)  
Reference Point Return Check (G27)  
2nd Reference Point Return (G30)

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**Feed Function**

Rapid Traverse Feedrate 240m/min (100m/min @0.0001mm increment)  
Rapid Traverse Feedrate Override (preset value, 25%, 50%, 100% settings)  
Feed per Minute  
Feed per Revolution  
Tangential Speed Control  
Cutting Feedrate Clamp  
Automatic Acceleration/Deceleration (Rapid Traverse: Linear; Cutting Feed: Linear or Exponential)  
Rapid Traverse Bell-Shaped Acceleration/Deceleration  
Feedrate Override 0-254%  
Jog Override 0-655.34 %  
Override Cancel  
Manual Synchronous Feed

**Programming**

EIA/ISO Automatic Identification  
Label Skip  
Parity Check  
Control In/Out  
Optional Block Skip  
Maximum Programmable Value - 8 digits  
Program Number - O with 4 digits  
Sequence Number - N with 5 digits  
Absolute or Incremental Command  
Programmable Data Input (G10)  
Decimal Point Input  
Setting in Diameter or Radius  
Plane Selection (G17, G18, G19)  
Rotary Axis Setting  
Rotary Axis Rollover  
Coordinate System Setting (G50)  
Automatic Coordinate System Setting  
Coordinate System Shift  
Direct Coordinate System Shift Setting  
Manual Absolute On/Off  
G Code System A  
Subprogram Calling  
Canned Cycles  
Multiple Repetitive Canned Cycles (G70-G76) (J877)  
Specifying the Radius of an Arc

**Auxiliary and Spindle Functions**

Miscellaneous Function - M with 8 digits  
Miscellaneous Function Lock  
High Speed M/S/T Interface  
Multiple Commands of Miscellaneous Functions (up to 3)  
Spindle Function - S with 5 digits  
Serial Spindle Interface (J850)  
Constant Surface Speed Control (J855)  
Spindle Override 0-254%

**Series 32i -B CNC for Turning**

**Tool Functions and Tool Compensation**

Tool Function - T7+1/T6+2  
32 Tool Offsets  
Tool Position Offset  
Tool Nose Radius Compensation (J930)  
Tool Compensation Counter Input  
Tool Compensation Measurement Value Input A

**Part Program Storage & Editing**

64KB Part Program Storage (J943)  
63 Stored Part Programs  
Part Program Editing  
Part Program Protection  
Multi Part Program Editing (J956)  
Extended Part Program Editing

**Display**

Status Display  
Clock Function  
Current Position Display  
Program Display  
Parameter Setting Display  
Self Diagnosis  
Alarm Display  
Alarm History Display  
Help Function  
Run Time/Part Count Display (J971)  
Actual Cutting Speed Display  
Actual Spindle Speed/T Code Display  
Servo Adjustment Screen  
System Configuration Display  
English Language  
Data Protection Key

**Data Input/Output and Communications**

I/O Link or I/O Link i Interface  
Punch Panel with 2m Cable A02B-0236-C192 in LCD Mount, A02B-0120-C192 in Stand Alone.  
Reader/Punch Interface 1 (RS-232) (J900)  
External Workpiece Number Search  
External Data Input (J913)  
    includes External Tool Offset  
        External Message  
        External Machine Origin Shift  
        External Program Number Search  
Status Output Signal

**Other**

CD-ROM containing Product Manuals	included in the BOM of the Root CNC
Operation and Maintenance Handbook	B-64487EN FS30i/31i/32i-Model B Oper and Maint Handbook
Miscellaneous Conn:	Qty 2 A02B-0120-K301 HONDA CONNECTOR
	Qty 1 each A02B-0120-K323 & A02B-0120-K324 CONNECTOR AND PINS
Spare Fuses	A02B-0236-K100 LCD or A02B-0265-K100 Stand Alone
Cable Clamps	A02B-0303-K001 8 CABLE CLAMPS
Grounding Bar	44B295864-001 GROUNDING BAR 11 SLOT

**Series 32i -B CNC for Turning**

**SERIES 32i-B PACKAGE CHOICES**

Package A	Package B	
2 Axes 2 Slot Rack LCD Mount Embedded Ethernet 10.4" LCD A Color PMC 24K Steps Serial Spindle CPU Card A2 Basic Function G501 Sep Vert Type MDI Axis Card B11	2 Axes 2 Slot Stand Alone HSSB Embedded Ethernet  PMC 24K Steps Serial Spindle CPU Card A2 Basic Function G501 Axis Card B11	<p><b>This Form assumes the use of HRV2. If HRV3 or additional servo motors are required, please complete this form as close as possible to your desired configuration, then e-mail the form and your requested changes to: <a href="mailto:cnc_express@fanucamerica.com">cnc_express@fanucamerica.com</a></b></p> <p><b>CNC Express will modify the form per your request and return the form to you.</b></p> <p>G501 =&gt; Supports 2 Paths, 10 axes (8 per path) and 6 spindles (4 per path) =&gt; A02B-0323-C128 or equivalent</p>

**PACKAGE DEPENDENT OPTIONS**

PROFIBUS DP Master PROFIBUS DP Slave HSSB Fast Ethernet Data Server 2nd Fast Ethernet Brd	PROFIBUS DP Master PROFIBUS DP Slave Fast Ethernet Data Server Remove HSSB 10.4" LCD A Color Tch 15.0" LCD Col w/ Tch CNC HSSB Card Sep MDI 2nd Fast Ethernet Brd	Automatic Data Back-up, 3 Sets of Back-up Data, SRAM + PPS
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USB Memory I/O is available on LCD Mount CNCs & the LCD for S.A.

shading indicates restrictions, see Package Options for details

**Series 32i -B CNC for Turning**  
**ORDER FORM**

<b>Series 32i-B CNC Express Package A for Turning - 10.4" LCD Mount w/o Touch Screen.</b>		Pick One
<b>Series 32i-B CNC Express Package B for Turning - 2 Slot Stand Alone. Choose Only 1.</b>		Pick One
<b>Package A Options</b>		
PROFIBUS DP Master Board (J311, S731, J562#6552)	<b>Choose no more than two</b>	
PROFIBUS DP Slave Board (J313, S732, J563#655C)	<b>Option Boards</b>	
PROFIBUS Application Software, J535#655B, required for all PROFIBUS		
HSSB Board (High Speed Serial Bus) (J202) (includes Extended D/L Function, 10m F/O cbl)		
1st Fast Ethernet Board (J147) Requires Communication Option Below:		
Fast Ethernet Function (S707) (Uses FOCAS Protocol)		
Data Server Funct (S737,R953)(req's ATA Flash Mem Card)(Uses FTP for data transfer)		
Ethernet/IP Adapter Function (R967), Data Server requires a separate Ethernet Board		
Ethernet/IP Scanner Function (R966), Data Server requires a separate Ethernet Board		
2nd Fast Ethernet Board (J147)(Add'l Enet Port) Requires 2 of 3 (S707 or S737,R966,R967).		
<b>Manual Guide í in Package A - Requires Custom Macro (J873) for full functionality.</b>		
Manual Guide í (S790) 10.4" Color LCD Type A - Large Screen Animation not supported.		
Manual Guide í Multi Path Lathe (S786) for 2 paths. <b>Requires (S790).</b>		
<b>Package B Options</b>		
PROFIBUS DP Master Board (J311, S731, J562#6552)	<b>Choose no more than two</b>	
PROFIBUS DP Slave Board (J313, S732, J563#655C)	<b>Option Boards</b>	
PROFIBUS Application Software, J535#655B, required for all PROFIBUS		
1st Fast Ethernet Board (J147) Requires Communication Option Below:		
Fast Ethernet Function (S707) (Uses FOCAS Protocol)		
Data Server Funct (S737,R953)(req's ATA Flash Mem Card)(Uses FTP for data transfer)		
Ethernet/IP Adapter Function (R967), Data Server requires a separate Ethernet Board		
Ethernet/IP Scanner Function (R966), Data Server requires a separate Ethernet Board		
2nd Fast Ethernet Board (J147)(Add'l Enet Port) Requires 2 of 3 (S707 or S737,R966,R967).		
Do not use HSSB from Package B. (Removes A02B-0207-J900). For LCD or Ethernet Display.		
10.4" LCD A Color w/ Tch Scrn (C084)(290x220mm), J682, Pen & 10m F/O cbl, A02B-0120-K323, A02B-0120-K324, A02B-0319-K191	<b>Only one LCD</b>	
15.0" LCD Color w/ Tch Scrn (C092)(400x320mm), J682, Pen & 10m F/O cbl, A02B-0120-K323, A02B-0120-K324	<b>Req MDI below.</b>	
CNC Side HSSB Board (incl's A02B-0207-J900, 10m F/O cbl) <b>Requires one Option Slot</b>		
Without Standard CNC Display Unit - HSSB (J389) to Panel i or PC side HSSB, 10m F/O cbl.		
Without Standard CNC Display Unit - Embedded Ethernet (J390) connects to iPendant only		
Ethernet Display Function (R950 & J573#658N) Embedded Ethernet to PC, not for iPendant		
Sep Type MDI (Vert PC Type) (QWERTY) (290x160mm)	A02B-0323-C128 or equivalent	
Sep Type MDI (QWERTY Type B)(400x145mm) <b>No 10.4" LCD</b>	A02B-0303-C129 or equivalent	
Sep Type MDI (ONG Type) (Vertical) (290x220mm)	A02B-0323-C126#T or equivalent	
Sep Type MDI (ONG Type) (Horizontal) (230x220mm)	A02B-0323-C125#T or equivalent	
<b>Manual Guide í in Package B - Requires Custom Macro (J873) for full functionality.</b>		
Manual Guide í (S790)		
Manual Guide í Multi Path Lathe (S786) for 2 paths. <b>Requires (S790).</b>		
10.4" Color LCD A w/ Touch Screen does not support "Large Window Animation" in Manual Guide í.		
<b>High Speed Serial Bus (HSSB) includes:</b> Extended D/L Function J900 & 10m F/O Cable		

**Series 32i -B CNC for Turning**

**SERIES 32i-B TURNING OPTIONS**

*The following options may be ordered for Packages A or B*

**Number of Paths**

Two Control Paths Minimum of 4 axes

**Axis Control: up to 10 axes and 6 spindles are possible .**

- 3rd Axis
- 4th Axis
- 5th Axis
- 6th Axis
- 7th Axis changes to B12 Servo Card, 1 FSSB Servo Line
- 8th Axis
- 9th Axis
- 10th Axis

**Number of Serial Spindles (default is one). >1 Spindle per path requires Multi Spindle Control.**

- 2 Spindles
- 3 Spindles
- 4 Spindles
- 5 Spindles
- 6 Spindles

Multi Spindle Control. **Required if more than one spindle is used per path.**

**Analog Spindle.**

Analog Spindle (J860) replaces Serial Spindle (J850). **Having Serial Spindle requires R584.**

**Serial/Analog Spindle Control - includes Multi Spindle Control.**

- 1 Serial Spindle and 1 Analog Spindle (R584, J850, J860)
- 2 Serial Spindles and 1 Analog Spindle
- 3 Serial Spindles and 1 Analog Spindle
- 4 Serial Spindles and 1 Analog Spindle, Requires 2 Paths.
- 5 Serial Spindles and 1 Analog Spindle

**Axis Control Options**

- Axis Control by PMC (up to 8 axes) (J804)
- Synchronous Axis Control (up to 4 pairs axes) (J843)
- Controlled Axis Detach (J807)
- Least Input Increment of 0.0001mm, 0.00001", 0.0001deg (J805)
- Dual Position Feedback (J704)
- Stored Stroke Check 2/3 (J840)
- Stored Limit Check Before Move (J749)
- Interpolation type pitch error compensation (S644)
- Bi-directional pitch error compensation (S656)
- Straightness Compensation (J747) (4 points)
- Interpolation Type Straightness Compensation (S639) (128 points)
- Position Switch (J846)

**Operation**

- Program Restart (J838)
- Tool Retract & Recover (J823)
- Manual Handle Retrace (J998)
- Manual Handle Feed 2/3 Units (J836)
- Manual Handle Interruption (J837)
- Change Active Offset Value with Manual Move (S825)

**Series 32i -B CNC for Turning**

**Interpolation**

Polar Coordinate Interpolation (J815)	
Cylindrical Interpolation (J816)	<i>(requires 3rd Axis)</i>
Helical Interpolation (J819)	<i>(requires 3rd Axis)</i>
Thread Cutting Retract (J825)	
Variable Lead Threading (G34) (J827)	
Polygon Turning (J817)	
High Speed Skip (J848)	
Multi Step Skip (J849)	
3rd, 4th Reference Point Return (J830)	
Reference Point Setting with Mechanical Stopper (J729)	
Linear Scale I/F w/ absolute address reference mark (J670). Requires Separate Detector I/F.	

**Feed Function**

Bell Shaped Acc/Dec After Interpolation for Cutting Feed (J829)	
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**Grinding Options**

Canned Cycles for Grinding (S974) <i>(selectable per path with multiple repetitive cycles)</i>	
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**Programming**

Dynamic Switching of diameter/radius specification (G10.9) (S630)	
Workpiece Coordinate System (G52-G59) (J894)	
Work Coordinate System Preset (J917)	
Direct Drawing Dimension Programming (J870)	<b>Only one of these options</b>
Chamfering/Corner Rounding (J875)	<b>can be active per path.</b>
Special G Code B/C (J871)	
Custom Macro (J873)	
Additional Custom Macro Common Variables (J887), 100 + 500 = 600 Total	<b>Only One.</b>
Additional Custom Macro Common Variables 1000 (R687), 100 + 1000 = 1100 Total	
Interruption for Custom Macro (J874)	
Pattern Data Input (J884)	
Multiple Repetitive Canned Cycles II (J889)	
Canned Cycles for Drilling (J890)	
Mirror Image for Dual Turrets (G68, G69) (J881)	
Coordinate System Rotation (J893)	
Series 15 Tape Format (J882)	
Macro Executor (J888) 96K Reserved for System S/W.	<b>Choose only one Macro</b>
Macro Executor + C-language Executor (J734) 700K Reserved for System S/W.	
FANUC PICTURE Executor (R644) 2M Reserved for System S/W.	Available with J888/J734.
Custom Software Size 512KB (J738#512K)	<i>Not with J734 or R644.</i>
Custom Software Size 2MB (J738#2M)	<i>Not with R644.</i>
Custom Software Size 4MB (J738#4M)	<b>Choose only one Custom Software Size.</b>
Custom Software Size 6MB (J738#6M)	
Custom Software Size 8MB (J738#8M)	
Custom Software Size 12MB (J738#12M)	

### Series 32i -B CNC for Turning

#### PMC Options

PMC with 32K Steps (H990#32K)	
PMC with 64K Steps (H990#64K)	
PMC with 100K Steps (H990#100K)	<b>24,000 Steps Standard, choose only One upgrade.</b>
PMC with 300K Steps (H990#300K)	
Multi-path PMC function (3 paths) (R855#3)	<b>One PMC Path Standard.</b>
Multi-path PMC function (5 paths) (R855#5)	<b>Choose Only One.</b>
PMC symbol, comment, and message capacity expansion (512KB) (R856#512K)	
PMC symbol, comment, and message capacity expansion (1MB) (R856#1M)	
PMC symbol, comment, and message capacity expansion (2MB) (R856#2M)	<b>Only One.</b>
Function Block Function (R852)	
I/O Link expansion 2nd Channel w/ A20B-1007-0680 and 1m cable.	
I/O Link expansion 2nd/3rd Channel w/ A20B-1008-0360 and 1m cable.	
Dual Check Safety (S661) Req's I/O Link i, I/O Link 3rd Channel or PROFIBUS Master.	1
<b>I/O Link i will be used for Dual Check Safety. Check here:</b>	

#### Auxiliary and Spindle Functions

1st Spindle Orientation (J853) (Applies to 1st Spindle per Path)	<i>(req's Serial Spindle)</i>
Actual Spindle Speed Output (J856)	<i>(requires Spindle Encoder)</i>
2nd Miscellaneous Function (B8-digit binary) (J920)	
Rigid Tapping (J828)	<i>(requires Canned Cycles, Analog Spindle requires Spindle Encoder.)</i>
See Drives Tab for Spindle Separately Mounted Position Encoder.	

#### Tool Functions and Tool Compensation

64 Tool Offset Pairs (J925)	<b>Assignable by parameter per path.</b>
99 Tool Offset Pairs (J926)	
200 Tool Offset Pairs (J927)	<b>Choose only one if more than 32 offsets needed.</b>
Y-axis Offset (J934)	<b>(3rd or 4th axis required)</b>
Tool Geometry and Wear Compensation (J931)	
Tool Life Management (J935)	
Automatic Tool Compensation (S618)	
Direct Input of Measured Offset (J933)	

#### Part Program Storage & Editing Total PPS in the system, available to all paths.

128KB Part Program Storage (J944) (Approx 320m)	
256KB Part Program Storage (J945) (Approx 640m)	<b>Choose only one</b>
512KB Part Program Storage (J946) (Approx 1280m)	
1MB Part Program Storage + 1000 Stored Part Programs (J947) (J953) (Approx 2560m)	
2MB Part Program Storage + 1000 Stored Part Programs (J948) (J953) (Approx 5120m)	
Playback (J879)	

#### FANUC Picture

FANUC Picture Function (S879) Req's LCD w/ Tch Pnl, deletes J682, not w/ J734/J888/R644	
FANUC Picture Function for non-Touch panel display (S944)	Not w/ J734, J888 or R644



**Series 32i -B CNC for Turning**

**Ethernet or HSSB Options**

<b>Use Embedded Ethernet for BOP2 or Ladder Edit Function</b>		
Basic Operation Package (BOP2) Function (J816) & CD	(Also works w/ embedded Ethernet)	
CNC Screen Display Function (J858)		
Application Disk for HSSB (K775)		
Application Disk for Ethernet (K776)		
CNC Screen Dual Display Function (S884)		
CNC Screen Display for 19" Panel i (R624)	19" Panel i requires one of these options	
Enlarged CNC Screen Display for 19" Panel i (R673)		
CNC Web Server Function (R728) Reqs Std LCD Disp, No CNC Scrn Disp, No simul iPndnt.		
Ladder Edit Function (J820)	(Also works w/ embedded Ethernet)	

<b>Display</b>		
Graphic Display (J972)	<b>Requires LCD or CNC Screen Display Function</b>	
Software Operator Panel (J960)		
Software Operator Panel General Purpose Switch (J961)		
Selection of Five Optional Language (R521)		

<b>Data Input/Output and Communications</b>		
Compact Flash Card 128MB, Card Adapter B	0	
Compact Flash Card 1GB (suggested for use with Data Server), 2 Card Adapters	0	
2nd Reader/Punch Interface (RS-232) (J901)		

<b>i AdaptS</b>	Check to override required DVD.	
<p><i>i</i> AdaptS (S898) maintains a constant load during part processing by modifying the feedrate override. This allows for the fastest possible cycle time based on the condition of the tool, part geometry and material variation. By maintaining the manufacturer's recommended load on the tool, tool life can also be extended. <i>i</i> AdaptS works on the first serial spindle in the first path only. Req's J856,J873,J738#2M,J734.</p>		
<i>i</i> AdaptS S/W DVD D75F-0102-PB00	<b>Each MTB/Retrofitter must purchase a DVD once.</b>	
<i>i</i> AdaptS S/W DVD with FANUC Picture (R644). Req's R644 >=J738#6M. D75F-0103-PB00.		

### Series 32i -B CNC for Turning

<b>Cables</b> Optional: Replace 10m cable for LCD ordered with Package B with one of the following:			
	Fiber Optic Cable, CNC to LCD, 1m		
	Fiber Optic Cable, CNC to LCD, 5m		
	Fiber Optic Cable, CNC to LCD, 20m		
	Fiber Optic Cable, CNC to LCD, 30m		
	Fiber Optic Cable, CNC to LCD, 40m		
	Fiber Optic Cable, CNC to LCD, 50m		
<b>Different MDI's</b>			
	Separate Type MDI (ONG) (Vertical) A02B-0323-C126#T or equivalent 290x220mm	Replaces Vertical QWERTY in Pkg A (Do not order with Pkg B)	
	Separate Type MDI (ONG) (Horizontal) A02B-0323-C125#T or equivalent 230x220mm	Replaces Vertical QWERTY in Pkg A (Do not order with Pkg B)	
<b>Product Manuals</b>			
	Series 30i/31i/32i-B Descriptions,	B-64482EN	0
	Series 30i/31i/32i-Model B Connection Manual Hardware,	B-64483EN	0
	Series 30i/31i/32i-Model B Connection Manual (Function),	B-64483EN-1	0
	Series 30i/31i/32i-Model B Maintenance Manual *,	B-64485EN	0
	Series 30i/31i/32i-Model B Parameter Manual *,	B-64490EN	0
	Series 30i/31i/32i-B User's Manual Common & Lathe *,	B-64484EN & -1	0
	Series 30i/31i/32i FAST Ethernet/Data Server Operator's Manual,	B-64014EN	0
	Manual Guide i Operator's Manuals & Setup Guide,	B-63874EN, -1 & -2	0
<i>This Manual is NOT included on any CD. A complimentary copy is shipped with the CNC. Extra hard-copy manuals, if required, may be ordered here.</i>			
	Series 30i/31i/32i Model B Operation and Maintenance Handbook,	B-64487EN	0
<b>Check here if no I/O is needed.</b>			
	Check here if I/O has already been purchased		