

Automating the World

FACTORY AUTOMATION

NUMERICAL CONTROL (CNC) M800V/M80V Series





Our Factory Automation business is focused on "Automating the World" to make it a better, more sustainable environment supporting manufacturing and society, celebrating diversity and contributing towards an active and fulfilling role.

Mitsubishi Electric is involved in many areas including the following:

Energy and Electric Systems

A wide range of power and electrical products from generators to large-scale displays.

Electronic Devices

A wide portfolio of cutting-edge semiconductor devices for systems and products.

Home Appliance

Dependable consumer products like air conditioners and home entertainment systems.

Information and Communication Systems

Commercial and consumer-centric equipment, products and systems.

Industrial Automation Systems

Maximizing productivity and efficiency with cutting-edge automation technology.

INITIATIVES THAT CONTRIBUTE TO ADDRESSING SOCIAL ISSUES

The Mitsubishi Electric Group will pursue value creation by addressing social challenges and will contribute to achieving the 17 goals of the SDGs*1 through all corporate activities.

Environmental Initiatives

The Mitsubishi Electric Group has set forth Environmental Sustainability Vision 2050 to clarify the company's stance on addressing long-term environmental issues and creating new value for a sustainable future toward 2050.



The new vision identifies environmental protection as a top corporate priority and stipulates increased initiatives toward this end. It defines Mitsubishi Electric's future course toward 2050 for implementing key initiatives in the form of the Environmental Declaration and Three Environmental Action Guidelines.

ing business areas to s

Climate Change Mea Resource Circulat Live in Harmony with

The Mitsubishi Electric Group's Materiality

Materiality



*1. Sustainable Development Goals adopted by the United Nations as goals to achieve by 2030.



The Mitsubishi Electric Group is actively solving social issues, such as decarbonization and labor shortages, by providing production sites with energy-saving equipment and solutions that utilize automation systems, thereby helping towards a sustainable society.

Environmental Sustainability Vision 2050



	7	
	Key Activities	
ures on Nature	Long-term Activities Innovation Nurturing Human Resources	Understanding Needs Co-create and Disseminate New Values Live in Harmony with the Region

Contribute to the SDGs

M800V/M80Vseries

The Evolution in **Smart Manufacturing**

Seven years after its development, the M800/M80 Series ushers in a new dimension.

A variety of innovative control functions help machine various 'things' at high speed and with high accuracy.

The industry's first*1 built-in wireless LAN, which reduces wiring and operators' movement, high-definition 3D machining simulation, which minimizes trial cutting, and advanced user-friendly and intuitive operations streamline overall manufacturing processes and create 'time' as never before envisioned.

Our new CNC, keeping abreast of manufacturers' needs and the advancement of the times, efficiently optimizes manufacturing from the perspective of 'things' and 'time'.

Introducing the all new M800V/M80V Series.





High-speed high-accuracy functions that further improve productivity on the shop floor



OVERVIEW

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*1. As of August 2021, According to research by Mitsubishi Electric Corporation

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FEATURES OF THE M800V/M80V SERIES

The M800V/M80V Series makes an effective difference in each phase of the engineering chain.



BASIC PERFORMANCE IMPROVEMENTS

Increased fine segment processing capability further reduces cycle time



With improved hardware optimized for CNC, the dedicated CPU significantly improves fine segment processing capability.

High machining program processing capability translates to a shorter cycle time.

Multi-touch function provides superior usability



Usability of the M800/M80 Series has further evolved! Multi-touch gestures enable smarter operations, such as: Pinch-in/pinch-out in program display area to change text size

- Drag/flick the menu upward to open the menu list
- Use grab operation with four or more points to open the list of recently selected screens.

View the introduction video here.



Increased number of control axes

Machining center system (M system)

	M800VS M800VW	M80V (TypeA)	M80V (TypeB)		
Max. number of axes	32	11	9		
Number of spindles	4 ▶ 6	2 ▶ 4	2		

Lathe system (L system)

	M800VS M800VW	M80V (TypeA)	M80V (TypeB)
Max. number of axes	32	12 ► 13	9
Number of spindles	8	5 ▶ 6	4

The number of some control axes has been increased from the conventional M800/M80 Series, allowing control of more complex mechanisms.

<complex-block>

Screen design that ensures visibility

Screen design and colors are optimized for readability considering information content. Better visibility leads to increased work efficiency.

EVOLUTION OF THE CONTROL UNIT AND DISPLAY UNIT A gateway unit functionality for remote service

Built-in wireless LAN increases work efficiency



Our industry-first*1 NC control unit with built-in wireless LAN frees operation from the constraints of time and space. It can be connected to software tools on a PC to exchange data using wireless communication.

*1. As of August 2021. According to research by Mitsubishi Electric Corporation *2. The available legal wireless frequency bands and channels vary from country to country due to varving regulations governing use of radio waves. Ensure that the country code that matches the ntry of operation is configured before using the wireless LAN function

is built into the NC M800VW M800VS M80VW M80V



The functionality of a remote service gateway unit required for remote service iQ Care Remote4U is built into the NC control unit*1, leading to less wiring and easier remote diagnostics.

*1. For regular data retrieval, different interval applies to the built-in capability (Remote gateway unit, one second; built-in capability in NC control unit, 30 seconds). If the data needs to be retrieved at a one-second interval, use the remote gateway unit like the earlier models.

M800VW



M80V

Addition of a 19-inch display to the lineup of display-integrated control units (M800VS/M80V Series)





to the lineup of 8.4, 10.4 and 15 types. A large screen improves visibility

M800VS M80VW M80V

A 19-type display has been added

and provides greater flexibility in designing an operation panel.

M800VW M800VS M80VW

Evolution of the control unit and display unit (M800VW/M80VW Series)



Evolved Windows display

Advanced design inherited from the M800/M80 Series with double storage capacity

Equipped with a new PC unit supporting Windows 10.



New control unit with enhanced field network support

The added LAN connector on the control unit offers connectivity with a wider variety of networks.

Expandability is maintained by the expansion slots while also ensuring installation compatibility with the M800VW/M80W Series.

EXPANSION AND EVOLUTION OF CONTROL FUNCTIONS Sheet metal laser cutting machines can also be controlled

Laser processing control The introduction of laser processing functionality expands the areas of Laser oscillator power con 2 Laser oscillator digital I/O con BIO2.0 c DR (dross reduction) contr F-CUT (flycutting) control 1000//1000 Height contro View the introduction video here Multi-part machin The laser oscillator must be prepared by the customer

Vibration cutting shortens the time required to remove chips and improve machine utilization

Vibration cutting

M800VW M800VS M80VW M80V

Vibration cutting, in which machining is performed with the feed axis vibrating to break up chips, reduces the time it takes to remove the chips and increases machine utilization.

Lathe system

control



Machining center system



M800VW M800VS M80VW M80V

ality	Description
ol	The NC outputs to the laser oscillator the processing conditions (laser power value, etc.) it creates for each interpolation cycle when the M code for laser ON is enabled
rol	The NC device controls the digital I/O of the laser oscillator
9	Laser processing conditions are set in a dedicated screen (each condition can be selected using an M code) (The selection of conditions appropriate to the processing situation leads to high-quality processing)
	Laser processing conditions are automatically adjusted according to the processing speed (The effect of heating at acute corners is reduced, minimizing dross and increasing processing accuracy)
	The timing of turning on/off the beam is controlled by checking the feedback position obtained from the motor-side encoder against the programmed position
	The height from the workpiece surface is held constant based on the height sensor (Copying the workpiece, leading to high-quality processing)
	Laser power is adjusted based on the laser power measured from the laser head (Actual laser power is made consistent with the programmed value, contributing to oscillator protection)
	Multiple parts of the same shape can be machined with a single G-code command. (Reduces programming time and improves productivity)

Motion control release enables control of special mechanisms

Motion control release (coordinate transformation)

M800VW M800VS

Motion control release allows transformation of coordinates that differ from the NC's rectangular coordinate system, making it possible to control special mechanisms such as parallel links.



CNC LINEUP

High



Main specifications

	Lathe system	Machining center system			
Max. number of axes (NC axes + spindles + PLC axes)	Standard: 16 Optional: 32				
Max. number of spindles	8 6				
Max. number of part systems (main+sub)	Standard: 4 Optional: 8	2			
Fine segment processing capability [kilo- blocks/min]	168	540			

	Lathe system	Machining center system				
Max. number of axes (NC axes + spindles + PLC axes)	Standard: 16 Optional: 32					
Max. number of spindles	8 6					
Max. number of part systems (main+sub)	Standard: 4 Optional: 8	2				
Fine segment processing capability [kilo- blocks/min]	168	540				

	Lathe system	Machining center system
Max. number of axes (NC axes + spindles + PLC axes)	13	11
Max. number of spindles	6	4
Max. number of part systems (main+sub)	4	2
Fine segment processing capability [kilo- blocks/min]	101	202

	Lathe system	Machining center system			
Max. number of axes	ТуреА: 13	ТуреА: 11			
(NC axes + spindles + PLC axes)	ТуреВ: 9	ТуреВ: 9			
Max. number of spindles	TypeA: 6 TypeB: 4	TypeA: 4 TypeB: 2			
Max. number of part systems	TypeA: 4	TypeA: 2			
(main+sub)	TypeB: 2	TypeB: 1			
Fine segment processing capability [kilo-	ТуреА: 101	ТуреА: 202			
blocks/min]	ТуреВ: –	ТуреВ: 67.5			

SYSTEM CONFIGURATIONS

Ethernet

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"Image input interface" enables flexible

customization of NC screens and applications to

differentiate machine tools, creating added value.

Image input interface

By displaying applications that are installed in an

industrial PC and camera images stored inside the

machine, the NC screen provides added value to

machine tools. Applications in an industrial PC can be

M800VS

INTRODUCTION OF FUNCTIONS

M80V

Mechanical and electrical design

operated from the NC screen.

HDMI signal

ST language is supported in addition to ladder language. This allows PLC programs to be created and edited efficiently using the syntax resembling that of conventional programming languages. MELSEC development tool (GX Works2)

M800VW M800VS M80VW M80V

Unlike ladder language, ST language allows flexible text-based programming and compact operation processing. The use of function blocks (FB) also makes PLC programming more flexible.

Monitoring function blocks using PLC on-board*1 makes development easier and more efficient.



"Menu key customization" allows the screen menu to be moved or hidden to meet machine specifications and the needs of machine tool users.

Menu key customization

M800VW M800VS M80VW M80V

The optional functions of the machine tool can also be hidden from the menu key.

Gathering frequently used menu keys streamlines setup work.



Setup

Parameter setting guidance on the dedicated screen makes it easy for anyone to improve machining quality.

Parameter adjustment screen for high-accuracy control M800VW M800VS M80VW M80V

The parameters for high-accuracy control can be adjusted through intuitive operation using three machining indexes (cycle time, accuracy, quality) displayed in the guidance. This makes it unnecessary for operators to be highly skilled at making adjustments for optimal machining.



View the introduction video here

All operational history for setup is displayed on one screen to prevent errors and missed settings, facilitating setup work.

Setup change history display

M800VW M800VS M80VW M80V

When the settings like tool data and coordinate system offset are changed, all operations are displayed as a change history on one screen. This helps to easily identify errors and missed settings and allows erroneous settings, if found, to be undone with a single touch. It shortens the time for setup work.

> hange history Туре ₽ #10 ₽ #102 ₽ #101 6:36 Com var 0.0000 2.4560 0225 16:36 Com var 0225 16:36 Com var 0225 16:36 Can va 0225 16:26 A larm 0225 16:26 A larm 0225 16:26 Power 0225 16:25 Power 0225 16:21 T-ofs 0225 16:21 T-ofs 0225 16:21 T-ofs 0225 16:21 T-ofs 0225 16:21 A larm 0225 16:18 A larm 0225 16:18 A larm 0225 16:18 A larm BMG SPIN BMG STOP Radius # Length # BMG SPII 0.000 Length #1 EMG SPIN EMG STOP BMG SPIN

Whether to display or hide data can be set for each data type.

Settings can be undone if an error is found

"Direct robot control" enables the NC to directly control a robot, allowing more flexible machine design including workpiece transportation.

View the introduction video here

Direct robot control

M800VW M800VS M80VW M80V

Guidance on the dedicated screen and special G codes allow easy programming and operation without requiring knowledge of robot language. For example, you can run an NC program that coordinates the loading/unloading of workpieces by the robot with the machining of workpieces by the machine tool.



View the introduction video here





Sophisticated simulations help to shorten work period and reduce material losses.

3D Machining simulation

M800VW

Machine interference and machining guality can be checked before actual machining, preventing collision and faulty machining, which leads to a shorter overall work period.

High-definition simulations, which make even the streaks by cutters visible, allows the machining results to be checked on the NC screen. Top view of workpiece



Machine interference is highlighted in color to be spotted easily



Streaks by ball end milling cutters



View the introduction video here.

"Rotation center error measurement" can be used to instantly set the error compensation amount for rotation center error of the machine. Rotation center error measurement

M800VW M800VS M80VW M80V

This function allows rotation center errors to be measured using the reference sphere and touch probe. It also allows compensation values to be applied effortlessly from the screen. The measurement result can be reflected in the rotary axis configuration parameters.

The machine configurations that support the function now includes not only table-tilt type but also combined type in the M800V/M80V Series.



hanical and trical design

Setup

Machining

Production maintenance

"OMR-CC (Optimum machine response-contour"Spcontrol)" efficiently reduces cycle time whilefinemaintaining machining accuracy.path

OMR-CC (Optimum machine response-contour control)
M800VW M800VS M80VW M80VW

Cycle time is reduced without compromising accuracy by outputting movement commands considering position error resulting from servo response delay.



"Cutting load control" automatically controls cutting load, leading to longer tool life and shorter cycle time.

Cutting load control

M800VW M800VS M80VW M80V

Feedrate is automatically adjusted so that the actual load rate matches the predefined target load rate during machining. The parameters appropriate for the tool and workpiece can be selected from eight parameter groups.





"Spline interpolation 2" delivers high-quality fine surfaces by making adjacent machining paths globally smooth.

Spline interpolation 2

M800VW | M800VS | M80VW | M80V

This function solves the problem of uneven (marked) surfaces resulting from the variance of programmed points that occur when a machining program is generated by a CAM tool, improving machining quality.



"Tool cutting point control" enables optimum machining without modifying the machining program even when the tool shape changes.

Tool cutting poin	t control		
M800VW	M800VS	M80VW	M

In five-axis machining, it was necessary to modify the machining program as tool wear occurs to keep the cutting point constant. Now tool wear is automatically compensated for by simply setting the tool length and tool shape (tool radius, corner radius).



View the introduction video here.

Mechanical and electrical design

Setup

A QR Code engraved directly on a workpiece allows automatic selection of programs and tools and helps to implement traceability easily. Two-dimensional barcode (QR code) engraving cycle

M800VW M800VS M80VW M80V

A program for engraving a QR code can be created easily using a fixed cycle.

A QR Code engraved on a workpiece helps automation of high-mix low-volume production and traceability of workpieces.



View the introduction video here.

Remote service "iQ Care Remote4U" has evolved. Remote diagnostics through a cloud server help to reduce machine downtime.

iQ Care Remote4U

Machine downtime is reduced by automatic email notifications sent upon occurrence of an alarm and alarm diagnostics, in addition to the built-in remote service gateway unit functionality in the NC control unit (see P.7).

* Connection with Mitsubishi Electric CNC M700(V)/M70(V) Series is also supported

Alarm screen

Email notification condition list screen

Displaye a list o



Machining

Production maintenance

"Security feature for Windows display" effectively protects the NC from virus and other threats using the whitelist technique.

Security feature for Windows display

M800VW M800

Virus attacks can be blocked by preventing software not whitelisted (unauthorized) for the NC from being run. It addresses security needs posed by the growth of IoT.



Operation monitoring software "NC Machine Tool Optimizer" visualizes the status of various equipment in multiple factories.

Besides connecting with a variety of controllers (maker, model) on the shop floor, it can monitor and analyze the operation of equipment in multiple factories, helping to increase productivity.

* Connection with Mitsubishi Electric CNC (old models) and third-party controllers is supported • Displays an overview of the status of machine Visualize operational status Aggregate data by plant, group, or machine operations in a plant Real-time monitoring based on operation trend 1 1 1 1 1 25.5 12 80,00 120 NC Machine Tool Optimizer

No wiring required

NC Machine Tool Optimizer Software product that collects operation data from NC machine tools and peripherals to support the visualization and analysis of operational status

CONTRIBUTION TO SUSTAINABILITY



 "3D machining simulation" contributes to reducing waste.

 M800VW
 M800VW

 M800VW
 M800VW

Machine interference and machining quality can be checked before machining, to reduce the number of workpieces that are discarded due to trial cutting and defective machining.

"Power consumption calculation" enables visualization of power consumption. M800VW M80VV M80VV M80VV

Visualization of machine power consumption enables users to see which process has higher power consumption, contributing to power savings in factories.



PWM converter MDS-EX-CVP Series

M800VW M800VS M80VW M80V

PWM converter MDS-EX-CP Series controls the boost and stabilization of DC link voltage, for increased output and shorter acceleration and deceleration times in the below combination. Reduced supply current harmonics and improved power factor help to lower power supply equipment capacity.







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SPECIFICATIONS

		M800VW			M80VW			M800VS				M80V			
Class	1	M	L		ML		М				1	N	L		
	M850	M830	M850	M830	-		M850	M830	M850	M830	TypeA	TypeB	TypeA	ТуреВ	
	016	016	016	016		40	016	016	016	016		_	40	-	
Max. number of axes (NC axes + Spindles + PLC axes)	∆32	∆32	∆32	∆32	11	13	∆32	∆32	∆32	∆32	11	9	13	9	
Max number of NC axes (in total for all the part systems)	016	016	016	016	9	10	016	○16	016	016	9	5	10	7	
		0.0	∆32	∆32	Ŭ		0.0	0.0	∆32	∆32		Ŭ	.0		
Max. number of spindles	6	6	8	8	4	6	6	6	8	8	4	2	6	4	
Max. number of PLC axes	8	8	8	8	6	6	8	8	8	8	6	6	6	6	
Max. number of PLC indexing axes	8	8	8	8	4	4	8	8	8	8	4	4	4	4	
Number of simultaneous contouring control axes	8	4	8	4	4	4	8	4	8	4	4	4	4	4	
	08	08	08	08			08	08	08	08					
Max. number of NC axes in a part system	△12	△12	△12	△12	8	8	△12	△12	△12	∆12	8	5	8	5	
Avis name extension*1		0	0	0	0	0	0	0	0	0	0	0	0	0	
	l		04	04	~		<u> </u>		 4	 4			~		
Max. number of part systems (main + sub)	02	02	∆8	∆8	02	04	O2	02	∆8	∆8	02	01	04	02	
New York and and and and	02	02	04	04	00	00	02	02	04	04	00	~	00	00	
Max. number of main part systems	∆3*2	∆3*2	∆8	∆8	02	02	∆3*2	∆3*2	∆8	∆8	02	01	02	02	
Max number of sub part systems	02	02	04	04	_	02	02	02	04	04	_	_	02	01	
			∆8	∆8		02	<u> </u>	<u> </u>	∆8	∆8			<u> </u>	0.	
Control unit-side High-speed program server mode		Δ	Δ	Δ	0	0	-	-	-	-	-	-	-	-	
Display unit-side High-speed program server mode		Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	0	0	0	0	
Data increment															
Least command increment	⊖ 0.1µm	○ 0.1µm	○ 0.1µm	○ 0.1µm	○ 0.1µm	○ 0.1µm	○ 0.1µm	○ 0.1µm	() 0.1µm	() 0.1µm	○ 0.1µm	○ 0.1µm	○ 0.1µm	O 0.1µm	
L and anythel in second															
Least control increment		0 1nm	0 1nm	Oinm	0 inm	0 inm	Oinm	0 inm	0 inm	Oinm	OInm	0 inm	Oinm	UINM	
Linear interpolation		0		0	0	0	0	0	0	0	0	0	0		
Uncular Interpolation (Uenter/Radius designation)		0		0	0	0	0	0	0	0	0	0	0		
Spiral/Conical interpolation		0		0	0	0		0	0	0	0		0	<u> </u>	
			-	_	0	-			_	_	0	-	-	-	
Polar coordinate interpolation						0							0		
Milling interpolation					-	0					-	-	0	0	
Hypothetical axis internolation		_			-	5	_	_			-	-	5		
Involute interpolation		 	-	-	0	_			-	_	0	-	_		
Exponential interpolation		~	_	^	-	-	 ∧		^	_	-	-	-		
Spling interpolation (G05 102/G612)				-	-	_					-	_	-	_	
NURBS interpolation			_	_	-	_			_	_		_	_	_	
3-dimensional circular interpolation			-	-	0	-	 		-	-	0	-	-	-	
Spline interpolation 2 (G61.4)		_	-	-	0	-	_	_	-	-	0	-	-	-	
Memory capacity (number of programs stored)		_			Ű		_	_			Ŭ,				
500KB [1280m] (1000 programs)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1000KB [2560m] (1000 programs)		Δ		Δ	-	-	Δ	Δ	Δ	Δ	-	-	-	-	
2000KB [5120m] (1000 programs)		Δ		Δ	-	-	Δ	Δ	Δ	Δ	-	-	-	-	
Extended Memory (NC memory 2)		_	_	_			_	_	_	_					
2000KB [5120m] (1000 programs)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Multi-part system simultaneous program editing	0	0	0	0	-	0	0	0	0	0	-	-	0	0	
Special program editing display for synchronization between part systems		Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	0	-	0	0	
Finish shape view programming		Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	0	0	0	0	
Remote desktop connection	-	-	-	-	-	-	Δ	Δ	Δ	Δ	0	0	0	0	
VNC server	-	-	-	-	-	-	Δ	Δ	Δ	Δ	0	0	0	0	
Image input interface*3	- 1	-	-	-	-	-									
Spindle-mode servo motor control		Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	0	0	0	0	
Spindle-mode rotary axis control	Δ	Δ	-	-	0	-	Δ	Δ	-	-	0	-	-	-	
Turret gear change control	-	-	Δ	Δ	-	0	-	-	Δ	Δ	-	-	0	0	
Spindle position control (Spindle/C axis control)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C axis control during Spindle synchronization	Δ	Δ	Δ	Δ	-	0	Δ	Δ	Δ	Δ	-	-	0	0	
Spindle synchronization I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Spindle synchronization II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Guide bushing spindle synchronization	-	-		Δ	-	0	-	-	Δ	Δ	-	-	0	-	
Spindle superimposition control	-	-	Δ	Δ	-	0	-	-	Δ	Δ	-	-	0	-	
Multiple spindle synchronization set control	-	-	0	0	-	0	-	-	0	0	-	-	0	0	
Number of tool offset sets	0 200	0 200	0 128	0 128	O 400	0 256	0 200	0 200	0 128	0 128	0 400	O 400	0 256	0 99	
Cranhia shask		400/999	400/999	△400/999			△400/999	△400/999	△400/999	△400/999					
Graphic check		0	0	0	0	0	0	0	0	0	0	0	0	0	
Granhia check rotary axis drawing		0		-		0	0	0	0	0	0				
2D machining cimulation	-	-			-	0	-	-	Δ		-	-	0	0	
Variable command				_	_	-	-	-	-	-		_	-	-	
600 eate		5	5		-		-				6	-	-	0	
700 sets		-	-	-	-	_	-	-	-	-	-	-	-		
8000 sets			_	^	0	0	_	^	^	^	0	-	0		
(600 + 100 × number of part systems) sets		0	0	0	0	0	0	0	0	0	0	-	0		
(7900 + 100 x number of part systems) sets		~		^	0	0		^	^	^	0	-	0	-	
Two-dimensional barcode engraving cycle		0	0	0	0	0	0	0	0	0	0	0	0	0	
Vibration cutting control*4															
Rapid traverse block overlap				_	0	0		_	_	_	0	0	0	0	
High-speed machining mode I (G05P1) maximum [kRPM]	∆33.7	∆33.7	△33.7	∆33.7	033 7	033 7	∆33.7	∆33 7	∆33 7	∆33.7	0337	016.8	0337	_	
High-speed machining mode II (G05P2) maximum [kBPM]	△168	△168	△168	△168	0101	0101	△168	△168	△168	△168	0101	0101	0675	_	
High-accuracy control (G61.1/G08)				A	0	0		Δ	Δ	Δ	0	0	0	0	
Multi-part system simultaneous high-accuracy control*6	Δ	Δ						_			~		-	-	
SSS control					0	-	Δ	Δ	Δ	Δ	0	-			
Televenes control					0	-	Δ	Δ	∆ ∆		0	-	-	-	
Tolerance control					0	- 0					0	- 0	- 0	0	
High-speed high-accuracy control I (G05.1Q1) maximum [kBPM]	△ △ △ △ △	△ △ △ △ △ 67.5	△ △ △ △ △ △	△ △ △ △ 67.5	0 0 0 033.7	- 0 033.7	△ △ △ △67.5	△ △ △ △67.5	△ △ △ △67.5	△ △ △ △67.5	0 0 033.7	- 0 033.7	- 0 033.7	- 0 -	
High-speed high-accuracy control I (G05.1C1) maximum [kBPM] High-speed high-accuracy control II (G05P10000) maximum [kBPM]	△ △ △ △ △ 67.5 △168	△ △ △ △ △ 67.5 △168	△ △ △ △ △ 67.5 △168	△ △ △ △ △ 67.5 △168	0 0 033.7 0101	- 0 033.7 0101	△ △ △ △67.5 △168	△ △ △ △67.5 △168	△ △ △ △67.5 △168	△ △ △ △67.5 △168	0 0 033.7 0101	- 0 033.7 0101	- 0 033.7 067.5	- 0 -	
High-speed high-accuracy control I (G05.1Q1) maximum [kBPM] High-speed high-accuracy control II (G05P10000) maximum [kBPM] High-speed high-accuracy control III (G05P20000) maximum [kBPM]	△ △ △ △ 67.5 △168 △540	△ △ △ △ 67.5 △168 △540	△ △ △ △ △ 67.5 △ 168 -	△ △ △ △67.5 △168 -	0 0 033.7 0101 0202	- 0 033.7 0101 -	△ △ △67.5 △168 △540	△ △ △67.5 △168 △540	△ △ △67.5 △168	△ △ △67.5 △168 -	0 0 033.7 0101 0202	- 0 033.7 0101 -	- 0 033.7 067.5 -	- 0 - - -	

Class Note // 100				0.044		1100			1100						
Undation	01	M800VW				M80VW			M800VS						
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minime programming NM HLAAPHE A A A A	Interactive quele incertion	M850	M830	M850	M830	-	-	M850	M830	M850	M830	Туреа	Турев	Туреа	Турев
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DV dissipation A A A A <	G code guidance		0	0	0	0	0	0	0	0	0	ŏ	Ö	Ő	0
Data Data <thdata< th=""> Data Data <thd< th=""><th>DXF data input</th><th></th><th>Δ</th><th>Δ</th><th>Δ</th><th>Õ</th><th>Õ</th><th>Δ</th><th>Δ</th><th>Δ</th><th>Δ</th><th>Ō</th><th>-</th><th>Õ</th><th>-</th></thd<></thdata<>	DXF data input		Δ	Δ	Δ	Õ	Õ	Δ	Δ	Δ	Δ	Ō	-	Õ	-
OMINImage	OMR II (Backlash with filter)		Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	0	0	0	0
OMP-FTCC <th>OMR III (Continuous variable backlash)</th> <th>- 1</th> <th>-</th>	OMR III (Continuous variable backlash)	- 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Charter of massement A A A A	OMR-FF		Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	0	0	0	0
(i)	OMR-CC				_	0	0		_	~		0	0	0	0
Number of out informed manyment with the ma	(Optimum Machine Response-Contour Control)					-	-							-	-
Number of bod life management sets CAMBM CAMBM <thcambm< th=""> CAMBM CAMBM</thcambm<>	Rotation center error measurement			-	-	0	-			-	-	0	-	-	-
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Cutting size control A A A A A C	Direct robot control														
Intension y suer's lowal A A A A	Cutting load control	Δ	Δ	-	-	0	-	Δ	Δ	-	-	0	-	-	-
Internet organization operator A A A	Data protection by user's level		Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	0	0	0	0
Enamination operator A	Machine group-based alarm stop	Δ		Δ	Δ	0	0	Δ	Δ	\triangle	Δ	0	0	0	0
Secting frature for Window singley A A A A	Email notification to operator					0	0		Δ			0	0	0	0
Sate State Solvension A A A A A A A A A A C <thc< th=""> C C C</thc<>	Security feature for Windows display					-	-	-	-	-	-	-	-	-	-
bintery conservation - Statity classify observation - - - - </th <th>Safety observation</th> <th></th> <th>Δ</th> <th></th> <th>Δ</th> <th>0</th> <th>0</th> <th></th> <th></th> <th>Δ</th> <th>Δ</th> <th>0</th> <th>0</th> <th>0</th> <th>0</th>	Safety observation		Δ		Δ	0	0			Δ	Δ	0	0	0	0
James provide of constraints A A A A<	Smart Safety observation						0		A .	_		*£	*¢	1 *6	1*6
Image Image <th< th=""><th>Salety-related I/O observation</th><th></th><th></th><th></th><th></th><th>0</th><th>0</th><th></th><th></th><th></th><th></th><th>□⁻⁰</th><th>□⁻⁰</th><th>□^{~0}</th><th>□^{-•}</th></th<>	Salety-related I/O observation					0	0					□ ⁻⁰	□ ⁻⁰	□ ^{~0}	□ ^{-•}
Solution Description Description <thdescription< th=""> <thdescription< th=""> <t< th=""><th>SLS (Safely-Limited Speed)</th><th></th><th></th><th></th><th></th><th>0</th><th>0</th><th></th><th></th><th></th><th></th><th>□ - □*6</th><th>□ - □*6</th><th>□ - □*6</th><th>□ - □*6</th></t<></thdescription<></thdescription<>	SLS (Safely-Limited Speed)					0	0					□ - □*6	□ - □*6	□ - □*6	□ - □*6
Society openting Stop) A	SLP (Safely-Limited Position)					0	0					*6	*6	*6	□*6
SSM Gale Speed Monton) A	SOS (Safe Operating Stop)					0	0					*6	*6	*6	□*6
SBC597 (Safe Prake ControlSafe Brake Text) A A A A	SSM (Safe Speed Monitor)	Δ	Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	□ *6	□ *6	□ *6	□* ⁶
Schart can A	SBC/SBT (Safe Brake Control/Safe Brake Test)	Δ	Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	□ *6	□ *6	□ *6	□ *6
SSS (3ine 3top) A A A A <	SCA (Safe Cam)			Δ	Δ	0	0	Δ	Δ		Δ	□*6	□*6	□ *6	□ *6
ISTO Gase Torque Off) △ ○ <th>SS1/SS2 (Safe Stop)</th> <th></th> <th>Δ</th> <th>Δ</th> <th>Δ</th> <th>0</th> <th>0</th> <th>Δ</th> <th>Δ</th> <th>Δ</th> <th>Δ</th> <th>□*6</th> <th>□*6</th> <th>□*6</th> <th>□*6</th>	SS1/SS2 (Safe Stop)		Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	□ *6	□ *6	□ *6	□ *6
Function block (FB) O	STO (Safe Torque Off)					0	0				Δ	□ *6	□ *6	□ *6	□* ⁶
Label programming O O O O	Function block (FB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ST language O <td< th=""><th>Label programming</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th></td<>	Label programming	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MELSE development tool (3X Developer) O	ST language		0	0	0	0	0	0	0	0	0	0	0	0	0
Intersect outworks/intervention C	MELSEC development tool (GX Developer)		0		0	0	0			0				0	0
Bottometaning Image: connection (Ethernet connection) Image: connection (CC-Link conn	GOT connection				0	0	0			0				U	
GOT construction (CC-Link connection) O	GOT connection (Ethernet connection)		0	0	0	0	0	0	0	0	0	0	0	0	0
Tool handle feed & interruption A A - - - A A - - - A A - - - A A - <t< th=""><th>GOT connection (CC-Link connection)</th><th>Ō</th><th>Õ</th><th>Ő</th><th>Ő</th><th>Õ</th><th>0</th><th>Õ</th><th>Õ</th><th>Õ</th><th>Õ</th><th>Ő</th><th>Ō</th><th>Õ</th><th>Ő</th></t<>	GOT connection (CC-Link connection)	Ō	Õ	Ő	Ő	Õ	0	Õ	Õ	Õ	Õ	Ő	Ō	Õ	Ő
Tool center point control (G43.4/G4.3.9) △ △ ^{**} - - ○ · </th <th>Tool handle feed & interruption</th> <th></th> <th>Δ</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>Δ</th> <th>Δ</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th>	Tool handle feed & interruption		Δ	-	-	-	-	Δ	Δ	-	-	-	-	-	-
Tool cutting point control (643.8(43.9) A -	Tool center point control (G43.4/G43.5)	Δ	△*7	-	-	O*7	-	Δ	∆*7	-	-	O*7	-	-	-
Inclined surface machining command** A	Tool cutting point control (G43.8/G43.9)		-	-	-	-	-	Δ	-	-	-	-	-	-	-
Simple inclined surface machining command* - - A A - O - - A A - O - - A<	Inclined surface machining command					0	0			\triangle	Δ	0	-	0	-
3-dimensional tool radius compensation (Too's vertical-direction compensation) A A A ^{**} A	Simple inclined surface machining command*8	-	-			-	0	-	-		Δ	-	-	0	0
Item Procession A - A - - - - A - A -	3-dimensional tool radius compensation (Tool's vertical-direction compensation)			^*9	*9	-	-					-	-	-	-
- 0 - 0 0	Workpiece installation error compensation		-	A*9	-	-	-		-	A*9	-	-	-	-	-
Real-time tuning 1 (speed gain) A <t< th=""><th>3-dimensional manual feed</th><th></th><th></th><th></th><th></th><th>0</th><th>0</th><th></th><th></th><th></th><th></th><th>0</th><th>-</th><th>0</th><th>-</th></t<>	3-dimensional manual feed					0	0					0	-	0	-
Real-time tuning 2 (rapid traverse time constant) A <th< th=""><th>Real-time tuning 1 (speed gain)</th><th>Δ</th><th>Δ</th><th>Δ</th><th>Δ</th><th>0</th><th>0</th><th>Δ</th><th>Δ</th><th>Δ</th><th>Δ</th><th>0</th><th>-</th><th>0</th><th>-</th></th<>	Real-time tuning 1 (speed gain)	Δ	Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	0	-	0	-
Constant torque control A	Real-time tuning 2 (rapid traverse time constant)	Δ	Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	0	-	0	-
CC-Link (Master/Local) I <th>Constant torque control</th> <th>Δ</th> <th>Δ</th> <th>Δ</th> <th>Δ</th> <th>0</th> <th>0</th> <th>Δ</th> <th>Δ</th> <th>\triangle</th> <th>Δ</th> <th>0</th> <th>0</th> <th>0</th> <th>0</th>	Constant torque control	Δ	Δ	Δ	Δ	0	0	Δ	Δ	\triangle	Δ	0	0	0	0
PROFIBUS-DP (Master) Image: Collar kite Field (Master/Local) Image: Collar kite field field kite field (Master/Loca	CC-Link (Master/Local)														
CC-Link IE Field (Master/Local) Image: Construction of the set o	PROFIBUS-DP (Master)														
Linerveruit* L <t< th=""><th>CC-Link IE Field (Master/Local)</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	CC-Link IE Field (Master/Local)														
Construction Column Line	EtnerNet/IP														
Customization (NC Designer2)*** A <t< th=""><th>CC-I ink IF Field Basic</th><th></th><th></th><th></th><th></th><th></th><th>0</th><th></th><th></th><th></th><th></th><th></th><th></th><th>0</th><th></th></t<>	CC-I ink IF Field Basic						0							0	
APLC release*** A	Customization (NC Designer2)*10					0	0					0	0	0	0
Custom API library O	APLC release*10					0	0					0	0	0	0
MES interface library A A A A A A A C C A A A C	Custom API library	0	0	0	0	0	0	0	0	0	0	0	0	0	Õ
SLMP Server O <th< th=""><th>MES interface library</th><th>Δ</th><th>Δ</th><th>Δ</th><th>Δ</th><th>0</th><th>0</th><th>Δ</th><th>Δ</th><th>Δ</th><th>Δ</th><th>0</th><th>0</th><th>0</th><th>0</th></th<>	MES interface library	Δ	Δ	Δ	Δ	0	0	Δ	Δ	Δ	Δ	0	0	0	0
Numerical Control (CNC) communication software FCSB1224W000**0 O <th>SLMP Server</th> <th>0</th>	SLMP Server	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Motion control release: Coordinate transformation △ - <t< th=""><th>Numerical Control (CNC) communication software FCSB1224W000*10</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th><th>0</th></t<>	Numerical Control (CNC) communication software FCSB1224W000*10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Power consumption computation O <tho< th=""><th>Motion control release: Coordinate transformation</th><th>Δ</th><th>-</th><th>-</th><th>-</th><th>-</th><th>-</th><th>Δ</th><th>-</th><th>-</th><th>-</th><th>-</th><th>-</th><th>-</th><th>-</th></tho<>	Motion control release: Coordinate transformation	Δ	-	-	-	-	-	Δ	-	-	-	-	-	-	-
EcoMonitorLight connection O </th <th>Power consumption computation</th> <th>0</th>	Power consumption computation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laser processing control*11 I<	EcoMonitorLight connection	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wireless LAN* ¹² - - - - - 0	Laser processing control*11			-	-		-			-	-			-	-
	Wireless LAN*12	-	-	-	-	-	-	0	0	0	0	0	0	0	0

 Wireless Law
 II

 *1. Two alphabet letters.

 *2. The 3rd part system is the loader-dedicated part system.

 *3. Image input expansion unit is required.

 *4. Vibration cutting expansion unit is required for M80V.

 *5. Up to two part systems.

 *6. Functional safety expansion unit is required for M80V.

 *7. Restrained to 4-axis simultaneous contouring for M830VW, M830VS, M80VW, M80V (TypeA).

 *7. Restrained to 4-axis simultaneous contouring for M830VW, M830VS, M80VW, M80V (TypeA).

 *8. This includes Simple tool center point control.

 *9. For L system, this function is available only during program format switch.

 *10. Separately sold software is required.

 *11. Laser interface unit is required.

 *12. This function is available in the following countries. Supported versions of software and control units may be limited by country. Please contact us for more information.

 *12. This function is available, china, Cyprus, Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, United Kingdom, Greece, Croatia, Hungary, Ireland, Italy, Japan, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia, Turkey, Taiwan, United States, Switzerland, Iceland, Liechtenstein, Norway, India, Korea, Thailand (As of August 2023)

M: Machining center system L: Lathe system / ○ Standard △ Optional □ Selection

DRIVE SYSTEM

Drive units



High-performance Servo/ **Spindle Drive Units MDS-E/EH Series**

•The servo control-dedicated core processor realizes improved control speed, leading to enhanced basic performance. When combined with a higher resolution motor sensor and enhanced high-speed optical communication, this drive contributes to high-speed, high-accuracy control. •The motor power connector is equipped with an anti-misinsertion mechanism. This helps to eliminate connection errors.

 Improved diagnostic and preventive maintenance features

•Safe Torque Off (STO) and Safe Brake Control (SBC) are also incorporated as additional safety features

Servo motors



Multi-hybrid **Drive Units MDS-EM/EMH Series**

•Multi-hybrid drive units are capable of driving a maximum of three servo axes and one spindle. This contributes to downsizing machines and offers technical advantages. •The motor power connector is equipped with an anti-misinsertion mechanism. This helps to eliminate connection errors.

•Safe Torque Off (STO) and Safe Brake Control (SBC) are also incorporated as additional safety features •The fan unit facilitates fan exchange.

•An MDS-EMH drive unit is available for 400V systems.



All-in-one **Compact Drive Units MDS-EJ/EJH Series**

•Ultra-compact drive units with built-in power supply contribute to smaller control panel size. A 2-axis type has been added for

further downsizing. •The servo control-dedicated core processor realizes improved control speed, leading to improved basic performance. When combined with a higher resolution motor sensor and enhanced high-speed optical communication, this drive contributes to high-speed, high-accuracy control, •Safe Torque Off (STO) and Safe Brake Control (SBC) are also incorporated as additional safety features. •An MDS-EJH drive unit is available for 400V systems. (Note 1)



PWM Converter MDS-EX-CVP Series

 Products of the PWM converter series which provides a stabilizing DC voltage function and boost function. The MDS-EX-CVP Series reduces the output deceleration of the spindle motor and improves output in the high-speed range. •Available for 400V system power supply units only.

Spindle motors



High-performance Spindle Motors SJ-D Series

•Motor energy loss has been significantly reduced by optimizing the magnetic circuit. ·High-speed bearings are incorporated as a standard feature, helping to achieve higher speed, lower vibration and improved durability. •Range: 3.7 to 26 [kW] •Maximum rotation speed: 8,000 to 12,000 [r/min]

High-output, High-speed Spindle Motors **SJ-DG Series**

•The addition of S3 rating (%ED rating) has improved output and torque acceleration/deceleration characteristics. •A balance adjustment ring added to the counter-load side allows for fine tuning. Range: S3 rating: 5.5 to 15 [kW]

High-torque Spindle Motors **SJ-DN Series**

•Higher torque characteristics than those of the SJ-D Series with the same output. This series can be driven with a small-capacity multi-hybrid drive unit.

productivity. •Range: 7.5 to 18.5 [kW] •Maximum rotation speed: 8,000 [r/min]



Medium-inertia. High-accuracy. High-speed Motors **HK Series**

- •Latest servo motor to help increase productivity. •Range: 0.5 to 7 [kW]
- •Maximum rotation speed: 2,000 to 6,000 [r/min] •High power density design has improved motor efficiency. •One-touch lock of the power
- connector for easy mounting (Note 2). Battery-free encoder helps reduce maintenance costs.



Medium-inertia. High-accuracy. **High-speed Motors HG Series**

 Sensor resolution has been significantly improved. These servo motors, which boast smooth rotation and outstanding acceleration capabilities, are well-suited as feed axes of machine tools. •Range: 0.2 to 11 [kW] •Maximum rotation speed: 2,000 to 6,000 [r/min] •Safety support sensors are included as standard specification. Three sensor resolutions (i.e., 1, 4 or 67 million pulses/rev) are available. •These motors can also be used as a tool spindle motor. •The small-sized connector allows horizontal cable connection to save space in machines. (Note 3)



Servo Motors LM-F Series

- These motors can be used in clean environments, since no ball screws are used, eliminating possible grease contamination.
- •Elimination of transmission mechanisms, including backlash, enables smooth, quiet operation even at high speeds. Range: Maximum thrust: 900 to 18,000 [N·m]



Direct-drive Servo Motors **TM-RB** Series

•High-torque, direct-drive motors combined with high-gain control provide quick acceleration and positioning, making rotation smoother •Suitable for rotary axes that drive

tables or spindle heads Range:



Maximum torque: 36 to 1,280 [N·m]





Built-in

Spindle Motors

SJ-BG Series

Tool Spindle Motors HG-JR Series

•The electrical design has been optimized to increase the continuous rated torque per unit volume, contributing to downsizing spindle units. •Options for mold and cooling jacket specifications are available.

·Compact tool spindle motors are designed to have the small, high-output characteristics of servo motors yet offer high-speed rotation (8,000r/min). These motors contribute to downsizing spindle size, like rotary tool spindles. •Range: 0.75 to 1.5 [kW] •Maximum rotation speed: 8,000 [r/min] •Small-sized connector allows horizontal cable connection to save space in machines. (Note 3)

(Note 1) For servo motors only (Note 2) Available only for flange sizes 90SQ., 130SQ. and 176SQ. (Note 3) Options supported (Flange size 90SQ only) * Use Mitsubishi Electric CNC's dedicated drive unit and motor



Linear

•Maximum rotation speed: 10,000 to 12,000 [r/min]

Suitable for heavy cutting. Helps to improve

Low-inertia, High-speed Spindle Motors **SJ-DL Series**

- •This series of spindle motors is dedicated for use in tapping machines that require faster drilling and tapping.
- •The latest design technologies make it possible to attain lower vibration and greater rigidity even with liahter weiaht.
- •Range: 0.75 to 7.5 [kW] •Maximum rotation speed: 10,000 to 24,000 [r/min]

Compact, Lightweight Spindle Motors **SJ-DJ Series**

- •Spindle motors that are smaller and lighter than the SJ-D Series with the same output. This helps to further downsize machines. •Bange: 5.5 to 15 [kW]
- •Maximum rotation speed: 8,000 to 12,000 [r/min]

High-output High-torque IPM Spindle Motors SJ-DM Series

- •The use of magnets allows for higher output and torque, leading to reduced cycle time.
- •The SJ-DM Series can provide torque characteristics comparable to the former SJ-D Series of the next frame number
- •Maximum rotation speed: 12,000 [r/min]



For details on each software tool, refer to the software tools catalog (BNP-A1246).

SOFTWARE TOOLS

Process flow from machine design and development to operation and maintenance

Machi	ne design	Ele	ectrical circuitry design		Machine assembly and adjustment		Operation and maintenance
NC-relate	d processes						
Servo s	election	(Custom screen creation		Parameter creation		Training
MC Serve	Selection		NC Designer2	ដា	NC Configurator2		NC Trainer2
			NC Compiler2	S	ervo/spindle adjustment		Operation and maintenance
			Debug		Machine adjustment		MC Explorer
		P	NC Trainer2 plus	2	NC Analyzer2		MC Monitor2
							NC Virtual Simulator*
							Operation monitoring and remote diagnostics
							NC Machine Tool Optimizer*
							iQ Care Remote 4U*
						t Dof	as to D1C as individual potalago fas datai

Refer to P.16 or individual catalogs for details

Customize the screen using

NC Designer2 and check its

operation using NC Trainer2 plus.

NC Trainer2 plus

....

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Machine design



[NC Servo Selection]

Edit PLC program with

of NC Trainer2 plus

NC Trainer2 plus

[NC Trainer2 Plus]

the PLC development tool

....

Input machining parameters to determine the optimum servo motor. This function automatically calculates spindle acceleration/ deceleration time and selects the optimum power supply module.

NC Designer2

NC Trainer2 plus supports customization 🔛

development. It helps to program and debug

the ladder programming of the user PLC that

is developed by machine tool builders and to

check the operations of customized screens.

Electrical circuitry design



[NC Designer2]

NC Designer2 provides a development environment where machine tool builders can customize screens easily. Two types of screen development methods are available: the interpreter method (programming without C++) for simple screen development and the compilation method with a complex controller (programming with C++).

[NC Compiler2]

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NC Compiler2 is required when the compilation method is used.

Machine assembly and adjustment



[NC Configurator2]

NC parameters required for NC control or machine operation can be edited on a computer.

It is also possible to create initial parameters simply by inputting the machine configuration.

Machine assembly and adjustment



Operation and maintenance



Application development support



This software provides a host of API functions. It facilitates the development of Windows applications that require connection and communication with Mitsubishi Electric CNC*. Its interface is common to all Mitsubishi Electric CNC models, for high development efficiency. * Compatible with Mitsubishi Electric CNCs after M700/M70.

[NC Analyzer2]

Servo parameters can be adjusted automatically by measuring and analyzing machine characteristics. Measurement and analysis can be performed by running a servo motor using the machining program for adjustment, or using the vibration signal. This function can sample various types of data.

[NC Trainer2]

This is an application for operating the CNC screen and machining programs on a computer without a CNC control unit or special display unit.

It can also be used for learning CNC operations and checking machining programs. The machining programs created on NC Trainer2/ NC Trainer2 plus can be used in actual CNCs.

[NC Explorer]

CNC machining data can be managed using Windows Explorer when the computer is connected to multiple CNCs via Ethernet.

[NC Monitor2]

Taking advantage of the connection with a factory network, CNC operation status can be monitored from remote locations. Several CNCs can be connected and monitored simultaneously.

[Mitsubishi Electric CNC Communication Software (FCSB1224W000)]











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WARRANTY

Please confirm the following product warranty details before using MITSUBISHI ELECTRIC CNC.

1.Warranty Period and Coverage

Should any fault or defect (hereafter called "failure") for which we are liable occur in this product during the warranty period, repair services shall be provided at no cost through the distributor from which the product was purchased or through a Mitsubishi Electric service provider. Note, however, that this does not apply if the customer was informed prior to purchasing the product that the product is not covered under warranty. Also note that we are not responsible for any on-site

readjustment and/or trial run that may be required after a defective unit is replaced.

[Warranty Term]

The term of warranty for this product shall be twenty-four (24) months from the date of delivery of the product to the end user, provided the product purchased from Mitsubishi Electric or a distributor in Japan is installed in Japan (but in no event longer than thirty (30) months, including distribution time after shipment from Mitsubishi Electric or a distributor).

Note that, in the case where the product purchased from Mitsubishi Electric or a distributor in or outside Japan is exported and installed in any country other than where it was purchased, please refer to "2. Service in Overseas Countries" below.

[Limitations]

- (1)The machine tool builder is requested to conduct an initial failure diagnosis, as a general rule. The diagnosis may also be carried out by Mitsubishi Electric or our service provider for a fee at the machine tool builder's request.
- (2)This warranty applies only when the conditions, method, environment, etc., of use are in compliance with the terms, conditions and instructions that are set forth in the instruction manual, user's manual, and the caution label affixed to the product, etc.
- (3)Even during the term of warranty, repair costs will be charged to the customer in the following cases:
- (a) a failure caused by improper storage or handling, carelessness or negligence, etc., or a failure caused by a problem with the customer's hardware or software

- (b) a failure caused by any alteration, etc., to the product made by the customer without Mitsubishi Electric's approval
- (c) a failure which could have been avoided if the customer's equipment in which this product is incorporated had been equipped with a safety device required by applicable laws or has any function or structure considered indispensable in the light of industrial common sense
- (d) a failure which could have been avoided if consumable parts designated in the instruction manual, etc. had been duly maintained and replaced
- (e) any replacement of consumable parts (including the battery, relay and fuse)
- (f) a failure caused by external factors such as inevitable accidents, including without limitation fire and abnormal fluctuation of voltage, and acts of God, including without limitation earthquakes, lightning, and natural disasters
- (g) a failure which could not have been foreseen under technologies available at the time of shipment of this product from Mitsubishi Electric
- (h) any other failures which are not attributable to Mitsubishi Electric or which the customer acknowledges are not attributable to Mitsubishi Electric

2.Service in Overseas Countries

If the customer installs a product purchased from Mitsubishi Electric in a machine or equipment and exports it to any country other than where it was purchased, the customer may sign a paid warranty contract with our local FA center.

This applies in the case where the product purchased from us in or outside Japan is exported and installed in any country other than where it was purchased.

For details please contact the distributor from which the product was purchased.

3.Exclusion of Responsibility for Compensation against Loss of Opportunity, Secondary Loss, etc.

Regardless of the gratis warranty term, Mitsubishi Electric shall not be liable for compensation for:

(1)Damage arising from any cause found not to

be the responsibility of Mitsubishi Electric.

- (2)Lost opportunity or lost profit incurred by the user due to a failure of a Mitsubishi Electric product.
- (3)Special damage or secondary damage, whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi Electric products.
- (4)Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

4. Changes in Product Specifications

Specifications shown in our catalogs, manuals or technical documents are subject to change without notice.

5.Product Application

- (1)For use of this product, applications should be those that will not result in a serious damage even if a failure or malfunction occurs in the product, and a backup or failsafe function should operate on an external system when any failure or malfunction occurs to the product.
- (2)Mitsubishi Electric CNC is designed and manufactured solely for applications to machine tools for industrial purposes. Do not use this product in applications other than those specified above, especially those which have substantial influence on public interest or which are expected to have significant influence on human lives or properties.

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Creating Solutions Together.







Low-voltage Power Distribution Products

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Compact and Modular Controllers

Servos, Motors and Inverters



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Numerical Control (NC)

Collaborat

Collaborative and Industrial Robots

Mitsubishi Electric's product lineup, from various controllers and drives to energy-saving devices and processing machines, all help you to automate your world. They are underpinned by software, innovative data monitoring, and modelling systems supported by advanced industrial networking and Edgecross IT/OT connectivity. Together with a worldwide partner ecosystem, Mitsubishi Electric factory automation (FA) has everything to make IoT and Digital Manufacturing a reality.

With a complete portfolio and comprehensive capabilities that combine synergies with diverse business units, Mitsubishi Electric provides a one-stop approach to how companies can tackle the shift to clean energy and energy conservation, carbon neutrality and sustainability, which are now a universal requirement of factories, buildings, and social infrastructure.

We at Mitsubishi Electric FA are your solution partners waiting to work with you as you take a step toward the realization of sustainable manufacturing and society through the application of automation. Let's automate the world together!

Automating the World





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Power Monitoring and Energy Saving Products



Visualization: HMIs



Processing machines: EDM, Lasers



Edge Computing Products



SCADA, analytics and simulation software





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Official Mitsubishi Electric Mechatronics YouTube account User support videos are available, including how to backup/restore data and replace batteries, and an introduction to our products and technologies.



To ensure proper use of the products listed in this catalog, please be sure to read the instruction manual prior to use.





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