EZMotion-NC E60/E68(ENGLISH) K-K02-5-C7023-F

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001(standards for quality assurance management systems)





Safety Warning

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





EZMotion-NC E60/E68 Series

EZMotion-NC 医多0/医多series

Simple, Fast, Reliable.

New model of high cost-effectiveness

New concept CNC system, created for the genuine realization of numerical control of ordinary machine tool.

Easy use and Excellent Performance
Mitsubishi CNC E60/E68: your trustworthy new
standard for numerical control system. The new
EZMotion-NC E60/E68 developed by Mitsubishi
based on the latest technology has an inbuilt
powerful 64-bit CPU, which can work with the
new generation servo system to realize excellent
speed and accuracy. Based on the world leading
hardware level, first class performance and high
speed is realized. The high efficiency is guaranteed to shorten processing time.

A wide range of functions: such as the customized screen, servo auto-tuning, synchronous tapping, Word editing, graphic tracing, PLC interface diagnosis and so on. The CASSETTE MEMORY can be used for the quick backup of all CNC data, which simplifies maintenance procedure. As all these functions improve the operability and observability, it is really your trustworthy and wise choice.

Efficient

Environmen

Economical





Excellent

- ■High performance CNC with 64-bit CPU
- ■Combining the new generation of servo-system MDS-R series
- ■Customized initial screen
- Compact servo motor and high resolution detector (131,072 pulses/rev.)
- ■Chinese (Simplified and Traditional), English,

Easy

- Using the auto-tuning to derive optimum machine characteristics
- ■Using the MELSEC PLC development tool (GX Developer to better the development process)
- Only a parameter setting is necessary to convert the functions between lathe and miller
- CASSETTE MEMORY hardware can be used for the quick backup of all CNC DATA, which simplifies the maintenance procedure

Economical

- The structure consists of the panel integrated CNC installation and the new generation of 2-axis servo drive unit (MDS-R series), greatly saving the space of the appliance cabinet of the machine
- Adopting analog output, making it possible to install an inverter as spindle

EZMotion-NC E68

Max. number of control axes: 8 (NC+Spindles+PLC+Auxiliary)

Max. number of NC axes: 4
Max. number of spindles: 2
Max. number of PLC axes: 2

Operation/display panel: 8.4-inch COLOR TFT

Minimum control unit: 0.1 µm

EZMotion-NC E60

Max. number of control axes: 5 (NC+Spindles+PLC+Auxiliary)

Max. number of NC axes: 3

Max. number of spindles: 1 (Standard: Analog, S-package: Serial)

Max. number of PLC axes:

Operation/display panel: 7.2-inch MONOCHROME LCD

Minimum control unit: 1μ n

Application

• Realize the numerical control of ordinary machine tool. • Most suitable for simple numerically controlled lathe and miller,

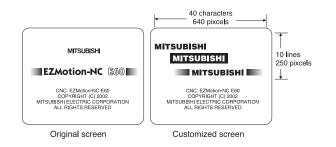
High performance CNC with 64-bit CPU

- 1. Using the latest assembly techniques to form two printed circuit boards, which consists of the NC main board and the memory board, to realize reliable functionality and display.
- 2. Higher reliability because of few components.



Customized initial screen

The power-on starting screen can be customized to meet the requirements of various customers. The picture can be created with drawing software, saved in bitmap format, and finally transmitted to CNC.



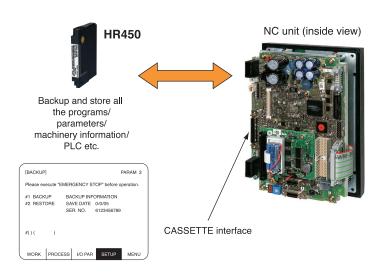
IC Card Interface (supported by E68)

IC card interface is available on the front of the communication terminal. NC program and other NC internal data can be saved in commercial memory cards.



All CNC DATA is stored in the **CASSETTE MEMORY hardware,** which simplifies maintenance procedure

Use CASSETTE MEMORY (HR450) to BACK UP the CNC DATA (used for setup by a machine tool builder)

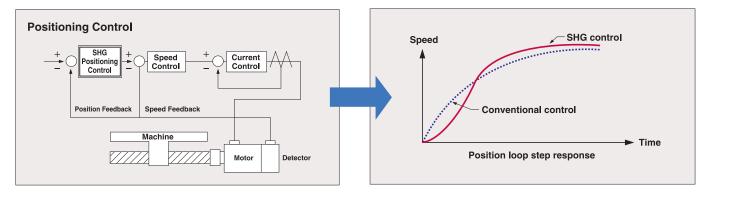


High-speed High-accuracy Machining can be Achieved in a Highly Efficient Style

Smooth High-Gain (SHG) control

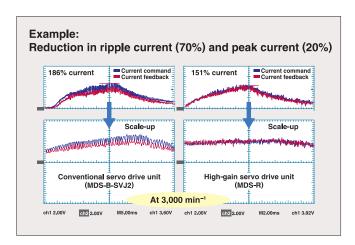
The fast-response and stable position loop control system allows very high-gain performance. Smooth acceleration is available without adding any filter to post-interpolation commands (no path deviation due to command filter).

- •A high-gain system has been established by developing a stable position loop control system that offers excellent response characteristics.
- •Smooth acceleration has been realized without the application of S-type or other filters after interpolation command (no locus errors due to command filter).



High Gain Servo Drive

MDS-R dramatically reduces the high frequency motor current ripple through the high response current control and the high frequency PWM control. MDS-R offers the industry's higher level of current control ability of the industry and improves machining accuracy in high-speed cutting. MDS-R has about twice as high current-abilities as conventional models.

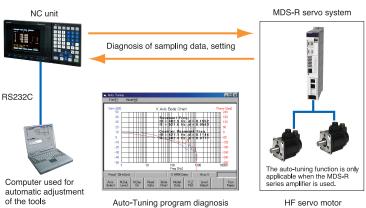


SERVO automatic tuning plan:

→Improving the stability to derive machine's optimum processing characteristics Enhancing the accuracy (by utilizing the mechanical resonance vibration filter adjustment)

Feature 1) Analysis of mechanical features (inertia cycle features)

Feature 2) Adjustment according to the analysis results of the mechanical features



HF servo motor

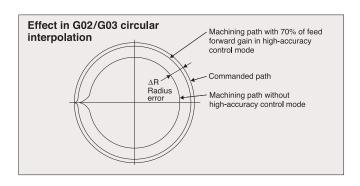
High-accuracy control functions (supported by E68 for Milling machine)

The following functions will help you eliminate delays in the control and servo systems.

Especially in high-speed machining, they realize further accurate machining and machining time reduction.

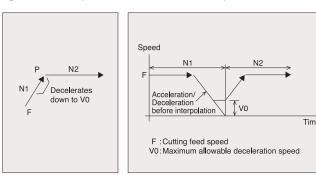
Acceleration/Deceleration before interpolation

By performing acceleration/deceleration before interpolation, the machining shape error can be eliminated with smoothing to achieve highly accurate path. In a circular command, the radius reduction error can be significantly minimized. Furthermore, owing to the feed forward control that is unique to this NC system, stable servo control is realized with extremely small servo error.



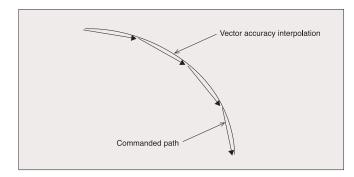
Optimum corner deceleration

By determining the command vector in the machining program and thereby performing corner deceleration, it is possible to machine workpiece with a high-edge accuracy. The figure on the right shows the pattern of the deceleration speed at the corners.



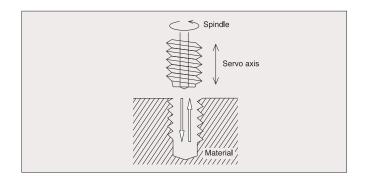
Vector accuracy interpolation

Even when the commanded path is quite smooth (interval between blocks is short, and corner angles are extremely small), interpolation will be applied to acquire further smooth path.



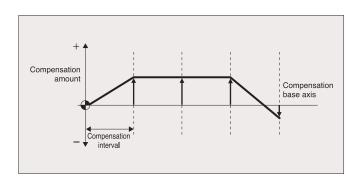
Synchronous tapping cycle

Complete synchronous control between spindle motor and servo motor will bring you highly accurate tapping.



Memory type pitch error compensation

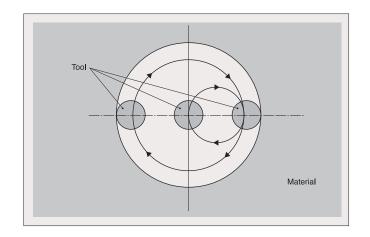
For further machine accuracy, mechanical error of feeding screw is compensated. You can save compensation interval and amount for each axis in the memory.



Circular cutting (supported by E68 for Milling machine,

E60 for Milling machine)

The tool departs from the center of the circle, and by cutting along the inside circumference of the circle, it draws a complete circle, then it returns to the center

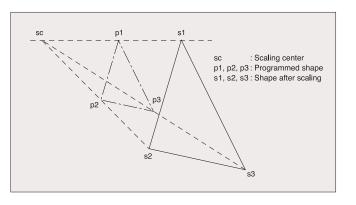


Scaling

of the circle.

(supported by E68 for Milling machine, E60 for Milling machine)

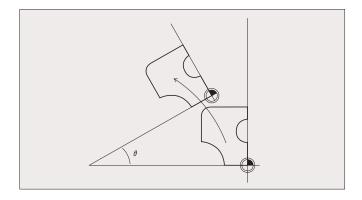
The shape commanded by the program can be extended or reduced to the desired size by applying a scale factor to the travel axis command value within the range assigned by the scaling command.



Coordinate rotation by program (supported by F68 for Milling machine

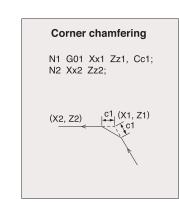
(supported by E68 for Milling machine, E60 for Milling machine)

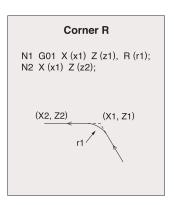
By designating a rotation angle in the program, actual machining will be performed on the rotated coordinate.



Corner chamfering/Corner R

At a corner, a commanded linear or arc will be automatically inserted between two travel blocks (G01/G02/G03).



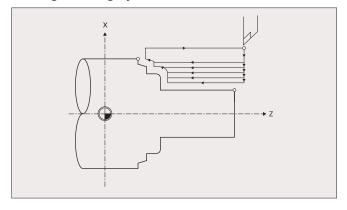


Compound type fixed cycle for turning machining

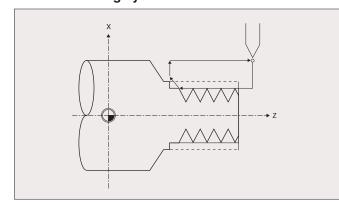
(supported by E68 for Lathe machine, E60 for Lathe machine)

With this function, you can easily command rough cutting or thread cutting that normally takes several blocks in turning machining. This function will help you have simple machining programs.

■ Rough cutting cycle

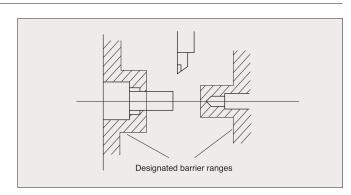


■ Thread cutting cycle



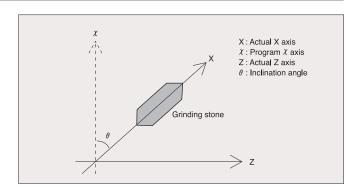
Chuck barrier and tail stock barrier check (supported by E68 for Lathe machine, E60 for Lathe machine)

By limiting the tool nose point travel range, this function prevents the tool from colliding with the chuck or tail stock because of a programming error. When a travel command exceeding the area set in a given parameter is programmed, the tool is stopped at the barrier boundaries.



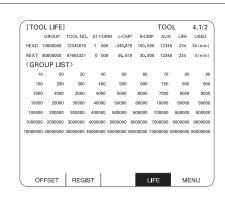
Inclined axis control (supported by E68 for Lathe machine, E60 for Lathe machine)

In the case such as grinding stone axis of a grinder, even when the angle of the control axis is other than 90°, you can program in the same way as in a rectangular axis. Inclination angle is set by the parameter, and the actual control will be applied by converting travel distance of each axis with the inclination angle.



Tool life management

To manage tools, amount of time and frequency of use of each tool will be accumulated. In addition, usable tools will be selected from a designated group of spare tools.



Greatly Improved Display Performance and Ease of Use Enhanced Operability and Viewability

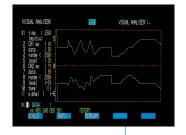
Coordinate Data Conversion

The displayed coordinate data can be converted into not only programming data, but also another coordinate data with workpiece coordinates or tool offset taken into account.



Waveform Display

Changes in spindle and servo conditions can be displayed by two channels simultaneously. Also, during synchronized tapping, deviations in main and tapping spindle positions (synchronization error) can be indicated in waveforms.



Word Editing

In addition to conventional editing functions, word-based program editing is now selectable. This function allows deletion, replacement, and insertion on a word basis, making programming much easier.



Graphic Tracing Function

This function enables graphic tracing with the tool path coordinate data, which reflect the workpiece coordinates and tool offset.



Buffer Modification

When a program error occurs during automatic or MDI operations, this function enables correction of the error block by a single blockhalt, and the operation to be restarted without resetting NC.



Interface Diagnosis

This display facilitates monitoring and setting of register data and various signals used in PLC.

User-friendly Programming Software makes Your System Development Very Simple and Easy

Mitsubishi MELSOFT is comprehensive FA software that is widely used in various FA stages (design, operation and maintenance).

Featuring a wide variety of functions and excellent operability, this software is compatible with all series of Mitsubishi MELSEC PLC to facilitate your system development.

MELSOFT

MELSEC-Like User-Friendly Operation

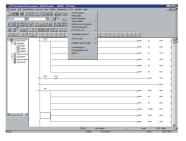
Ideal system development environments are available through the use of the user-friendly MELSEC programming tool MELSOFT, ranging from specification examination to daily data collection.



GX Developer

Compatible with Windows 95/98/2000/NT4.0/Me, this tool allows easy design and debugging through user-friendly Windows applications. If it is used with Simulator or various other utilities, programming efficiency will be further increased.

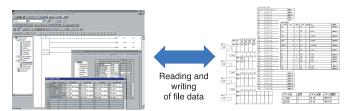
There are some limitations of available commands with MELDAS. For the details, refer to the instruction manual.



GX Converter

Enables Excel (CSV) and text file data to be used for GX Developer. Also, converts command lists and device comments edited with GX Developer into Excel data or text format. Windows and Excel are trademarks of Microsoft (U.S.A) registered in U.S.A.

Windows and Excel are trademarks of Microsoft (U.S.A) registered in U.S.A. and other countries.



PLC On-board

PLC ladder editing and monitoring can be done with the Communication Terminal increasing efficiency in debugging and maintenance.



System Configuration



Drive System

High Cost-Performance Servo Drive MDS-R Series

- Excellent cost-performance is achieved by adopting resistance regeneration type and 2-axis-integrated servo drive.
- High-speed current control (High-gain control I) and Smooth high-gain (SHG) control contribute to high-speed high-accuracy machining.



MDS-R

Small-Capacity, Compact Servo/Spindle Drive MDS-B-SVJ2/SPJ2 Series

- Ultra-compact drive unit, which has built-in power supply, contributes to the reduction in size of control panels.
- The height is 168mm for 0.1 to 2kW servo and 0.2 to 3.7kW spindle units.
- The height is 250mm for 5.5 to 7.5kW spindle units.
- The height is 380mm for 11kW spindle unit.
- Smooth high-gain (SHG) control contributes to high-speed high-accuracy machining.





MDS-B-SVJ2

MDS-B-SPJ2

Servo Motor for Basic Feed Axis

HF Series (supported by MDS-R Series)

- Medium-inertia, high-accuracy and high-speed servo motor
- Accuracy of a high-inertia machine ensured. Optimal for a machine with high acceleration.
- ●Lineup: 0.5 to 3.5kW
- Maximum rotation speed: 3,000r/min
- Adaptable to the detector at 1 million P/rev

HC Series (supported by MDS-B-SVJ2)

- Medium-inertia and high-accuracy servo motor
- Optimal for ensuring the accuracy of a machine with high-inertia.
- ●Lineup: 0.5 to 3.5kW
- Maximum rotation speed: 3,000r/min
- Adaptable to the standard detector at 0.1 million P/rev



High-efficiency Spindle Motor SJ-P/PF Series

We offer you a broad lineup to support various types of machine tools.

Lineup

- Small capacity and compact SJ-P series: 0.2 to 3.7kW
- ●Compact SJ-PF series: 0.75 to 11kW



Servo Drive with Built-in Indexing Function MR-J2-CT Series

With built-in index/positioning functions, this unit can be applied to turret indexing or tool magazine indexing.



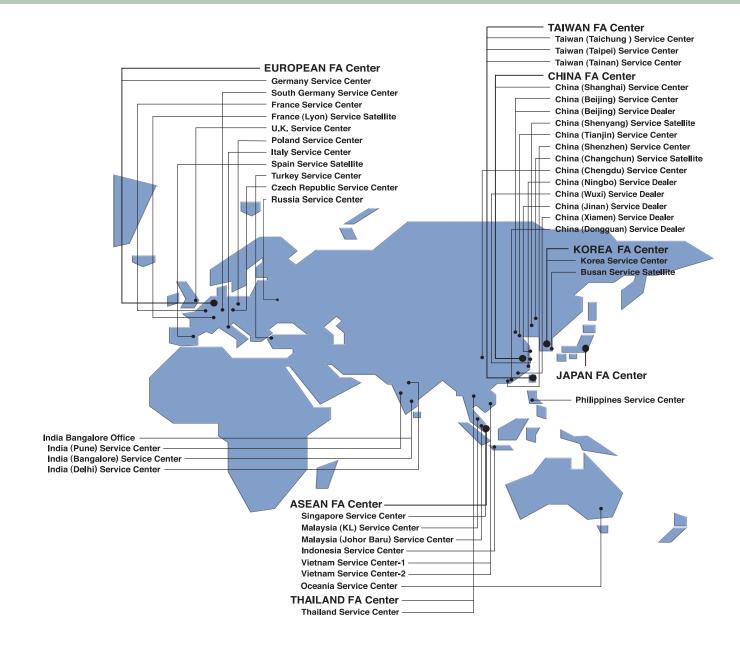
Servo Motor for Auxiliary Axis

		-		
Model name	Type name	Lineup	Max. speed	Detector
Ultra-low-inertia small-capacity	HC-MF	0.05 to 0.75kW	4500 r/min	16384P/rev
Low-inertia small-capacity	HA-FF	0.05 to 0.6kW	4000 r/min	8192P/rev
Low-inertia medium-capacity	HC-RF	1 to 2kW	4500 r/min	16384P/rev
Medium-inertia medium-capacity	HC-SF	0.5 to 3.5kW	3000 r/min	16384P/rev

System Specifications

		E60		E68		
		Lathe machine	Milling machine	Lathe machine	Milling machine	
Maximum number of control axes		5	5	8	8	
Maximum number of NC axes		2 (X, Z)	3 (X, Y, Z)	2 (X, Z)	3 (X, Y, Z)	
Maximum number of spindles		1 (Standard: Analog) (S-Package: Serial)		2 (Serial)		
Maximum number of PLC axes		1		2		
Auxiliary axes (MR-J2-CT)		1		4		
Maximum number of systems		1				
Number of simultaneous contouring control axes		3		4		
Minimum control unit		1 <i>µ</i> m		1μm 0.1μm (option)		
Built-in PLC capacity (number of steps)		4000		6000 16000 (option)		
PLC development tools		GX Developer (MELSEC development tools)				
Program memory capacity		600m/400 programs (equivalent to 236,000 words)				
Display		7.2-inch monochrome LCD		8.4-inch color TFT		
Drive motor capacity	Servo motor capacity	0.5 to 3.5kW				
	Spindle motor capacity	0.2 to 11kW (E68, E60 S-package)				
Maximum number of inputs/outputs	Machine input/output	256/240 point (one analog output)		256/240 point (one analog output) 256/256 point		
	Operation board	128/128 point				
Analog output points	for inverter	1		1		

Overseas Service Network



■ AMERICA FA Center (MITSUBISHI ELECTRIC AUTOMATION INC.)
Illinois Service Center
500 CORPORATE WOODS PARKWAY, VERNON HILLS, ILLINOIS, 60061 U.S.A.
TEL: 41-847-478-2500 / FAX: 41-847-478-2650

East Michigan Service Satellite

West Michigan Service Satellite

Ohio Service Satellite

Minnesota Service Satellite

New Jersey Service Center VANTAGE COURT SOUTH, 200 COTTONTAIL LANE, SOMERSET, NEW JERSEY, 08873, U.S.A. TEL: +1-732-560-4500 / FAX: +1-732-560-4531

West Pennsylvania Service Satellite

Georgia Service Center 2810 PREMIERE PARKWAY SUITE 400, DULUTH, GEORGIA, 30097, U.S.A. TEL: +1-678-258-4529 / FAX: +1-678-258-4519

North Texas Service Satellite

South Texas Service Satellite

Central Florida Service Satellite

California Service Center 5665 PLAZA DRIVE, CYPRESS, CALIFORNIA, 90630, U.S.A. TEL: +1-714-220-4796 / FAX: +1-714-229-3818

Canada Service Center 4299 14th AVENUE, MARKHAM, ONTARIO, L3R OJ2, CANADA TEL: +1-905-475-7728 / FAX: +1-905-475-7935

Mexico Service Center
MARIANO ESCOBEDO No.69, FRACC INDUSTRIAL, TLALNEPANTLA, 54030,
EDO. DE MEXICO, MEXICO
TEL: +92-55-9171-7662 / FAX: +52-55-9171-7649

Monterrey Service Satellite TEL: +52-81-8365-4171 / FAX: +52-55-9171-4649

Brazil Service Center ACESSO JOSE SARTORELLI, KM 2.1, CEP 18550-000, BOITUVA-SP BRAZIL TEL: +55-15-3363-9900 / FAX: +55-15-3363-9911

Brazil (Caxias) Service Satellite TFL: +55-15-3363-9900 / FAX: +55-15-3363-9911

■ EUROPEAN FA Center (MITSUBISHI ELECTRIC EUROPE B.V.)
GOTHAER STRASSE 10, 40880 RATINGEN GERMANY
TEL: +49-2102-486-1850 / FAX: +49-2102-486-5910

Germany Service Center GOTHAER STRASSE 10, 40880 RATINGEN GERMANY TEL: +49-2102-486-1850 / FAX: +49-2102-486-5910

South Germany Service Center KURZE STRASSE 40, 376 FLOOR, 70794 FILDERSTADT, GERMANY TEL: +49-711-3270-010 / FAX: +49-711-3270-0141

U.K. Service Center
TRAVELLERS LANE, HATFIELLD, HERTFORDSHIRE AL10 8XB, U.K.
TEL: +44-1707-28-2846 / FAX: +44-1707-27-8992

France Service Center
25, BOULEVARD DES BOUVETS, 92741 NANTERRE CEDEX FRANCE
TEL: +33-1-41-02-83-20 / FAX: +33-1-49-01-07-25

France (Lyon) Service Sattelite TEL: +33-1-41-02-83-20 / FAX: +33-1-49-01-07-25

Italy Service Center
VAILE COLLEONI 7-PALAZZO SIRIO CENTRO DIREZIONALE
COLLEONI 20041 AGRATE BRIANZA (MI) ITALY
TEL: +39-039-6053-342 / FAX: +39-039-6053-206

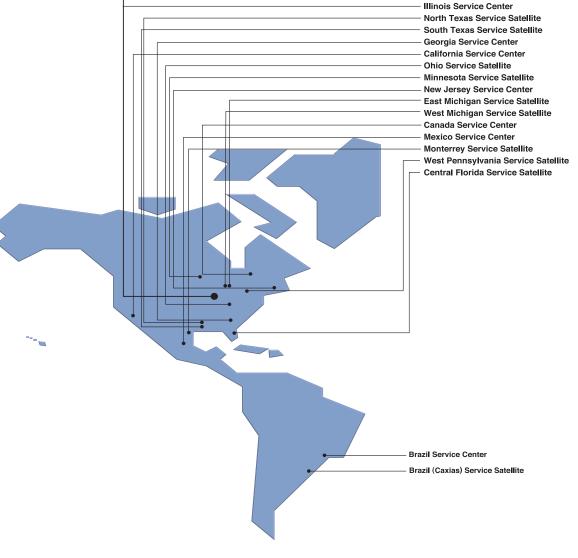
Poland Service Center UL SLICZNA 36, 31-444 KRAKOW, POLAND TEL: +48-12-632-28-85 / FAX: +48-12-632-47-82

Spain Service Satellite CTRA. DE RUBI, 76-80-APDO. 420, 08190 SANT CUIGAT DEL VALLES (BARCELONA) SPAIN TEL: +34-935-65-2236 / FAX: +34-935-89-1579

Turkey Service Center
DARULACEZE CAD. FAMAS IS MERKEZI A BLOCK NO.43 KAT: 2 80270 OKMEYDANI
STANBUL, TURKEY
TEL: +90-212-320-1640 / FAX: +90-212-320-1649

Czech Republic Service Center
JELINKOVA 59/3, 721 00 OSTRAVA-SVINOV, CZECH REPUBLIC
TEL: +420-59-5691-185 / FAX: +420-59-5691-199

Russia Service Center 213, B.NOVODMITROVSKAYA Str., 14/2 MOSCOW, RUSSIA TEL: +7-495-748-01-91 / FAX: +7-495-748-01-92



■ ASEAN FA Center (MITSUBISHI ELECTRIC ASIA PTE., LTD)
Singapore Service Center
307 ALEXANDRA ROAD #05-01/02 MITSUBISHI ELECTRIC BUILDING SINGAPORE 159943
TEL: +65-6473-2208 / FAX: +65-6476-7439

India Bangalore Office
FIRST & SECOND FLOOR, AVR BASE, MUNICIPAL No.BC-308,
HENNUR BANAWADI ROAD, HRBR RING ROAD, BANGALORE-560043, INDIA
TEL: +91-80-40220-1600-698 / FAX: +91-80-4020-1699

India (Pune) Service Center EL-3, J BLOCK, M.I.D.C. BHOSARI, PUNE -411 026, INDIA TEL: +91-20-2710-2181 / 2184 / FAX: +91-20-2710-2185

India (Bangalore) Service Center TEL: +91-80-4173-2592 / 2564

India (Delhi) Service Center TEL: +91-11-2921-6128, 2922-6129

Malaysia (KL) Service Center 60 JALAN USJ 10 /1B, 47620 UEP SUBANG JAYA, SELANGOR DARUL EHSAN, MALAYSIA TEL::+60-3-5631-7605 / FAX:+60-3-5631-7636

Malaysia (Johor Baru) Service Center NO. 16, JALAN SHAHBANDAR 1, TAMAN UNGKU TUN AMINAH, 81300 SKUDAI, JOHOR, MALAYSIA TEL: +607-557-8218 / FAX: +607-557-3404

Indonesia Service Center
WISMA NUSANTARA 14th FLOOR, JL. M.H. THAMRIN 59, JAKARTA 10350 INDONESIA
TEL: +622-1-3917-144 / FAX: +62-21-3917-164 Philippines Service Center
UNIT No.411, ALABAMG CORPORATE CENTER KM. 25. WEST SERVICE ROAD
SOUTH SUPERHIGHWAY, ALABAMG MUNTINLUPA METRO MANILA, PHILIPPINES 1771
TEL: +63-2-807-2416 / FAX: +63-2-807-2417

Vietnam Service Center-1 47-49 HOANG SA ST, DAKAO WARD, DIST. 1, HO CHI MINH CITY, VIETNAM TEL: 848-8910-4763 / FAX: +84-8-910-2593

Vietnam Service Center-2
THUAN KIEU PLAZA 190 HONG BANG ROAD, TOWER C, SUITE 3002 DIST.5,
HO CHI MINH CITY, VIETNAM
TEL: +84-8-955-8925 / FAX: +84-8-955-8926

Oceania Service Center MITSUBISHI ELECTRIC AUSTRALIA PTY, LTD, 348 VICTORIA ROAD, RYDALMERE, N.S.W. 2116 AUSTRALIA TEL: -61-2-9684-7269 / FAX: +61-2-9684-7245

■ THAILAND FA Center (MITSUBISHI ELECTRIC AUTOMATION (THAILAND) CO., LTD.)
BANG-CHAN INDUSTRIAL ESTATE No. 111, SOI SERITHAI 54,
T.KANNAYAO, AKANNAYAO, BANGKOK 10230, THAILAND
TEL: 466-2906-8255 / FAX: +66-2906-3239

Thailand Service Center 896/19,20,21,22 SV. CITY BUILDING, OFFICE TOWER 1 FLOOR 7,12,14 RAMA<u>II</u> RD., BANGPONGPANG, YANNAWA, BANGKOK 10120, THAILAND TEL: +66-2682-6522 / FAX: +66-2682-9750

■ CHINA FA Center (MITSUBISHI ELECTRIC AUTOMATION (SHANGHAI) LTD.) China (Shanghai) Service Center 4/F., ZH IFU PLAZA, No. 80 XIN CHANG ROAD, HUANG PU DISTRICT, SHANGHAI 200003, CHINA TEL: +86-21-6120-0080 / FAX: +86-21-6494-0178

China (Ningbo) Service Dealer

China (Wuxi) Service Dealer

AMERICA FA Center

China (Jinan) Service Dealer

China (Beijing) Service Center
9/F, OFFICE TOWER1, HENDERSON CENTER, 18 JIANGUOMENNEI DAJIE,
DONGCHENG DISTRICT, BEIJING 100005, CHINA
TEL: +86-10-6518-8830 / FAX: +86-10-6518-3907

China (Beijing) Service Dealer

China (Tianjin) Service Center B-2 801/802, YOUYI BUILDING, No.50 YOUYI ROAD, HEXI DISTRICT, TIANJIN 300061, CHINA TEL: +86-22-2813-1015 / FAX: +86-22-2813-1017

China (Shenyang) Service Satellite

China (Changchun) Service Satellite

China (Chengdu) Service Center BLOCK B-1, 23F, CHUAN XIN MANSION, 18 SECTION 2, RENMIN ROAD SOUTH, CHENGDU, SICHUAN, 610016, CHINA TEL: +86-28-8619-9730 / FAX: +86-28-8619-9805

China (Shenzhen) Service Center RM02, UNIT A, 13/F, TIANAN INTERNATIONAL BUILDING, RENMIN ROAD SOUTH, SHENZHEN 518005, CHINA TEL: +86-755-2515-6691 / FAX: +86-755-8229-3686

China (Xiamen) Service Dealer

China (Dongguan) Service Dealer

■ KOREA FA Center (MITSUBISHI ELECTRIC AUTOMATION KOREA CO., LTD.)
Korea Service Center
1480-6, GAYANG-DONG, GANGSEO-GU, SEOUL 157-200 KOREA
TEL: +82-2-3663-0473 / FAX: +82-2-3663-0475

Busan Service Satellite

■ TAİWAN FA Center (MİTSUBİSHİ ELECTRİC TAİWAN CO., LTD.)

Talwan (Talchung) Service Center No.8, GONG YEH 16TH RIJ, TAICHUNG INDUSTRIAL PARK TAICHUNG CITY, TAIWAN TEIL: +886-4-2359-0688 / FAX: +886-4-2359-0689

Taiwan (Taipei) Service Center 3TH. FLOOR, No.122 WUKUNG 2ND RD., WU-KU HSIANG, TAIPEI HSIEN, TAIWAN TEL: +3862-2299-2205 / FAX: +386-2-2298-1909

Taiwan (Tainan) Service Center 2F (C), 1-1, CHUNGHWA-RD, YONGKANG CITY, TAINAN HSIEN, TAIWAN TEL: +3866-6-313-9600 / FAX: +486-6-313-7713