This solution solves customers’ issues and concerns by enabling visualization and analysis that lead to improvements and increase availability at production sites.

Utilizing our FA and IT technologies and collaborating with e-F@ctory Alliance partners, we reduce the total cost across the entire supply chain and engineering chain, and support the improvement initiatives and one-step-ahead manufacturing of our customers.

Overall production information is captured in addition to energy information, enabling the realization of efficient production and energy use (energy savings).
To realize e-F@ctory®

e-F@ctory is a FA integrated solution based on the concept of reducing total cost across the board, from development and production to maintenance. It supports the future of manufacturing by optimizing factory operations utilizing advanced technologies and information. The foundation of e-F@ctory is the FA integrated platform, iQ Platform. iQ Platform integrates and links the controllers and HMI that control production systems, engineering environments and networks. It contributes to cost reductions throughout all phases of manufacturing, from design to launch, operation, and maintenance. Mitsubishi Electric optimizes its customers’ systems with leading technologies and solutions that will continue to support the future of manufacturing.

**Controllers and HMI**

**Improves productivity and product quality**

- Significantly improves total system performance through the high-speed performance of MELSEC Series system buses
- Equipped with dedicated FB and label memory necessary for program standardization
- Equipped with a robust integrated security function

**Engineering environment**

**Achieves efficient development, operation, and maintenance**

- Detect and generate large-scale network configuration diagrams from the actual machine
- Mutual parameter reflection between MELSOFT Navigator and individual engineering software programs
- Automatically follows changes to system label devices commonly owned by each controller and HMI

**Networks**

**Reduce loss with high accuracy and production speed**

- Utilizing CC-Link IE, 1 Gbps high-speed communication retrieval with no loss
- Seamless communication between each device using SLMP

**CC-Link IE**

Integration of all functions required in control applications such as a high-speed, large-volume, enhanced diagnosis function, and the unification of general I/O control/motion functions and a safety communication function. Also achieves improved productivity, quality and energy savings through the utilization of IT, real-time collection of data from the production floor-necessary for reducing TCO-as well as seamless integration with IT systems. By linking each component with CC-Link IE, the customer's overall system is optimized, and TCO can be reduced across all phases, from development to production and maintenance.

**Delivering networks made in Japan to the world -CC-Link Partner Association**

CC-Link is an open field network made in Japan. The CC-Link Partner Association (CLPA) is expanding its global activities to promote CC-Link. These activities, including exhibitions in and outside Japan, are coming to fruition. CC-Link is now certified as a standard by the ISO and the IEC, international standardization management organizations. CC-Link is growing to become a genuine world-standard network. Moreover, supporting the need to optimize entire systems, the CLPA has introduced CC-Link IE, an integrated network based on the Ethernet that enables the expansion of seamless communications from upstream information systems to production sites. As one of the board companies of the CLPA, Mitsubishi Electric is cooperating with CLPA partners in and outside Japan to actively promote CC-Link.

*Ethernet is a trademark of Xerox Corporation.*
Mitsubishi Electric’s Nagoya Works has some e-F@ctory model factories within the premises of the Works, enabling the actual effects of improving productivity and equipment operating ratio to be examined. Please see for yourself how e-F@ctory is being used Mitsubishi Electric factories.

### Example of operation management/energy conservation/work support system introduction: Nagoya Works, E4 Building: Programmable controller manufacturing factory

<table>
<thead>
<tr>
<th>Aim of introduction</th>
<th>Examples of introduction</th>
<th>Results of introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stabilization of operating ratio by reducing the installation of incorrect parts</td>
<td>Introduction of a surface-mounting operation management system utilizing C-language controllers</td>
<td>30% reduction in energy cost</td>
</tr>
<tr>
<td>Reduction of time taken for failure analysis</td>
<td>Introduction of a work instruction system based on HMI screens</td>
<td>30% reduction in quality</td>
</tr>
<tr>
<td>Alleviation of burden on experienced operators who provide guidance</td>
<td>Introduction of an energy conservation system for AC/lighting using programmable controllers</td>
<td>50% increase in productivity</td>
</tr>
<tr>
<td>Safety countermeasures for operators who perform loading/unloading work</td>
<td>Introduction of a vertical conveyance system using safety programmable controllers</td>
<td>30% reduction in energy cost</td>
</tr>
</tbody>
</table>

### Example of quality control on assembly line: Nagoya Works, W3 Building: Servo motor manufacturing factory

<table>
<thead>
<tr>
<th>Aim of introduction</th>
<th>Examples of introduction</th>
<th>Results of introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response to varying demand and high-mix, variable production</td>
<td>Direct collection of information inside equipment from the MES interface (programmable controller)</td>
<td>50% reduction in lead-time</td>
</tr>
<tr>
<td>Improvement of equipment operating ratio and quality</td>
<td>Strengthen information management through direct connection of equipment with the manufacturing execution system (MES) and conducting various improvement activities</td>
<td>50% reduction in quality loss</td>
</tr>
</tbody>
</table>

### Example of productivity improvement through AI robot introduction: Nagoya Works, Kani Factory: Magnetic Motor Starters manufacturing factory

<table>
<thead>
<tr>
<th>Aim of introduction</th>
<th>Examples of introduction</th>
<th>Results of introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve operating ratio of lines with a high number of processes</td>
<td>Introduction of a robot production system that fuses people and machines</td>
<td>65% increase in productivity</td>
</tr>
<tr>
<td>Support high-mix, low-volume, high-cycle production</td>
<td>Uniform management of quality and equipment information by utilizing e-F@ctory</td>
<td>30% increase in number of processes</td>
</tr>
<tr>
<td>Reduce equipment installation area</td>
<td>Collection and management (traceability) of product data (barcodes) and quality (inspection) data for each machine</td>
<td>65% decrease in installation rate</td>
</tr>
<tr>
<td></td>
<td>Utilization of robot intelligent technologies (assembly/inspection using force sensors)</td>
<td>60% increase in operating ratio</td>
</tr>
</tbody>
</table>

### Example of productivity improvement of shaft processing line through introduction of e-F@ctory: Nagoya Works, Shinshiro factory: 3-phase motor manufacturing factory

<table>
<thead>
<tr>
<th>Aim of introduction</th>
<th>Examples of introduction</th>
<th>Results of introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve line balance by reducing grinding time of bottleneck processes</td>
<td>Manage production information through introduction of e-F@ctory</td>
<td>30% reduction in processing time</td>
</tr>
<tr>
<td></td>
<td>Automatic work instructions to the processing lines based on information from the upper production management server</td>
<td>30% increase in productivity</td>
</tr>
<tr>
<td></td>
<td>Expand unmanned operation through planned set-up changeover and improve productivity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A grinder-free system utilizing a C-language controller</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Automatically calculating the offset value of the lathe from the automatically calculated outer-diameter dimensions and achieving stable finishing on the lathe</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant reduction of cycle time through the abolishment of the shaft rotor grinding process</td>
<td></td>
</tr>
</tbody>
</table>
Mobile Showroom for Robot products

Programmable Controller /Indicator

The Mobile Showroom is equipped with our latest line-up of Mitsubishi FA products, and is available across the entire country to introduce our products to customers. Even without our customers coming to meet us or securing a meeting room, we can quickly hold an exhibition in a single corner of a customer’s parking lot. By all means, if you are interested, please let us know.

We are available anywhere throughout the country.

*Our product warranty is valid for 3 years after the date of customer purchase or the date of delivery to your designated location (within 42 months of manufacturing and with up to a six month circulation period after shipping from our manufacturer).

Additionally, the coverage of this warranty will be determined by our company internal regulations.
Mobile Showroom for Robot products

The Mobile Showroom is equipped with our latest line-up of Mitsubishi FA products, and is available across the entire country to introduce our products to customers. Even without our customers coming to meet us or securing a meeting room, we can quickly hold an exhibition in a single corner of a customer’s parking lot. By all means, if you are interested, please let us know. We are available anywhere throughout the country.

WEB

Our downloadable catalogs and manuals, etc. are made even easier to use with the refining and search functions. Additionally, you can quickly download even large amounts of data.

Easier to see, easier to use, and easier to understand!

In addition to our Mitsubishi electrical products we provide a variety of useful information regarding partner company’s products and services, and now each of our services is even easier to use.

Refine conditions for a significant power-up in search functions

Our downloadable catalogs and manuals, etc. are made even easier to use with the refining and search functions. Additionally, you can quickly download even large amounts of data.
In addition to support sites and Japanese language contacts in all over the world, phrase books, glossaries, etc are available in every language.

From the “Worldwide” link on the upper right of the page, you can easily access the global FA site. On the global page, in addition to products that can be purchased globally, you can also check-out various regional services, such as regional product information and international language catalogs and manuals. By all means, please make use of these services when expanding your business overseas.
In the office, out of the office, and in your own home — You can attend the Mitsubishi FA Equipment Usage e-Learning sessions for free from anywhere.

**e-Learning tools**

E-Learning is available with many language.

Languages: English, Chinese, Korean, Thai, Indonesian, Vietnamese, Malay, Portuguese (South American), Spanish (Central and South American), Turkish, Hindi.


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**Effective multi-media learning**

- You can understand deeply with animations and videos.
- You can operate programming software with simulator.

---

Access directly from the following URL.

http://www.mitsubishielectric.com/fa/assist/e-learning/index.html
Equipment System Migration in 3 Steps

Mitsubishi Electric will propose a variety of products and functions based on various keywords to eliminate concerns of customers.

**Step 1**
- [Stable operation] [Extension of equipment service life] [Preventive maintenance]
  - Selecting the proper latest model
  - Downsizing and space saving
  - Replacing existing products manufactured by other companies with Mitsubishi products
  - Improving the maintainability

- Utilizing the software assets and resources
- Improving the operability
- Step-by-step migration
- Preventive maintenance realized by migration

**Step 2**
- [Productivity improvement]
  - High-speed, high-accuracy control
  - Smart wiring
  - High-speed, large-capacity communication
  - Networking

**Control equipment**
- Mitsubishi PLCs
  - MELSEC iQ-R
  - MELSEC iQ-F
  - MELSEC-L mini

- Mitsubishi micro PLCs
  - MELSERVO
  - GOT2000 Graphic Operation Terminals

**Drive equipment**
- Mitsubishi AC servos
  - MELSERVO

- Mitsubishi inverters
  - MELSERVO

Not only various functions, high speed, large capacity and extensive networking but also top class reliability are proved by long-term actual achievements.
Migration has realized energy-saving and environment friendly.

Losses in the maintenance work reduced by adopting one manufacturer for various equipment!

Data can be acquired and analyzed quickly!

Automated production expanded, and the efficiency improved.

The productivity and quality are improved using the existing equipment!

---

Preventive maintenance and product life

There are two concepts of preventive maintenance.

**Daily maintenance and inspection (Visual inspection)**
- Indicator lamps (in the equipment main body, devices and units)
- Equipment mounting status
- Cable connection status

**Periodic maintenance and inspection (Visual inspection)**
- Maintenance of electrical equipment
- Ambient environment
- Checking stored programs

---

Product life

Mitsubishi Electric recommends 10 years as the service life of FA equipment.

Replacing a unit whose service life is expired

Even if a unit is operating normally, the failure rate is high because each part is worn out and damages (related to the power ON time, surge, etc.) are accumulated.

Mitsubishi Electric recommends overhaul maintenance of FA equipment in 5 years since the start of operation.

- Maintenance of units (to prevent short-circuit by removing dust and adhering substances)
- Replacement of parts requiring periodic replacement (such as fuses, batteries and memory cards)
- Overhaul of units incorporating parts having limited service life*

*Aluminum electrolytic capacitors, fuses, relays, etc.

---

[Quality improvement]

**Promotion of energy saving**

- Standardizing the maintenance tool
- Utilizing the GOT
- Quick recovery from machine alarms
- Supporting and implementing energy saving

Mitsubishi Electric’s motor control technology is advancing everyday. Mitsubishi drive equipment contribute to the realization of not only high functions and high performance but also energy saving.

Mitsubishi industrial robots

MELFA

---

[Visualization] [Automation]

**Safety and security measures**

- Acquiring, judging and analyzing data
- Image recognition inspection
- Automating inspections and judgments
- Safety control equipment

Mitsubishi Electric supports stable supply of electric power with its wide variety of products in the distribution control field, and proposes aggressive energy saving achieved by migration.

---

Distribution control equipment

Mitsubishi low-voltage distribution control equipment

Mitsubishi industrial robots

MELFA

Mitsubishi Electric supports stable supply of electric power with its wide variety of products in the distribution control field, and proposes aggressive energy saving achieved by migration.

---

Customer

Sales representative

Mitsubishi Electric will support migration of equipment for the customer in cooperation with the sales representative.
Mitsubishi PLCs

How is the current status of the existing PLC?

- Components from different brands are installed in the equipment which is making maintenance troublesome.

[Concerns about the existing equipment]

The equipment is working fine, but is getting old.

We would like to upgrade but the performance has reached the limit.

Components from different brands are installed in the equipment which is making maintenance troublesome.

[Concerns for migrating]

- Need to keep the equipment running.
- Don’t know to which product to migrate to.
- Can’t read out the existing programs.

Mitsubishi Electric offers various tools for replacement with latest models.

Mitsubishi Electric

A to Q migration catalogs and case examples

MELSEC-A Series Transition Guide

MELSEC-A Series Transition Examples

[Benefits of migration]

- A to Q program replacement!
  - Existing programs can be automatically converted into Q programs using “PLC Type Change” in GX Developer (also included with GX Works2).
  - By converting both an existing program and a converted program into “Q program containing differences between two programs” using the A to Q conversion support tool (which can be downloaded free of charge), the correction efficiency is considerably improved.

A to Q hardware replacement!
- The hardware can be replaced without changing the size and location.

For example

A/Q\nA (large type), A2C, AnS (small type), AOJ2(H)

A/Q\nA (large type)

Q\nseries large type base unit

Q Series standard power supply module and CPU module

Q series large type blank cover

Q series large type I/O module

Wired terminal block of existing I/O module

Various tools are available to migrate to the latest products.

For example

A→Q conversion support tool

* The AOJ2 conversion support function is added in the tool (Ver. 1.09 or later).
Migrate to the latest Mitsubishi PLCs!!

Mitsubishi supports migration with various tools and accumulated know-how.

Mitsubishi PLCs

![Mitsubishi PLCs](image)

**Partner manufacturers**

A to Q migration tool catalogs

- Mitsubishi Electric Engineering Co., Ltd.
- Mitsubishi Electric System & Service Co., Ltd.

Tools to easily migrate from A series to Q series available.

**Benefits of migration**

- 3 year warranty!
- Easy connection with multiple communication ports!
- High speed and large capacity CPU!
- Improve efficiency with various convenient instructions!
- Abundant lineup enables selection of product suitable for the required specifications.
- The control panel can be downsized.
- Enhanced program security function!

**Network replacement!**

Mitsubishi data link system “MELSECNET” can be replaced in various methods.

**[For example]**

- Existing system
- System being transferred
- System in which replacement is completed

Mitsubishi supports migration with various tools and accumulated know-how.

- The hardware can be replaced without changing the size and location.
- Tools to easily migrate from A series to Q series available.
Mitsubishi Micro PLCs

How is the current status of the existing PLC?

Mitsubishi micro PLCs

- F1, F1J, F2, FX1, FX2, FX2C, FX3, FX3S, FX2N, FX1S, FX1N, FX1NC, FX2N, FX2NC

[Concerns about the existing equipment]

- The equipment is working fine, but is getting old.
- We would like to upgrade but the performance has reached the limit.
- Components from different brands are installed in the equipment which is making maintenance troublesome.

[Concerns for migrating]

- Need to keep the equipment running.
- Don’t know to which product to migrate to.
- Can’t read out the existing programs.

Mitsubishi Electric can eliminate these concerns!

Mitsubishi Electric offers various tools for replacement with latest models.

Migration catalog

- FX Migration Guide

The combination “FX-20P + FX-20P-FKIT” is available.

The F (F1, F1J, F2) series can be replaced by the FX series while reading out existing programs using the combination “FX-20P + FX-20P-FKIT.” After existing programs are transferred to the FX series, they can be corrected and debugged using GX Works2.

* Contact your local dealer.

Discontinued
September 2015

Discontinued
December 2015

Concerns for migrating

- Need to keep the equipment running.
- Don’t know to which product to migrate to.
- Can’t read out the existing programs.
Micro PLCs are downsized compared to legacy models, and can fit into the existing space. Programs can be replaced with FX-20P-FKIT for F series or with GX Works2 for FX series.

Mitsubishi micro PLCs

**MELSEC iQ-F series**

**F (F 1 , F 1J , F 2 ) series replacement!**

Legacy FX series program can be transferred to the latest product by using PC type change function of GX Works2.

**MELSEC-F series**

**Legacy FX series replacement!**

Legacy FX series program can be transferred to the latest product by using PC type change function of GX Works2.

**3 year warranty!**

**Easy connection with multiple communication ports!**

**Expansion boards enable expansion at low cost!**

**Convenient built-in functions enable system configuration at low cost!**

**Abundant lineup enables selection of product suitable for the required specifications.**

**Improve efficiency with various convenient instructions!**

**Enhanced program security function!**

**High-function and compact extension modules are available!**

For example:

- **Replacing wiring!**
  - In case the product size is large and the wiring is short
  - Large size legacy product can be replaced easily with connector type FX series PLC and terminal block product of partner vendors.
    (Connector type requires 24 V DC power supply)

For example:

- **Legacy MELSEC-F product**
  - Migrate
  - Input terminal block
  - Output terminal block

- **Legacy MELSEC-F product**
  - Migrate
  - Input terminal block
  - Output terminal block

- **Legacy FX series replacement!**
  - Legacy FX series program can be transferred to the latest product by using PC type change function of GX Works2.
Mitsubishi graphic operation terminals

How is the current status of the existing GOT?

- **Mitsubishi graphic operation terminals**
  - GOT-A900 series
  - GOT-F900 series

[Concerns about the existing equipment]
- The product is getting old and is not well maintained.
- Screen datas are not backed up.
- Components from different brands are installed in the equipment which is making maintenance troublesome.

[Concerns for migrating]
- Do we have to drill holes to replace?
- Can the screen data be replaced?
- Can we replace other brand HMI with GOT1000 or GOT2000 series products?

Mitsubishi Electric offers various tools for replacement with latest models.

Migration documents

- Technical Bulletin for replacement of GOT-A900 with GOT1000
- Technical Bulletin for replacement of GOT-1000 with GOT2000

Migration tool

Optional attachment is available for replacing GOT-900 to GOT1000 series with different screen size.

- Replacing of a Mitsubishi legacy product or other brand HMI!

Screen data created in the GP-PRO/PB-III series manufactured by Digital Electronics Corporation.

Screen data created in the GOT-A800 series SW3NIW-A8GOTP.

Mitsubishi Electric can eliminate these concerns!
Migrate to the latest Mitsubishi Graphic Operation Terminals!!

GOT series has same panel-cut dimensions when the screen size is the same. Screen data can easily be replaced using GT Works3. GOT with the latest functions can reduce loads on the PLC, and can back up data.

Mitsubishi Graphic Operation Terminals

Documents for migrating GOT-F900 series
- GOT-F900 Migration Guide
- Replacement Guide

For example GT Works3+plus comes with the following software to convert screen data from GOT-900 series to GOT1000, GOT2000 series.

- GT Designer2 classic
- GT Designer3

GT Works3 comes with GT Converter2 to convert screen data of legacy models and other brand HMI to GOT1000/GOT2000 series.

[Benefits of migration]

- 3 year warranty!
- Front side USB port enables easy maintenance* 
- Can be connected to various networks!
- Easy connection with multiple communication ports!
- Decentralize control to GOT to assure stable operation!
- Improves visibility with brilliant color LCD!
- Abundant lineup enables selection of product suitable for the required specifications.
- Logging function to improve quality!

GT Mobile
Monitor your worksite anytime, anywhere.
Check the equipment status using a web browser.

Mitsubishi Graphic Operation Terminals
GOT2000 series
GOT1000 series

P.566
Mitsubishi inverters

How is the current status of the existing inverter?

Mitsubishi inverters

A700    A500    F500

E500    S500

[Concerns about the existing equipment]

Replacement of service life limited components may be needed soon.

Need to manage and control many units.

Need to improve energy efficiency.

[Concerns for migrating]

Are there compatible products to the existing obsolete products?

How can we replace the parameters?

We are using coil type motor, eddy current joint type motor (AS), direct current (DC) motor, and have difficulty in daily and preventive maintenance.

Convenient compatibility

- Parameters can be converted easily using the convert function of “FR Configurator2” (optional) parameter setting software.

- The mounting compatibility with conventional models is secured.

- Mitsubishi Electric offers the (optional) mounting compatibility attachment though the compatibility may be different in some models.

Advantages of migration to the 800 series

- In the FR-A800 and F800 series, the trace function can store the operation status (such as the output frequency) just before activation of the protection function in the RAM built in the inverter. The stored data (trace data) can be copied to the USB memory when the trace data is captured by the software (FR Configurator2) set up in the inverter.

The trace data stored in the built-in RAM is erased when the power is turned OFF or the inverter is reset.

Mitsubishi Electric offers various tools for replacement with latest models.

Migration documents

- Inverter migration proposal

For example

FR Configurator2

FR A500    FR A700    FR A800

* Supports conversion from A500 to A800.

- The mounting compatibility with conventional models is secured.

- Mitsubishi Electric offers the (optional) mounting compatibility attachment though the compatibility may be different in some models.
Migrate to the latest Mitsubishi inverters!!

Abundant tools and documents to support migration are available. Parameters can be converted easily using FR Configurator2. Mitsubishi inverters with the latest functions considerably improves energy saving and ease of maintenance!

Energy saving
Replace with high-efficiency IPM motor (MM-EFS series)

• The FREQROL-F800 series is compatible with the IPM motor.
• Replacement is easy due to frame number being the same as that of the standard three-phase motor.

[Efficiency comparison]

- IPM motor with permanent magnet is more efficient than the high-performance energy-saving motors.
- Efficiency level meets “IE4 (super premium efficiency)” of international standard IEC 60034-30. (As of March 2013)

Improved ease of maintenance
Latest series use long service-life components and most advanced life diagnosis which improves ease of maintenance.

• Approximate life of limited service life components

<table>
<thead>
<tr>
<th>Part name</th>
<th>Approximate service life</th>
<th>Service life specified by JE MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling fan</td>
<td>10 years</td>
<td>2 to 3 years</td>
</tr>
<tr>
<td>Capacitor for smoothing main circuit</td>
<td>10 years</td>
<td>5 years</td>
</tr>
<tr>
<td>Smoothing capacitor on PC Board</td>
<td>10 years</td>
<td>5 years</td>
</tr>
</tbody>
</table>

- Deterioration degree of main circuit capacitors, control circuit capacitors and rush current suppression circuits can be monitored.
- Self-diagnosis function sounds alarm for components having limited service life to prevent failures.

It is economical to use Mitsubishi inverters for drive when Mitsubishi PLCs are used for control. CC-Link and RS-485 communication enable precise control of multiple inverters.

[FREQROL]

[Benefits of migration]

- Improved ease of maintenance with long service life components.
- Easy control with abundant network connections!
- Life diagnosis function notifies remaining service life of components!
- “Close contact” installation design saves installation space (E700 and D700).
- Easy operation with M dial
- Easy wiring (A800, F800 E700SC and D700).
- Abundant lineup enables selection of product suitable for the required specifications!
- Parameters can be copied using the USB memory (A800 and F800).
- The magnet motor is also available (A800 and F800).
- Easy replacement of cooling fan
Mitsubishi industrial robots

How is the current status of the existing robot?

Mitsubishi industrial robots

P series
EN series
M series
A series
E series
S series

[Concerns about the existing equipment]

Want to improve productivity of the equipment.

Maintenance is hard due to increased failures.

Want to visualize all standalone robots.

It contributes to productivity, the improvement in reliability, and total cost reduction.

For example

Loading/Unloading of parts to a processing machine
(A lathe, a machining center, a press machine, and a make-up machine, etc.)

For example

Assembly of electric components
(switch)

For example

Conveyor alignment for packed food products

Mitsubishi Electric can eliminate these concerns!
Migrate to the latest Mitsubishi robots!!

A vertical, multiple-joint type robot realizes high-speed loading and unloading of parts to a processing machine. (Oil mist proof) Additional traveling shaft improves the operating rate of a robot and efficiently utilizes the facility.

**Advantages**
- Improvement of environmental resistance
- Smooth hand-over of products with various processing machines
- Higher operating rate of robot
- Shorter cycle time

High-speed parts kitting with a horizontal, multiple-joint type robot, fine assembly with a vertical, multiple-joint type robot, and the ability to handle a variety of workpieces with a high-functioning hand (a multi-hand and an electric hand)

**Advantages**
- High-speed kitting
- Capable of handling a wide variety of workpieces using only a small space
- No need to change hands to switch a kind of work
- Complicated assembly process
- Reduction of cycle time

High-speed vision-tracking of horizontal, multiple-joint type robot realizes non-stopping alignment process. It also processes simultaneous tracking for multiple conveyors.

**Advantages**
- High-speed tracking
- No need of alignment device
- Reduction of cycle time
- Stable quality due to automated process

SQ series supports iQ Platform and enables higher speed control.

**High-speed control improves takt time!**

**Robot CPU in iQ Platform saves wiring**

**Multiple robots can be controlled together.**

**Robot can be controlled using PLC language!**

**Downsized robot saves installation space.**

**Improved operability with easy connection of GOT**
Mitsubishi AC servos

[Concerns about the existing equipment]
- AC servos is not tuned correctly and generates large noise.
- Takes time to complete positioning.
- Motor seems to be okay but the amplifier is a concern.

[Concerns for migrating]
- Are there compatible products to the existing obsolete products?
- Can the hardware be replaced easily?
- How can we replace the parameters?

Various tools are available to migrate to the latest products.

Mitsubishi Electric

Replacement support documents
- MR-J2-Super series migration catalog
- Cautions on replacement of the MR-J/MR-H series
- Migration Guide from MR-J2 Super/J2M series to MR-J4 series
- New Product Newsletter for MR-J2S-B SSCNET conversion unit

MR-J4-B is recommended for replacing legacy Mitsubishi products and other manufacturers products.
- SSCNET III/H enables a simple system with less wiring.
- MR Configurator2 enables easy adjustment, monitor display, parameter setting, etc.
**Migrate to the latest Mitsubishi AC servos!!**

Abundant tools to support easy migration are available. In multi-axis control, combining the motion controller contributes to function upgrade and space saving!

---

### Partner manufacturer

- Mitsubishi AC servos MR-J4-B is recommended for replacing legacy Mitsubishi products and other manufacturers products.
- SSCNET III/H enables a simple system with less wiring.
- MR Configurator2 enables easy adjustment, monitor display, parameter setting, etc.

---

### [Benefits of migration]

- **Easy servo adjustment to fit the equipment!**
- **Easy wiring with SSCNET III/H or SSCNET III.**
- **High-response control improves tact time!**
- **Easy setting of electronic gear.**
- **Smooth operation due to reduced cogging torque**
- **Easy tuning function**
- **Abundant lineup enables selection of product suitable for the required specifications!**
- **Space saving design allows close contact installation**

---

**For example**

In case of MR-J2S series

- Servo can be replaced with MR-J3A type using the migration tool.
Mitsubishi low-voltage distribution control equipment

How is the current status of the existing low-voltage distribution control equipment?

- **Low-voltage circuit breakers**
  - No-fuse circuit breaker NF225-SS series
  - No-fuse circuit breaker NF2000 series
  - Need to replace the breaker because the current capacity has changed.
  - Concerned about aging products malfunctioning.
  - Need to replace the large obsolete products to save space.

- **Electromagnetic switches**
  - Electromagnetic contactors MS-K series
  - Concerned about aging products malfunctioning.
  - Want to save space by migrating to the latest products.

- **Power management measuring unit**
  - Mechanical measuring unit
  - Concerned about aging products malfunctioning.
  - Need to reduce measuring work.

Migrate to the latest Mitsubishi low-voltage distribution control equipment!!

- **No-fuse circuit breakers**
  - Low-voltage air circuit breakers
  - Downsized products allows panel space saving.
  - Functions can be upgraded just by replacing.
  - Can prevent unnecessary operations of the earth-leakage circuit breaker by high function IC.

- **Electromagnetic contactors**
  - MS-T series
  - Terminal cover installed for added safety.
  - Downsized products allows panel space saving.

- **Electronic multi-measuring instruments**
  - ME96SS series
  - LCD improves visibility.
  - Easy data collection with communication function.
  - Various options facilitate setting changes for the display and output devices (electronic measuring instrument).

Furthermore, Mitsubishi’s migration can:

- Save energy with low power consumption coil.
- Single-circuit measuring unit, display unit, and setting unit integrated into a single measuring unit.
- Allows easy and low cost energy “visualization”.
- Built-in MODBUS® communication allows system upgrade.
Furthermore, Mitsubishi's migration can:

- **Energy measuring unit EcoMonitorLight**
  - Single-circuit measuring unit, display unit, and setting unit integrated into a single measuring unit.
  - Allows easy and low cost energy "visualization".
  - Built-in MODBUS® communication allows system upgrade.

- **MDU breaker**
  - In addition to circuit breaker function, this product continuously monitors the electric circuit information (power amount, load current, leakage current, etc.) and enables centralized monitoring through communication.

- **No-fuse circuit breaker/earth-leakage circuit breaker equipped with leakage current indication**
  - These products monitors leakage current data and investigate causes of electric leakage.

*These equipment are not sold in the USA.

Mitsubishi FA products can "visualize" power management equipment and of production equipment. Directly connected to Q series PLC.

Electric power measuring unit [QE84WH]

- PLC measures power information up to 4 channels which enables standard data control and state monitoring in each production equipment.

Insulation monitoring unit [QE821LG]

- PLC continuously monitors the insulation status and supports preventive maintenance of the production equipment.

**Benefits of migration**

<table>
<thead>
<tr>
<th>Low-voltage circuit breakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downsized to save panel space.</td>
</tr>
<tr>
<td>New circuit breaking technology allows higher performance.</td>
</tr>
<tr>
<td>Contribute to energy saving and preventive maintenance through monitoring of the electric circuit information using the MDU breaker and others.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electromagnetic switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe and easy wiring with CAN terminal.</td>
</tr>
<tr>
<td>Detachable arc cover makes inspection easy.</td>
</tr>
<tr>
<td>Save energy with low power consumption coil.</td>
</tr>
</tbody>
</table>

Electronic multi-measuring instrument

- Wide viewing angle LCD improves visibility.
- Set data transceiver allows easy setting and management.
The production capability of your factory

The MES interface is the key to realize the visual platform “e-F@ctory”. A broad lineup of MES interface products of Mitsubishi Electric enables direct connection between the MES (manufacturing execution system) database and the shop floor equipment without communication gateways such as personal computers.

“Aggressive energy conservation”

Mitsubishi Electric’s Fukuyama Works adopted “visible management”, and is now implement “aggressive energy conservation” efforts. Fukuyama Works has realized an economical and ecological “eco factory”, and uses its eco expertise to engage in the energy conservation business.

Reduction by 27.3% in standard data
* Performance in 2006 compared to 1990

Reduction of approximately 23 million yen in basic power cost
* Performance in 2006 compared to 1990

System construction cost can be reduced by more than 65%
Mitsubishi Electric’s simple, convenient and compact EcoWebServer III is advanced to support visible management of energy.

What is EcoWebServer?

EcoWebServer is an all-in-one type data collection server having excellent functions essential in energy-saving management of alarm units and machines.

Two types selectable

- **Office**
  - Display of data using the web browser
  - Virtual measurement point
  - Trend graph of standard data
  - Current value display
  - Display settings in the CSV format
  - Measurement point
  - Upper limit/lower limit monitoring
  - Operation monitoring

- **Factory**
  - Collection of
    - electric power, electric power amount,
    - power factor, amount of water, steam, air, gas, etc.,
    - standard data, production quantity,
    - measured data (analog data and pulse data), and
    - equipment operation status (digital data)

- **Inherited functions**
  - The setting software is provided as an accessory. There is no necessity to create programs.
  - Simple setting
  - Simple extension
  - Virtual measurement and production quantity are incorporated in the standard data control.
  - The measured data are processed and saved easily.
  - CSV format
  - Compatible with FTP

- **Powered up!**
  - Improved performance
    - The newly adopted universal design makes graphs easier to see.
    - Graph display
    - Calculation function
    - The zoom data collection period has been reduced.
    - Enhanced calculation function
    - The daily data saving period has been extended from 2 months to 6 months. Extended saving period
    - 1 minute minimum

- **New functions added**
  - Additional functions
    - Alarm outputs have been enabled to enhance the monitoring function.
    - Up to 16 contact outputs
    - Multiple comparison
    - Equipment monitoring
    - Various graph displays are available to construct the “mechanism to let workers be aware” of status changes.

* Performance in 2006 compared to 1990

- **Equipment System Migration**
- **Control Field**
- **Drive Field**
- **Distribution Field**
- **Reliable Support**
- **Production discontinuance**
Power measurement and insulation monitoring together with PLC migration realize energy saving and preventive maintenance!

**Before**

Promoting energy saving in existing production equipment...
While minimizing the chance of failure of existing production equipment...

---

**Energy Measuring Module Installation Example**

- **Point 1**
  - **Preventive Maintenance**
  - Constant measurement of the electrical current
  - Preventive maintenance measures are taken before equipment stoppage.

- **Point 2**
  - **Energy Saving**
  - Item or process, synchronizing the control timing
  - Timing of production line control can be synchronized based on energy.

- **Point 3**
  - **Preventive Maintenance**
  - Constant measurement of the Leakage current value, and constant monitoring for insulation deterioration for each unit/load
  - Prevention of sudden failure of machines and lines / Detection of insulation deterioration (earth leakage) at early stage

---

**Insulation Monitoring Module Installation Example**

- **Point 1**
  - **Preventive Maintenance**
  - Constant measurement of the Leakage current value, and constant monitoring for insulation deterioration for each unit/load
  - Prevention of sudden failure of machines and lines / Detection of insulation deterioration (earth leakage) at early stage

---

Specific energy consumption can be managed in detail according to individual items or processes to assist in reducing the power consumption of production equipment and realize energy savings.

Constantly measuring current (or power) consumption can help prevent serious faults and equipment failure, ultimately resulting in reduced production losses.

Constant monitoring of the current value

Repair, maintenance and overhaul before fault occurs

Timing of production line control can be synchronized based on energy.

A module can be installed directly in the Q base unit.

**Maintenance man-hours can be reduced by improving the efficiency of periodic inspection work.**

**The resistive-component leakage current (Ior) can be measured so that a leakage current caused by insulation deterioration can be identified.**
Global web site

Easily accessibility to the FA information of Mitsubishi Electric all over the world!

From “Worldwide” provided at the upper right corner of the top page, you can easily access to the FA web sites all over the world. On the pages for each country, you can check not only products purchasable all over the world but also the information on products developed specially for the region, catalogs and manuals in each language and various regional services. Please utilize “Worldwide” for expanding your business overseas.

Global FA web site  www.MitsubishiElectric.com/fa

Business support

◆ Dictionaries
These dictionaries contain references to more than 4000 words related to the world of FA. Use them to support and improve the communication between colleagues and local staff.

◆ Glossaries
These glossaries contain more than 750 specialized technical terms associated with the use and operation of FA products helping to improve understanding and communication between businesses and local staff.

◆ Phrasebook
These phrasebooks can be used to support communication between local staff and Japanese engineers. The phrasebooks contain many everyday phrases as well as numerous examples related to the manufacturing environment.

◆ On-site lexicon
These lexicon's are designed to support the on-site communication between Japanese engineers and local staff. For each word a relevant FA explanation and example sentence are provided.
MITSUBISHI ELECTRIC ENGINEERING CO., LTD.

Mitsubishi Electric Engineering Co., Ltd. designs and sells peripheral components of Mitsubishi PLCs including PLC upgrade support equipment, wiring saving equipment and man-hour saving equipment.

PLC migration (upgrade) tools

Mitsubishi Electric Engineering Co., Ltd. offers migration (upgrade) tools for replacing the MELSEC-A series with the MELSEC-Q series and replacing the MELSEC-AnS series with the MELSEC-L/Q series. The migration work time and wiring mistakes are considerably reduced by utilizing the existing wiring (including terminal blocks and connectors).

FA merchandise (FA goods)

Wiring saving equipment and man-hour saving equipment support the wiring of the PLCs. These equipment reduce man-hours for wiring inside and outside the panel and wiring mistakes, and realize safety backed up by high reliability.

For the acquisition of Upgrade Tool and FA merchandise (FA goods), please contact your local Mitsubishi Electric sales office or sales representative.
Mitsubishi Electric System & Service Co., Ltd.

**AOJ2 migration tool**
This migration tool is used to replace the MELSEC-AOJ2 with the Q series. It consists of the interface module (to which the wired terminal block of the existing I/O module can be directly mounted), Q series PLC mounting members and connection cables. Either of three types of installation methods can be selected in accordance with the installation space. This migration tool utilizes the existing wiring to reduce wiring mistakes and work time.

**AC servo migration tool**
This migration tool is used to replace the MR-J2Super series with the MR-J4 series. Because the existing mounting dimensions and cables are compatible, replacement can be performed in a short time. This migration tool is available also for step-by-step migration consisting of primary replacement (in which only the amplifier is replaced) and secondary replacement (in which the motor is replaced). It utilizes your assets effectively.

**FA integrated network cables**
Mitsubishi Electric System & Service Co., Ltd. offers various network cables and wiring equipment for the controller network “CC-Link IE Control”, field network “CC-Link IE Field” and motion network “SSCNET III/H” to correspond with various applications.

**Mitsubishi AC servo cable for MELSERVO-J4/J3/JN series**
- This cable enables relay connection, and is available in a case in which the AC servo should be separated from the machine side during transportation or installation, a case in which a highly flexible part should be adopted partially in the AC servo, and other cases.
- Mitsubishi Electric System & Service Co., Ltd. produces cables (increment: 1 m) for Mitsubishi MR-J4/J3/JN series servo encoders, power supplies and electromagnetic brakes.
- Mitsubishi Electric System & Service Co., Ltd. produces cables other than cables of standard length sold by Mitsubishi Electric Corporation.
Below is the repair acceptance period of major models and series in which production of the main unit are already discontinued. Production may be discontinued even in other models and series not shown below, and production may be discontinued before the date shown below or may be continued in some models and series shown below. Refer to the Mitsubishi Electric’s website or contact Mitsubishi Electric sales representatives for further information.

### Mitsubishi PLCs and micro PLCs

<table>
<thead>
<tr>
<th>Model</th>
<th>Repair acceptance period</th>
</tr>
</thead>
<tbody>
<tr>
<td>MELSEC-A/QnA (large type) series</td>
<td>From September 2006 - Until September 2013 (From September 2008 only in some models)</td>
</tr>
<tr>
<td>MELSEC-A/QnA (small type) series</td>
<td>From September 2014 - Until September 2021</td>
</tr>
<tr>
<td>MELSEC-F (F1, F1U) series</td>
<td>From September 2000 - Until September 2007</td>
</tr>
<tr>
<td>MELSEC-F (FX1, FX2) series</td>
<td>From June 2002 - Until June 2009</td>
</tr>
<tr>
<td>MELSEC-F (FX1n, FXos) series</td>
<td>From January 2006 - Until January 2013</td>
</tr>
<tr>
<td>MELSEC-F (FX1n, FXINC) series</td>
<td>From September 2012 - Until September 2019</td>
</tr>
<tr>
<td>MELSEC-F (FX1S, FX1n, FXINC) series</td>
<td>From December 2015 - Until December 2022</td>
</tr>
</tbody>
</table>

### Mitsubishi graphic operation terminals

<table>
<thead>
<tr>
<th>Model</th>
<th>Repair acceptance period</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOT-A800 series</td>
<td>From September 2002 - Until September 2009</td>
</tr>
<tr>
<td>GOT-A900 series</td>
<td>From December 2009 - Until December 2016</td>
</tr>
<tr>
<td>FX-DU series</td>
<td>From September 2002 - Until September 2009</td>
</tr>
<tr>
<td>GOT-F900 series</td>
<td>From March 2011 - Until March 2018</td>
</tr>
</tbody>
</table>

### Mitsubishi inverters

<table>
<thead>
<tr>
<th>Model</th>
<th>Repair acceptance period</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREQROL-F500J series</td>
<td>From April 2012 - Until September 2019</td>
</tr>
<tr>
<td>FREQROL-A700 series</td>
<td>From December 2015 - Until December 2022</td>
</tr>
<tr>
<td>FREQROL-F500 (L) series</td>
<td>From May 2006 - Until May 2013</td>
</tr>
<tr>
<td>FREQROL-S500 series</td>
<td>From May 2006 - Until May 2013</td>
</tr>
<tr>
<td>FREQROL-S500E series</td>
<td>From August 2010 - Until August 2017</td>
</tr>
<tr>
<td>FREQROL-A500 (L) series</td>
<td>From April 2007 - Until April 2014</td>
</tr>
<tr>
<td>FREQROL-E500 series</td>
<td>From April 2011 - Until April 2018</td>
</tr>
<tr>
<td>FREQROL-F700P series</td>
<td>From September 2016 - Until September 2023</td>
</tr>
</tbody>
</table>

### Mitsubishi AC servos

<table>
<thead>
<tr>
<th>Model</th>
<th>Repair acceptance period</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR-J series</td>
<td>From December 2001 - Until December 2008</td>
</tr>
<tr>
<td>MR-H series</td>
<td>From November 2005 - Until November 2012</td>
</tr>
<tr>
<td>MR-J2 series</td>
<td>From November 2005 - Until November 2012</td>
</tr>
<tr>
<td>MR-J2S series</td>
<td>From August 2015 - Until August 2022</td>
</tr>
</tbody>
</table>
### Safety precautions
- To properly use the products described in this document, make sure to read the relevant manuals before use.
- These products have been manufactured as general-purpose products for general industrial purposes, and have not been designed or manufactured to be incorporated in equipment or system used in situations that can affect or endanger human life.
- When considering using these products for special purposes such as equipment or system for nuclear power, electric power, aerospace, medical care or riding mobile object, consult the contact point in charge of sales in Mitsubishi Electric.
- These products have been manufactured under strict quality control. However, it is strongly advised to install a backup or failsafe function in the system when using these products in facilities where a failure of these products may cause a serious accident or loss.

### Trademarks and registered trademarks
- MODBUS is a registered trademark of Schneider Electric SA.
- Ethernet is a trademark of Xerox Corporation.
- All other company names and product names described in this document are trademarks or registered trademarks of their representative companies.

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### Mitsubishi motion controllers
- **Model**: A273UH CPU
- **Repair acceptance period**: From September 2006 to September 2013

### Mitsubishi industrial robots
- **EN series**: From September 2001 to September 2008
- **E series**: From March 2002 to March 2009
- **A series**: From March 2005 to March 2012
- **S series**: From September 2009 to September 2016

### Mitsubishi distribution control product
- **Model**
  - Molded-case circuit breaker
  - Earth-leakage circuit breaker
  - Electromagnetic switch
- **Recommended migration time (after start of use)**
  - 15 years or specified number of times of switching
  - 10 years or specified number of times of switching

---

### Equipment System Migration
- **Modbus**: A registered trademark of Schneider Electric SA.
- **Ethernet**: A trademark of Xerox Corporation.
- **All other company names and product names described in this document are trademarks or registered trademarks of their representative companies.**
We Strive to Respond to Customers Needs in All Aspects of Our Production and Development Processes and Quality

Production

We manufacture products that satisfy our customers needs, with leading-edge production lines and technologies.

In cooperation with our network of factories and overseas production bases, our mother factory in Nagoya, Japan, has developed systems and solutions, such as e-F@ctory, that are designed to optimize and strengthen manufacturing and production processes. This is demonstrated through the total "visualization" of the factory operations from ensuring the highest level of productivity and machine optimization to energy management applied throughout the total plant operation.

Fukuyama Works (Fukuyama, Hiroshima)

Fukuyama Works utilizes its world-class power distribution and control technology to manufacture protective, measurement and control equipment. It also produces a wide range of ecological and economical energy-saving products.

Mitsubishi Electric FA Industrial Products Corporation (Fukuoka, Fukuoka)

This site provides solutions to various needs in the area of geared motors, and hoists, which serve as driving sources for a broad range of equipment, from transport to food production.

Nakatsuigawa Works (Nakatsuigawa, Gifu)

Nakatsuigawa Works contributes to the future of lifestyles and the planet through environmentally conscious systems. It manufactures ventilators and industrial fans that create comfortable environments while saving energy.

Mitsubishi Electric India Pvt. Ltd.

We manufacture inverters, power distribution control devices, PLC and HMI, and we are building a manufacturing, sales, and service system that is responsive to the needs of the Indian market.

Power Distribution Systems Center (Marugame, Kagawa)

The Power Distribution Systems Center specializes in vacuum circuit breakers and other electrical distribution equipment for factories, office buildings, public facilities, power plants, and railway substations, in addition to control and monitoring systems.

Mitsubishi Electric Automation (Thailand) Co., Ltd.

Founded as a production base for breakers, this site also manufactures inverters and electrical discharge machines today. It intends to further upgrade its production processes as a strategic overseas production base.

Nagoya Works (Nagoya, Aichi)

As the core factory of our FA business, Nagoya Works creates an extensive lineup and network of FA products. Its goal is to contribute to production throughout the world and become the No.1 FA supplier to our customers.

Shinshiro Factory

Mitsubishi Electric Dalian Industrial Products Co., Ltd.

Manufacturing servo, NC, and other drive control equipment. Production is local to meet the growing demand in China.

Kani Factory

Mitsubishi Electric Low Voltage Equipment (Xiamen) Co., Ltd.

Manufacturing low voltage power distribution and control equipment. The company is responding to the expansion of our customers' production facilities in China.
We develop products in response to diversifying needs, two core development centers have been created integrating the related departments of FA and Industrial Automation Machinery. These state-of-the-art centers maximise the technology synergies to produce world-class products.

**Core Development Processes**
To develop products in response to diversifying needs, two core development centers have been created integrating the related departments of FA and Industrial Automation Machinery. These state-of-the-art centers maximise the technology synergies to produce world-class products.

**Comprehensive strength**
To promote the development of competitive products and create technologies for the future, we foster world-leading R&D activities whilst utilizing our network of overseas and domestic research institutes.

**Development at the global level**
We develop products that satisfy the needs of our overseas customers, propose new global-scale FA business plans, adopt cutting-edge technologies from overseas and promote other development activities, all from a global perspective.

**Quality**
In response to our customers’ trust and confidence, we constantly review and reinforce our quality management system.

- Anechoic room
  - Manufacturing servo, NC, and other drive control equipment. Production is local to meet the growing demand in China.

- LSI evaluation facility
  - Manufacturing low voltage power distribution and control equipment. The company is responding to the expansion of our customers’ production facilities in China.

- Inspecting machining equipment performance
  - We exhaustively inspect the drive control and machining performance of machining equipment, testing to ensure continuing precision machining after delivery.
Our Global Network Delivers Reliable Technologies and Security All Over the World
Our Global Network Delivers Reliable Technologies and Security All Over the World
China Main Land

Shanghai FA Center

Mitsubishi Electric Automation (China) Ltd.
Shanghai FA Center
三菱电机自动化(中国)有限公司 上海FA中心
Mitsubishi Electric Automation Center, No.1386 Hongqiao Road, Shanghai, China
上海市虹桥路1386号 三菱电机自动化中心
TEL +86-21-2322-3030(Rep)  FAX +86-21-2322-3030(Rep)
http://www.meach.cn  LANGUAGE Chinese, Japanese, English
* Japanese engineers are stationed in the FA Center.

Beijing FA Center

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北京市东城区建国门外大街18号 金桥中心办公楼第一座901室
TEL +86-10-6518-8830(Rep)  FAX +86-10-6518-2938
http://www.meach.cn  LANGUAGE Chinese, Japanese, English

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天津市河西区友谊路35号 城市大厦2003室
TEL +86-22-2813-1015(Rep)  FAX +86-22-2813-1017(Rep)
http://www.meach.cn  LANGUAGE Chinese, Japanese, English
* Japanese engineers are stationed in the FA Center.

Guangzhou FA Center

Mitsubishi Electric Automation (China) Ltd.
Guangzhou FA Center
三菱电机自动化(中国)有限公司 广州FA中心
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TEL +86-20-8923-6730(Rep)  FAX +86-20-8923-6715(Rep)
http://www.meach.cn  LANGUAGE Chinese, Japanese, English
* Japanese engineers are stationed in the FA Center.

Key Service Offices

Mitsubishi Electric Automation (China) Ltd. Shenzhen Office
三菱电机自动化(中国)有限公司 深圳分公司
Level 8, Galaxy World Tower B, 1 Yabao Road, Longgang District, Shenzhen, China
深南大道龙岗段1号 星河WORLD B栋8楼
TEL +86-755-2399-8272(Rep)  FAX +86-755-8218-4776(Rep)
http://www.meach.cn  LANGUAGE Chinese, English

Mitsubishi Electric Automation (China) Ltd. Chengdu Office
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Room 401A-407B-408, 4F, Unit B, Shangri-La Center, No. 9 Binjiang East Road, Jinjiang District, Chengdu, China
成都市滨江东路9号9座成都香格里拉中心办公楼4层401A-407B-408单元
TEL +86-28-8446-8030(Rep)  FAX +86-28-8446-8630(Rep)
http://www.meach.cn  LANGUAGE Chinese, English

Sales offices  PLC Programmable Controllers  HMI Human-Machine Interfaces  AC Servos, Servo System Controllers  Inverters
### FA Center Satellite

#### MITSUBISHI ELECTRIC SHENYANG FA Center Satellite
Room 1122, Buynew Technology Building, NO.90-5, Sanhao Street, Heping District, Shenyang, China

**TEL:** +86-24-8399-3929(Rep)  
**FAX:** +86-24-8399-3949(Rep)

http://highkilo3.com  
**LANGUAGE:** Chinese

#### MITSUBISHI ELECTRIC QINGDAO FA Center Satellite
55-1, Liaoning Road, Qingdao, China

**TEL:** +86-532-8384-3891(Rep)  
**FAX:** +86-532-8384-1357(Rep)

http://www.mitsubishi-qd.com  
**LANGUAGE:** Chinese

#### MITSUBISHI ELECTRIC WUHAN FA Center Satellite
Unit 1609, Jialiang Mansion, No.586, Wu Luo Road, Wuchang District, Wuhan, China

**TEL:** +86-27-8765-5025(Rep)  
**FAX:** +86-27-8765-5247(Rep)

http://www.whxhotel.com  
**LANGUAGE:** Chinese

#### MITSUBISHI ELECTRIC XIANGYANG FA Center Satellite
Room 1318, Financial Building, Dongfeng Qichen Street, Xiangyang Qichen Products Development Zone, Xiangyang, China

**TEL:** +86-710-339-8821(Rep)  
**FAX:** +86-710-339-2859(Rep)

**LANGUAGE:** Chinese

#### MITSUBISHI ELECTRIC SHENZHEN FA Center Satellite
27F, Daqing Building, Chegong Miao, Futian District, Shenzhen, China

**TEL:** +86-755-8289-4361(Rep)  
**FAX:** +86-755-8289-4880(Rep)

http://www.szxhotel.com  
**LANGUAGE:** Chinese

### Sales Offices

#### Mitsubishi Electric Automation (China) Ltd.

**Shenzhen Office**  
Mitsubishi Electric Automation (Shenzhen) Ltd., No.1386 Hengqiao Road, Shenzhen, China  
**TEL:** +86-755-8239-8578(Rep)  
**FAX:** +86-755-8239-8898(Rep)

http://www.mea.cn  
**LANGUAGE:** Chinese, English

#### Mitsubishi Electric Automation (China) Ltd.

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**FAX:** +86-10-6518-8030(Rep)

http://www.mea.cn  
**LANGUAGE:** Chinese, English

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LANGUAGE
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HMI
Human-Machine Interface

AC Servo
Servo System Controllers

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  Citilights Corporate Centre No. 1, Vivekananda Road, Srinivasa Nagar, Chetpet, Chennai-600031, Tamil Nadu, India
  TEL +91-44-4554-8772 FAX +91-44-4554-8773
  http://www.mitsubishielectric.in

- Mitsubishi Electric India Pvt. Ltd.
  Ahmedabad Branch
  B-4, 3rd Floor, SAFAL Professional, Corporate Road, Prahaladnagar, Satellite, Ahmedabad - 380015, Gujarat, India
  TEL +91-79-6512-0063
  http://www.mitsubishielectric.in

- Mitsubishi Electric India Pvt. Ltd.
  Vadodara Branch
  A-1/2, 2nd Floor, Status Plaza, Opp Relish Resort, Akshar Square, O.P. Road, Vadodara, 390020, Gujarat, India
  TEL +91-26-5321-4939 FAX +91-26-5321-3307
  http://www.mitsubishielectric.in

- Mitsubishi Electric India Pvt. Ltd.
  Mumbai Branch
  106 MAGNUM OPUS, (E), Santacruz West, Mumbai, 400055, Maharashtra, India
  TEL +91-22-2667-4308 FAX +91-22-2667-4309
  http://www.mitsubishielectric.in

Oceania

Sales Offices
- **AUSTRALIA**
  MITSUBISHI ELECTRIC AUSTRALIA PTY. LTD.
  348 Victoria Road, P.O. Box 11, Rydalmere, N.S.W 2116, Australia
  TEL +61-2-9684-7777 FAX +61-2-9684-7245
  http://www.mitsubishielectric.com.au LANGUAGE English
### Americas/Mexico

#### North America FA Center

**Mitsubishi Electric Automation, Inc.**  
500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A.  
**TEL** +1-847-478-2100, +1-847-478-2500  
**FAX** +1-847-478-2253, +1-847-478-2650, +1-847-478-2396  
**HP** https://us.mitsubishielectric.com/fa/en  
* Japanese engineers are stationed in the FA Center.  

**TEL Technical Consulting**  
(Support hours: 7:00 to 19:00 (CST))  
**TEL** 1-800-950-7781  
**HP** +1-847-478-2469  
**FAX** +1-847-478-2334  
* Japanese, English

### Regional Sales Office in America

**Mitsubishi Electric Automation, Inc.**  
500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A.  
**TEL** +1-847-478-2100(Rep), +1-847-478-2500  
**FAX** +1-847-478-2253, +1-847-478-2650, +1-847-478-2396  
**HP** https://us.mitsubishielectric.com/fa/en  
* Japanese, English

#### Sales Offices

| **CANADIAN REGION** |  
| Mitsubishi Electric Automation, Inc. Canadian Region |  
| 4299 14th Avenue, Markham,Ontario L3R 0Z2, Canada |  
| **TEL** +1-905-754-3805 |  
| **FAX** +1-905-475-7935 |  
| **HP** https://us.mitsubishielectric.com/fa/en |  
| * Japanese, English*

| **SOUTH OHIO** |  
| Mitsubishi Electric Automation, Inc. Central Region |  
| Branch Office (Cincinnati office - South Ohio) World Park S 51018 International Blvd, Cincinnati, Ohio 45246, U.S.A. |  
| **TEL** +1-513-785-0536 |  
| **HP** https://us.mitsubishielectric.com/fa/en |  
| * Japanese, English*

| **NORTH OHIO** |  
| Mitsubishi Electric Automation, Inc. Central Region |  
| Branch Office (Sidney office - North Ohio) 670 Vandemark Rd Sidney, Ohio 43361, U.S.A. |  
| **TEL** +1-937-492-3058 |  
| **FAX** +1-937-492-3058 |  
| **HP** https://us.mitsubishielectric.com/fa/en |  
| * Japanese, English*

| **MICHIGAN** |  
| Mitsubishi Electric Automation, Inc. Central Region |  
| Branch Office (Northville - Michigan) 15603 Centennial Drive, Northville, MI 48167, U.S.A. |  
| **TEL** +1-734-453-6200 |  
| **FAX** +1-734-455-4299 |  
| **HP** https://us.mitsubishielectric.com/fa/en |  
| * Japanese, English*

### Mexico FA Center

**Mitsubishi Electric Automation, Inc. Mexico Branch**  
Mariano Escobedo #69, Col. Zona Industrial, Tlalnepantla Edo. México, C.P. 54030  
**TEL** +52-55-3067-7500  
**HP** https://mx.mitsubishielectric.com/fa/en  
* For repairing or after-sales technical support, please contact your nearest FA Center.

#### Sales Offices

| **Mexico Branch** |  
| Mitsubishi Electric Automation, Inc. |  
| Mariano Escobedo #69, Col. Zona Industrial, Tlalnepantla Edo. México, C.P. 54030 |  
| **TEL** +52-55-3067-7511(Rep) +52-55-3067-7500(Technical Support) |  
| **HP** https://us.mitsubishielectric.com/fa/en |  
| * Japanese, English, Spanish*

| **Monterrey Office** |  
| Mitsubishi Electric Automation, Inc. |  
| Paseo Magar, Av. Gonzalitos 460 Sur, Local 6B Col. San Jeronimo, Monterrey, Nuevo Leon, C.P. 64460, Mexico |  
| **TEL** +52-55-3067-7521 |  
| **HP** https://us.mitsubishielectric.com/fa/en |  
| * Japanese, English*

---

### Contactors and Motor Starters

* For repairing or after-sales technical support, please contact your nearest FA Center.
Brazil

Brazil FA Center

Mitsubishi Electric do Brasil Comércio e Serviços Ltda.
Avenida Adelino Cardana, 293, 21 andar, Bethaville, Barueri SP, Brasil
TEL +55-11-4689-3000
FAX +55-11-4689-3016
HTTP http://www.mitsubishelectric.com/fa/br_pt/
LANGUGAE Portuguese, English, Japanese

Brazil Votorantim FA Center

MELCO CNC do Brasil Comércio e Serviços S.A.
Avenida Giselle Constantino, 1578, Parque Bela Vista - Votorantim-SP, Brazil
TEL +55-15-3023-9000
FAX +55-15-3363-9911
LANGUGAE Portuguese, English, Japanese

Sales Offices

Mitsubishi Electric do Brasil Comércio e Serviços Ltda.
Avenida Adelino Cardana, 293, 21 andar, Bethaville, Barueri SP, Brasil
TEL +55-11-4689-3000
FAX +55-11-4689-3016
HTTP http://www.mitsubishelectric.com/fa/br_pt/
LANGUGAE Portuguese, English, Japanese

Distributors

ARTCOM COM. E DISTRIBUCAO DE MAQ. E EQUIPAMENTOS INDUSTRIAIS LTDA.
Av. Getulio Vargas, 943, Bairro Niteroi, CEP 02480-000, Canoas - RS, Brasil
TEL +55-51-3031-7677
HTTP http://www.artcom-rs.com.br/
LANGUGAE Portuguese

Automation Ind. Com. Imp. e Exp. Ltda.
Acesso Jose Sartorelli, KM 2.1 - CEP 18550-000, Birituba - SP, Brazil
TEL +55-15-3363-9900
FAX +55-15-3363-9911
HTTP http://www.automation.com.br/
LANGUGAE Portuguese, English

CETEM Automacao Industrial LTDA.
Rua Candido Benício, 1381, Bairro Praca Seca, CEP 21321-902, Rio de Janeiro - RJ, Brasil
TEL +55-21-3500-8833
HTTP http://www.cetemnj.com.br/
LANGUGAE Portuguese, English

CIM Automacao LTDA.
Rua Minas Gerais, 409, Dadama - CEP 09941-760, Sao Paulo - SP, Brasil
TEL +55-11-3389-1118
FAX +55-11-3389-1110
HTTP http://www.cimautomacao.com.br/
LANGUGAE Portuguese, English

LARATEC COM DE FERRAMENTAS LTDA.
Rua Albo Reis, 1058, Bom Retiro, CEP 80520-530, Curitiba - PR, Brasil
TEL +55-41-6628-1866
HTTP http://www.laratec.com.br
LANGUGAE Portuguese

MPA Automacao LTDA.
Av. ENG. EURICO VIANA - SETOR LESTE, Bairro VILA NOVA, CEP 74740-170, GOIANIA - GO, Brasil
TEL +55-62-3541-0015
HTTP http://www.mpaautomacao.com.br
LANGUGAE Portuguese

ROO COMERCIO MANUTENCAO E IMP DE EQUIP ELETRONICOS LTDA.
RUA SERGIO CARDOSO, 72, Jardim Paraíso, CEP 13211-374, Jundiai - SP, Brasil
TEL +55-11-3963-6020
HTTP http://www.rooelettronica.com.br
LANGUGAE Portuguese

SEMATEX AUTOMACAO INDUSTRIAL LTDA.
Rua Buenos Aires, 459 - Sala 101, Ponta Aguda, CEP 89051-050, Blumenau - SC, Brasil
TEL +55-47-3323-8000
HTTP http://www.sematex.com.br
LANGUGAE Portuguese

SUNXTRONIC DA AMAZ IMP E EXP LTDA.
RUA JOSE PARANAGUA, 470 C - Centro, CEP 69005-130, Manaus - AM, Brasil
TEL +55-92-3233-5407
FAX +55-92-3233-9723
HTTP http://www.sunxtronic.com.br
LANGUGAE Portuguese, English
Europe

Europe FA Center

Mitsubishi Electric Europe B.V. Polish Branch
ul. Krakowska 50, 32-083 Balice, Poland
TEL +48-12-347-65-00
FAX +48-12-630-47-01
TP https://pl3a.mitsubishielectric.com
LANGUAGES Polish, English, Japanese
* Japanese engineers are stationed in the FA Center.

Germany FA Center

Mitsubishi Electric Europe B.V. German Branch
Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany
TEL +49-2102-486-0
FAX +49-2102-486-1120
TP https://de3a.mitsubishielectric.com
LANGUAGES German, English

UK FA Center

Mitsubishi Electric Europe B.V. UK Branch
Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, U.K.
TEL +44-1707-27-8780
FAX +44-1707-27-8695
TP https://gb3a.mitsubishielectric.com
LANGUAGES English

Czech Republic FA Center

Mitsubishi Electric Europe B.V. Czech Branch
Avenir Business Park, Radlicka 751/113e, 158 00 Praha5, Czech Republic
TEL +420-255-719-200
FAX +420-251-551-471
TP https://cz3a.mitsubishielectric.com
LANGUAGES Czech, English
* Japanese engineers are stationed in the FA Center.

Russia FA Center

Mitsubishi Electric (Russia) LLC St. Petersburg Branch
Piskarevsky pr. 2, bid 2, lit "Sch", BC "Benua", office 709; 195027, St. Petersburg, Russia
TEL +7-812-633-3497
FAX +7-812-633-3499
TP https://ru3a.mitsubishielectric.com
LANGUAGES Russian, English, Japanese

Italy FA Center

Mitsubishi Electric Europe B.V. Italian Branch
Centro Direzionale Colleoni - Palazzo Sirio, Viale Colleoni 7, 20864 Agrate Brianza (MB), Italy
TEL +39-039-60531
FAX +39-039-6053312
TP https://it3a.mitsubishielectric.com
LANGUAGES Italian, French, English

* For repairing or after-sales technical support, please contact your nearest FA Center.
Europe

FA Center Satellite

MITSUBISHI ELECTRIC Hungary FA Center Satellite
Ferto Utc a 14, HU-1107 Budapest, Hungary
TEL +36-1-431-9726
FAX +36-1-431-9727
https://hu3a.mitsubishielectric.com

Regional Sales Office in Europe

Mitsubishi Electric Europe B.V. - Factory Automation European Business Group
Mitsubishi Electric-Platz 1, 4082 Ratingen, Germany
TEL +49-2102-486-0
FAX +49-2102-486-7170, +49-2102-486-9880
HTTPS://eu3a.mitsubishielectric.com
LANGUAGE: Hungarian, English

Sales Offices

GERMANY
Mitsubishi Electric Europe B.V.
German Branch
Mitsubishi Electric-Platz 1, 4082 Ratingen, Germany
TEL +49-2102-486-0
FAX +49-2102-486-7170, +49-2102-486-9880
HTTPS://eu3a.mitsubishielectric.com
LANGUAGE: German, English
Customer Technology Center North
Revinstraße 21, 44379 Dortmund, Germany
TEL +49-231-967041-0
FAX +49-231-967041-41
HTTPS://de3a.mitsubishielectric.com
LANGUAGE: German, English
Customer Technology Center South-West
Kurze Straße 40, 70794 Filderstadt, Germany
TEL +49-711-770558-90, +49-711-770558-123
FAX +49-711-770558-79, +49-711-770558-141
HTTPS://de3a.mitsubishielectric.com
LANGUAGE: German, English
Customer Technology Center South-East
Lilienthalstr. 2a, 85399 Harburgmoos, Germany
TEL +49-811-99874-0
FAX +49-811-99874-10
HTTPS://de3a.mitsubishielectric.com
LANGUAGE: German, English

UNITED KINGDOM
Mitsubishi Electric Europe B.V.
UK Branch
Travellers Lane, 4 UK-Hallfield, Hartforthwaite, AL10 8XJ, U.K.
TEL +44-1707-28-8780, +49-2102-486-0
FAX +44-1707-27-8695
HTTPS://gb3a.mitsubishielectric.com
LANGUAGE: English

FRANCE
Mitsubishi Electric Europe B.V.
French Branch
25, Boulevard des Bouleviers, 92411 Nanterre Cedex, France
TEL +33-1-55-68-55-68, +33-1-41-02-83-13
FAX +33-1-55-68-57-57
HTTPS://fr3a.mitsubishielectric.com
LANGUAGE: French, English

ITALY
Mitsubishi Electric Europe B.V.
Italian Branch
Centro Direzionale Colleoni - Palazzo Siro, Vale Colleoni 7, 20864 Agrate Brianza (MB), Italy
TEL +39-039-6053-1, +39-039-6053-312
FAX +39-039-6053-312
HTTPS://it3a.mitsubishielectric.com
LANGUAGE: Italian, English

SPAIN
Mitsubishi Electric Europe B.V.
Spanish Branch
Carretera de Rubi, 76-80, Apdo. 430, 08190 Sant Cugat del Vallés (Barcelona), Spain
TEL +34-935-89-1579
HTTPS://es3a.mitsubishielectric.com
LANGUAGE: Spanish, Portuguese

IRELAND
Mitsubishi Electric Europe B.V.
Irish Branch
Westgate Business Park, Ballymount, Dublin 24, Ireland
TEL +353-1-4198890
FAX +353-1-4198890
HTTPS://ie3a.mitsubishielectric.com
LANGUAGE: English

DISTRIBUTORS

ARMENIA
Industrial Technologies LLC
Fourth str., 17, Microjorakan, 3202 Razdan, Armenia
TEL +374-10-94-005-675
LANGUAGE: Russian, English

AUSTRIA
GEVA Elektronik-Handelsgesellschaft mbH
Wiener Str. 89, A-2500 Baden, Austria
TEL +43-2252-85552-0
HTTPS://www.geva.at
LANGUAGE: German, English

CZECH REPUBLIC
Mitsubishi Electric Europe B.V. - oddílný závod
Czech Branch
Avenir Business Park, Radlicka 751/13e, 158 00 Praha 5, Czech Republic
TEL +420-251-551-470
FAX +420-251-551-471
HTTPS://cz3a.mitsubishielectric.com
LANGUAGE: Czech, English

GERMANY
Mitsubishi Electric Europe B.V.
Polská Branch
ul. Muchoborska 18, 54-424 Wrocław, Poland
TEL +48-12-413-00-77
FAX +48-12-638-31-82
HTTPS://pl3a.mitsubishielectric.com
LANGUAGE: Polish, English

Netherlands
Mitsubishi Electric Europe B.V.
Benelux Branch
Nijverheidsweg 23C, 3614 RP Mijdrecht
TEL +31-297-250350
HTTPS://nl3a.mitsubishielectric.com
LANGUAGE: Dutch, English

Slovakia
Mitsubishi Electric Europe B.V.
Slovakian Branch
Levicka 7, 949 01 Nitra, Slovakia
TEL +421-917-624036
HTTPS://sk3a.mitsubishielectric.com
LANGUAGE: Slovakian, English
**Europe**

### Distributors

**SWEDEN**
Euro Energy Components AB
Järnvägsplatsen 36, Box 10348, SE-434 24 Kumla, Sweden
TEL: +46-300-69-00-40
FAX: +46-300-16475
ENGLISH Swedish, English
http://www.euroenergy.se

**SWITZERLAND**
Omini Ray AG
Im Schörli 5, CH-8600 Dübendorf, Switzerland
TEL: +41-44-802-28-80
FAX: +41-44-802-28-28
ENGLISH English, German, French
http://www.omini-ray.ch

Robotronic AG
Schachtholstrasse 8, CH-8406 Winterthur, Switzerland
TEL: +41-52-267-0200
FAX: +41-52-267-0201
ENGLISH English, German, French
http://www.robotronic.ch

Trielec AG
Mühlenalstättstrasse 136, CH-6201 Schaffhausen, Switzerland
TEL: +41-52-625-84-25
FAX: +41-52-625-88-25
ENGLISH German, English
http://www.trielec.ch

**UKRAINE**
CSC Automation Ltd.
M. Raskovoyi str. 4-b, 02660 Kiev, Ukraine
TEL: +38-044-494-3344
FAX: +38-044-494-3366
ENGLISH Ukrainian, Russian, English
http://www.kck.ua

CSC Automation Ltd.
Aptekarsky lane 9-a, office 3, 61001 Kharkov, Ukraine
TEL: +38-057-732-7774
FAX: +38-057-731-8721
ENGLISH Russian, English
http://www.kck.ua

**Turkey**

### Turkey FA Center

Mitsubishi Electric Turkey A.Ş. Ümraniye Branch
Şenfali Mahallesi Nutuk Sokak No.5, TR-34775 Ümraniye / İstanbul, Turkey
TEL: +90-216-969-2500
FAX: +90-216-526-3995

https://tr3a.mitsubishielectric.com

*Japanese engineers are stationed in the FA Center.*

### Sales Offices

Mitsubishi Electric Turkey A.Ş.
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TEL: +90-216-526-3990
FAX: +90-216-526-3995

https://tr3a.mitsubishielectric.com

*Japanese engineers are stationed in the FA Center.*

### Distributors

**ETA ELEKTROTEKNIK SAN. TİC. LTD. ŞTİ.**
Yeşil Tepe Mah. Ulucalı Cad. No:114 Erenler / Adapazarı / Sakarya
TEL: +90-264-273-8104
FAX: +90-264-273-1527
ENGLISH Turkish, English
http://etaelektroteknik.com

**ESO ENDÜSTRİYEL ELEKT. OTOMASYON SAN.TİC.LTD.ŞTI.**
İzmit Sarayı Sitesi 3.Caddesi 202. Blok No:27 İzmit / Kocaeli
TEL: +90-262-335-0716
FAX: +90-262-335-1947
ENGLISH Turkish, English
http://www.esoendustriyel.com

**GEOTEK ELEKTRİK ELEKTRONİK OTOMASYON SAN.VE TİC.LTD.ŞTI.**
1443 Sk.No:1Kırmızı Köşkü / izmir
TEL: +90-232-433-4781
FAX: +90-232-433-4780
ENGLISH Turkish, English
http://www.geotekotomasyon.com/iletisim.html

**BİRMAG MÜHENDİSLİK SAN.TİC.LTD.ŞTİ.**
Gazi Mahallesi Bülvarı Mızrak 5 No:196/2 Yenisehir / Gaziantep
TEL: +90-342-215-0504
FAX: +90-342-215-0599
ENGLISH Turkish, English
http://www.birmag.com

**GENFOTEK GENEL FABRİKA OTOMASYON TEKNOLOJİLERİ SAN. TİC. LTD.ŞTİ.**
Zafer Mah. Yeni San.Sitesi M-7 Blok No:21 Çekmeköy / Tekirdağ
TEL: +90-282-651-3486
FAX: +90-282-651-3496
ENGLISH Turkish, English
http://www.genfotek.com

**OPTİMAS ELK.MÜH.İNS. TUR.ORG.SAN.VE TİC.LTD.ŞTİ.**
Akyent San. Sitesi Hasan Basri Cad. No:10 Karayazı / Konya
TEL: +90-322-346-3083
FAX: +90-322-346-3094
ENGLISH Turkish, English
http://www.optimas.com.tr

*If you need any information regarding countries or regions other than listed above, please contact Europe FA center.*

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**Languages:**
- Turkish
- English
- Arabic
- French
- Hebrew
- Japanese
- Russian
- Ukrainian
- Other Middle East Arab Countries/Cyprus

**Contactors and Motor Starters:** For repairing or after-sales technical support, please contact your nearest FA Center.
**FA Center Satellite**

MITSUBISHI ELECTRIC EUROPE South Africa FA Center Satellite
20 Waterford Office Park Waterford Drive cnr of Witkoppen Road Fourways Johannesburg South Africa
TEL +27-11-658-8100
FAX +27-11-658-8101
https://za3a.mitsubishielectric.com

**Sales Offices**

**Dubai Branch**
Mitsubishi Electric Europe B.V. Dubai Branch
Dubai Silicon Oasis, P.O. BOX 341241, Dubai, U.A.E.
TEL +971-4-3724716
FAX +971-4-3724721
https://eu3a.mitsubishielectric.com

**Distributors**

**Middle East**

**EGYPT**
Cairo Electrical Group
9 Rostoom Str. Garden City 8th Floor, Apt. 37
P.O. Box 165-11516, 6th October, Cairo, Egypt
TEL +20-2-279-23-203
FAX +20-2-279-62-719
LANGUAGE Arabic, English

**ISRAEL**
Sherf Motion Technologies Ltd.
Rehov Hamerava 19, IL-58851 Holon, Israel
TEL +972-3-5595462
FAX +972-3-5560182
http://www.sherfmoion.co.il
LANGUAGE Hebrew, English

**LEBANON**
CEG Liban - Comptoir d’Electricité Générale Liban
Cebaco Center - Block A, Autostada Dora, Beirut, Lebanon
TEL +961-1-240-445
FAX +961-1-240-193
LANGUAGE Arabic, English, French

**SAUDI ARABIA**
Center of Electrical Goods
Al-Shuwayer Street Side way of Sahabuln Al-Ayoutla Str. (Known as Sittreen Str.) Behind Bank Al-Bilad, P.O. Box 15955, Riyadh 11454, Saudi Arabia
TEL +966-1-477-0149
FAX +966-1-477-6043
LANGUAGE Arabic, English, French

**Other Middle East Arab Countries/Cyprus**
Comptoir d’Electricité Générale - International - S.A.L. (Off Shore)
Cebaco Center - Block A, Autostada Dora P.O. Box 11-1314 Beirut, Beirut, Lebanon
TEL +961-1-240-430
FAX +961-1-240-438
LANGUAGE Arabic, French, English

**Africa**

**ALGERIA**
MEC-CASA Complete Automation Solutions Algeria
Cite Alhajal N° 01, 02000 Chief, Algeria
TEL +213-1-27722867
FAX +213-1-27722867
http://www.mec-casa.com
LANGUAGE Arabic, French, English

**MOROCCO**
SCHIELE MAROC
Km 7.2 Nouvelle Route de Rabat. Ain Sebaâ. 20620
Casablanca, Maroc
TEL +212-5-22-66-01-51/52/53/54
FAX +212-5-22-66-01-56
http://www.schieleramaroc.com
LANGUAGE French, English

**SENEGAL**
Avangreen Senegal
Rue Th B x Birago Diop nr. 27, Point E Dakar (Senegal)
TEL +221-33-825-74-20
FAX +221-33-825-74-30
http://www.avangreen.com
LANGUAGE French, English

**SOUTH AFRICA**
MOTIONTRONIX
No. 5 Abatross Street, Rhodesfield, Kempton Park 1619, South Africa
TEL +27-11-394-8512
FAX +27-11-394-8513
http://www.motiontronix.co.za
LANGUAGE English

**TUNISIA**
MOTA Electric
3, Residence Imen, Avenue des Martyrs Mourouj III, 2074 - El Mourouj III Ben Arous, Tunisia
TEL +216-71-474-599
FAX +216-71-474-671
http://www.mota-electric.com
LANGUAGE Arabic, French, English

*For repairing or after-sales technical support, please contact your nearest FA Center.*
Warranty

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occur during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative. However, if repairs are required onsite, actual expenses to send an engineer will be borne by the customer. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be between 12 months\(^1\) and 36 months\(^2\) after the date of purchase or delivery to a designated place.

Note that the product shall be distributed for a maximum period of 6 months after shipment, and the longest gratis warranty term after manufacturing shall be between 18 months\(^1\) and 42 months\(^2\). In addition, the gratis warranty term of the product repaired shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

1. The customer shall be responsible for the primary failure diagnosis unless otherwise specified.

   If requested by the customer, Mitsubishi Electric Corporation or its representative firm may carry out the primary failure diagnosis at the customer’s expense.

   The primary failure diagnosis will, however, be free of charge should the cause of failure be attributable to Mitsubishi Electric Corporation.

2. The warranty shall apply only to the product used under normal situations such as when the usage state, method and/or environment conform to the conditions / precautions stated in the instruction manual, the user’s manual, the caution labels on the product, etc. The range shall be limited to normal use within the usage state, usage methods, usage environment, etc. which follow the conditions, precautions, etc. given in the instruction manual, user’s manual, caution labels on the product, etc.

3. Even within the gratis warranty term, repairs shall be charged in the following cases.
   ① Any failure occurring from inappropriate storage or handling of the product, carelessness or negligence of the customer. Failure caused by the customer’s hardware or software design.
   ② Any failure caused by unapproved modifications, etc., to the product by the customer.
   ③ When the Mitsubishi product is assembled into the customer’s device, any failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the customer’s device is subject to or judged as necessary by industry standards, had been provided.
   ④ Any failure that could have been avoided if consumable parts designated in the user’s manual etc. had been correctly serviced or replaced.
   ⑤ Replacement of consumable parts.
   ⑥ Any failure caused by external irresistible forces such as fires or abnormal voltages, and any failure caused by force majeure such as earthquakes, lightning, wind and water damage.
   ⑦ Any failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
   ⑧ Any other failure found not to be the responsibility of Mitsubishi or admitted not to be so by the customer.

2. Onerous repair term after discontinuation of production

1. Mitsubishi shall accept onerous product repairs for 7 years (4 years for the safety controller) after production of the product is discontinued.

   Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.

2. Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi’s local overseas FA Center. Note that the repair conditions at each FA Center may differ.
4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the customer by failures of Mitsubishi products, special damages and secondary damages, whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the customer, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

6. Product application

(1) In using the Mitsubishi product, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the product, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.

(2) The Mitsubishi product has been designed and manufactured for applications in general industries, etc. Thus, the product should not be used in applications that could affect the public, such as use in nuclear power plants or other power plants operated by respective power companies, and that require a special quality assurance system, such as use for railway companies or public sectors.

Also, the product should not be used in applications that could have significant impact on human life or property, such as use in aircraft, medical or railway services, incineration / fuel devices, manned transportation equipment, equipment for recreation / amusement, or safety devices.

However, Mitsubishi Electric Corporation may consider the possibility of using the product even in these fore-mentioned applications, if the customer acknowledges that the product has only limited application and that any special quality is not required.

(3) Depending on the product, because there shall be other terms defined that are not included in this context, please confirm when you place an order.

*1: The products (Safety controller / Inverter / Low-voltage circuit breaker / Magnetic contactors and starters / Power management measuring devices) whose gratis warranty term is either 12 months after delivery or 18 months after manufacturing.

*2: The products (Programmable controller (including C language controller) / Servo system controller / GOT / Energy-saving support device) whose gratis warranty term is either 36 months after delivery or 42 months after manufacturing.

*3: The gratis warranty term of the industrial robot shall be for either 12 months after delivery or 2000 operating hours (possible operating hours of 8 hours per day x 250 days).

*4: Oil mist environment for industrial robots

As a result of tests conducted using cutting oils shown in the table on the right, Mitsubishi confirms that the product satisfies IP (Ingress Protection) specifications. Using the product in an environment where any cutting oils other than those shown in the table on the right may cause the product to decrease in IP performance. Also, the warranty does not apply if a failure occurs in the product used in an atmosphere where any cutting oil other than those shown in the table on the right is used or where a robot is directly exposed to water, oil or dust beyond IP specs limits. If the customer wants to use a type of cutting oil, other than the applicable oils confirmed, Mitsubishi is ready to conduct a verification test of the oil on the behalf of the customer. For the latest information about any types of cutting oils, other than those listed in the table on the right, which have been confirmed as applicable, visit the website “Mitsubishi FA Site” (URL<http://www.mitsubishielectric.co.jp/fa>).

*5: Usage environment for Magnetic contactors and starters

Do not use the product in the following locations, it may cause the product to malfunction or shorten its operation life.

① Where the ambient temperature exceeds the range of -5 to +40°C.
② Where the average daily temperature exceeds 35°C.
③ Where the altitude exceeds 1000m.
④ Where abnormal vibration or shock happens.
⑤ Where there is the excessive amount of dust.
⑥ Where hazardous gases such as explosive, corrosive and flammable gases are generated.
⑦ Where there is the excessive amount of moisture or oil mist.
⑧ Where there is too much snow and ice.
⑨ Where it is always wet.
⑩ Where it is directly exposed to sea breeze.

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Cutting oils for oil mist environmental test

<table>
<thead>
<tr>
<th>No.</th>
<th>Oil name</th>
<th>Manufacturer</th>
<th>Property</th>
<th>Operating condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Castrol Hysol X</td>
<td>Castrol</td>
<td>Water soluble</td>
<td>20 fold dilution</td>
</tr>
<tr>
<td>2</td>
<td>Castrol Syntilo 9554</td>
<td>Castrol</td>
<td>Water soluble</td>
<td>20 fold dilution</td>
</tr>
<tr>
<td>3</td>
<td>Yushiro oil CE</td>
<td>Yushiro Chemical Industry</td>
<td>Water-soluble</td>
<td>–</td>
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<tr>
<td>4</td>
<td>Yushiroken E10</td>
<td>Yushiro Chemical Industry</td>
<td>Water-soluble</td>
<td>20 fold dilution</td>
</tr>
<tr>
<td>5</td>
<td>Yushiroken synthetic 770TG</td>
<td>Yushiro Chemical Industry</td>
<td>Water-soluble</td>
<td>20 fold dilution</td>
</tr>
<tr>
<td>6</td>
<td>Yushiroken FX30</td>
<td>Yushiro Chemical Industry</td>
<td>Water-soluble</td>
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</tr>
<tr>
<td>7</td>
<td>SUNCUT ES-50N</td>
<td>Nippon Grease</td>
<td>Water-insoluble</td>
<td>–</td>
</tr>
<tr>
<td>8</td>
<td>Searching cut SG555</td>
<td>Kyowa Oil Lubricants</td>
<td>Water-insoluble</td>
<td>–</td>
</tr>
<tr>
<td>9</td>
<td>Emul cut FA-800</td>
<td>Kyodo Yushi</td>
<td>Water soluble</td>
<td>–</td>
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</table>