

**Industrial Computer  
MELIPC Series MI3000**

# MELIPC MI3000

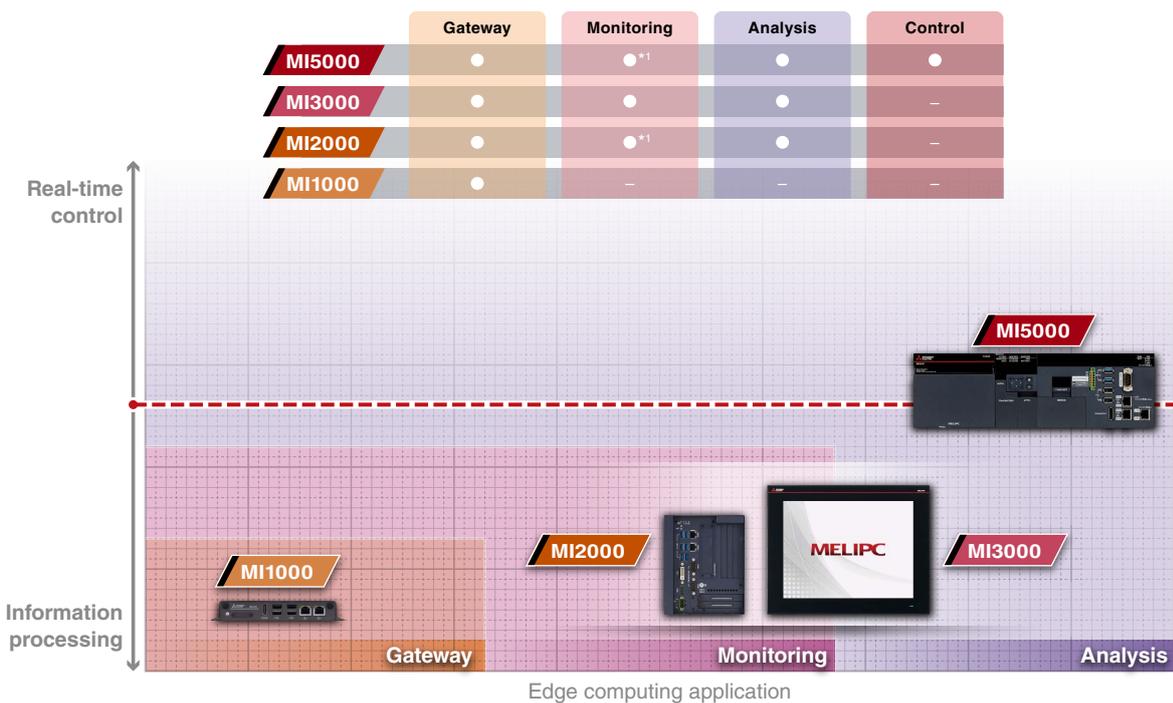
**Give a shape to your ideas**



# MELIPC



The MELIPC realizes “real-time control” for device control and “Edge computing” enabling data collection/analysis in the middle level between the IT system and shop floor. A wide range of products from a high-end model supporting CC-Link IE Field Network capable of high performance processing and high-speed communications to simple and compact range models are available. The MELIPC corresponds with requirements such as real-time control, preventative maintenance, and quality improvement on the shop floor, contributing to productivity enhancement through utilization of production data.



\*1. Can be displayed on an external monitor.

## MI5000

Windows®

VxWorks®

Edgecross

Data collector

MI Configurator



### Windows® and VxWorks® pre-installed

The module can run two operating systems at the same time, VxWorks® with deterministic performance for device control and data collection and Windows® for displaying analysis results of collected data, allowing superior processing according to OS. This feature allows one module to realize device control and information processing which were previously managed using a computer and dedicated device, reducing system configuration cost and space for devices.

### CC-Link IE Field Network realizes highly accurate device control

Control data and production data of devices can be communicated at 1 ms via CC-Link IE Field Network, realizing highly accurate device control and high-speed production data collection. The module is equipped with CC-Link IE Field Network port and CC-Link IE Field Network Basic port which enable easy connection with compatible products just by setting.



MI3000

MI2000

MI1000

## MI3000

Windows®

Edgecross

Data collector

GT SoftGOT2000

## MI2000/MI1000

Windows®

Edgecross

Data collector

### Display and operate collected data **MI3000**

Large screen and high resolution LCD panel is equipped as standard for data display and touch operation. Light-touch operation is realized with a PCAP touch panel that is widely used for smartphones and tablet devices. The touch panel with high transmittance offers clear and high visibility display. In addition, pre-installed software GT SoftGOT2000\*1 enables the same monitoring functions as the GOT2000 Series.

\*1. GT SoftGOT2000 license key (for USB port) (sold separately) is not required.

### Data analysis and large volume data storage **MI3000** **MI2000**

Intel® Core™ i3 CPU realizes simple analysis/diagnosis/monitoring of collected data, contributing to quality improvement. Equipped with 2.5-inch HDD/SSD slot\*2 and PCI Express®/PCI slot\*3, a large volume of data can be stored and functions can be extended.

\*2. The 2.5-inch HDD/SSD slot on MI2000 only.

\*3. Only PCI Express® on MI3000.

### Compact size realizes computer functions **MI1000**

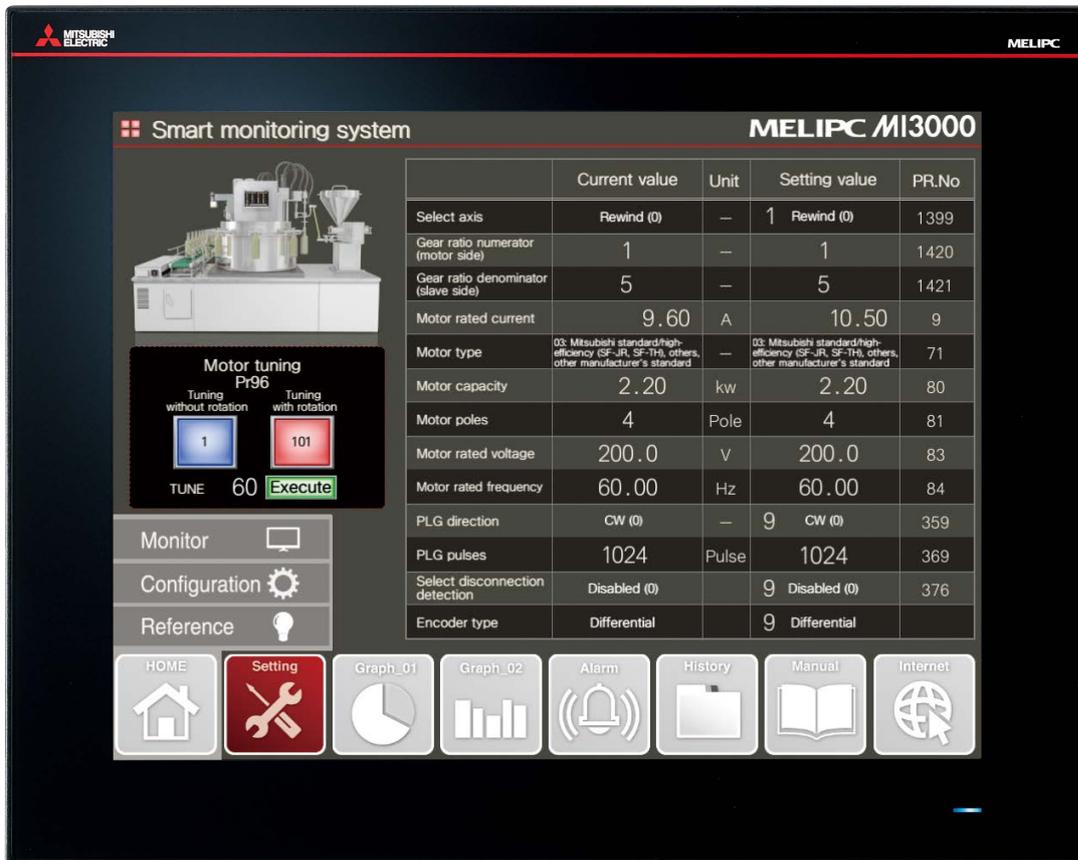
Energy saving Intel® Atom™ E3826 in a compact 26-mm-tall module enables computer functions. Installation in the existing facility is easy as it requires minimal space, contributing to network connection of facilities.

# Start IoT solutions with MI3000 by connecting shop floors with IoT

# MI3000

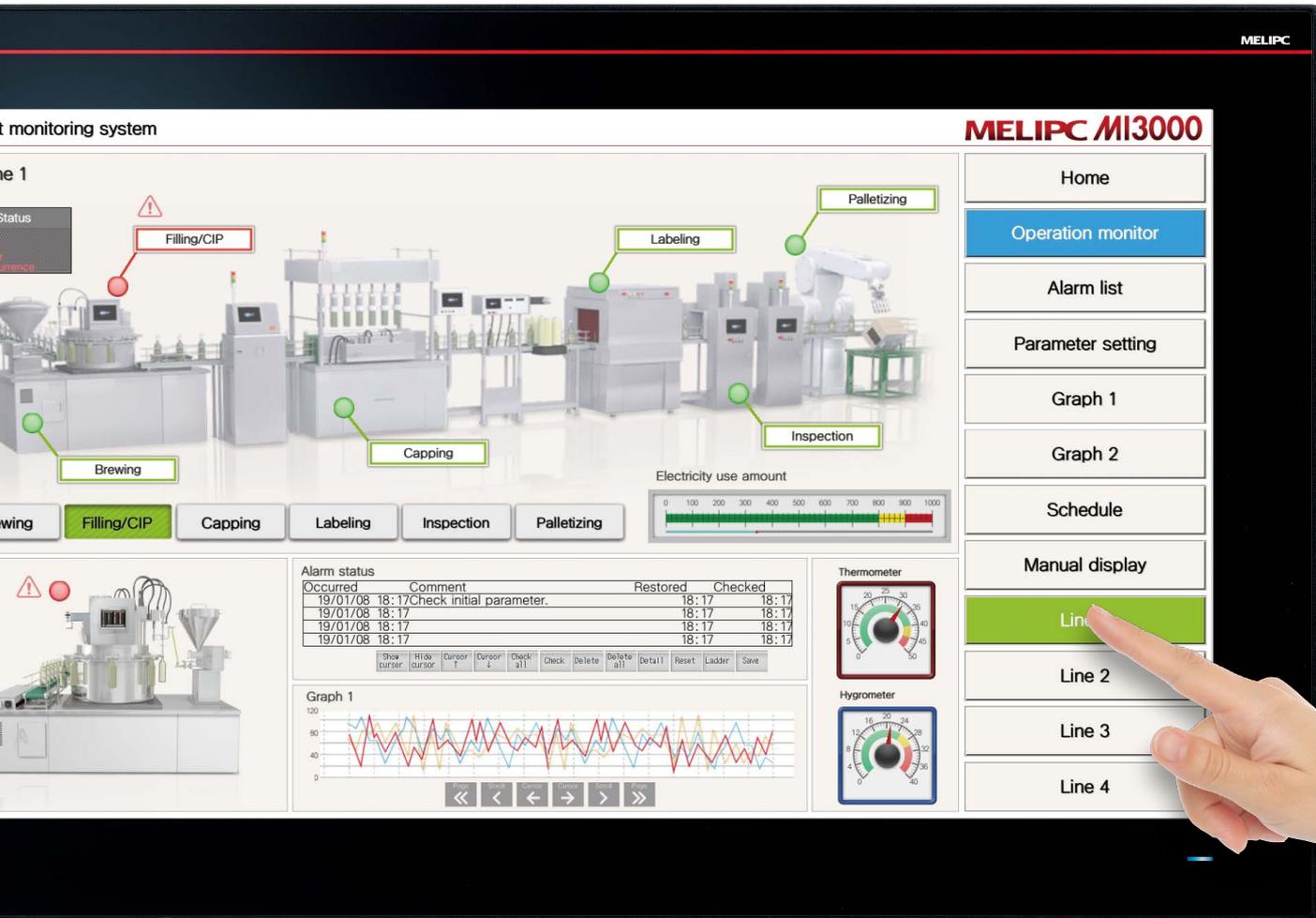
### Pre-installed software

- Edgecross basic software
- SLMP data collector
- GT SoftGOT2000



15" XGA

|                  | MI3315G-W                                     | MI3321G-W                 |
|------------------|---|---------------------------|
| OS               | Windows® 10 IoT Enterprise 2016 LTSP (64 bit) |                           |
| MPU              | Intel® Core™ i3-6100U 2.30 GHz (Dual Core)    |                           |
| Screen size      | 15"   | 21.5" widescreen          |
| Resolution       | XGA: 1024 x 768 dots                          | Full HD: 1920 x 1080 dots |
| Display color    | 16.77 million                                 |                           |
| Touch panel type | PCAP (Projected Capacitive)                   |                           |
| Main memory      | 8 GB  |                           |
| Internal storage | 64 GB   |                           |



21.5" widescreen, Full HD

## MI3000 connects shop floors and IT systems in real time as the front-end and the base of your factory

Factories that do not create defects, that do not stop. To make existing factories smarter, demands for applying IoT to shop floors are rapidly increasing. MI3000 utilizes the latest IoT technologies to visualize production activities and collect and analyze big data of manufacturing, thus increasing productivity and ensuring and improving products quality.



# MI3000 features

## High resolution, large screen display, and equipped with all necessary functions to visualize factories in one body

21.5" widescreen, Full HD



Display colorful images with 16.77 million colors

### Beautiful, stunning, large screen monitor offers easy-to-view display and user-friendly operation

MI3000 is equipped with large 21.5-inch widescreen display and a full HD high resolution LCD panel\*1. Collected data can be displayed on the easy-to-view screen and can be operated by touch operations.

\*1. Equipped on MI3321G-W.

### PCAP (Projected Capacitive) touch panel

Light-touch operation is realized with a PCAP touch panel that is widely used for smartphones and tablet devices. The touch panel with high transmittance offers clear and high visibility display.

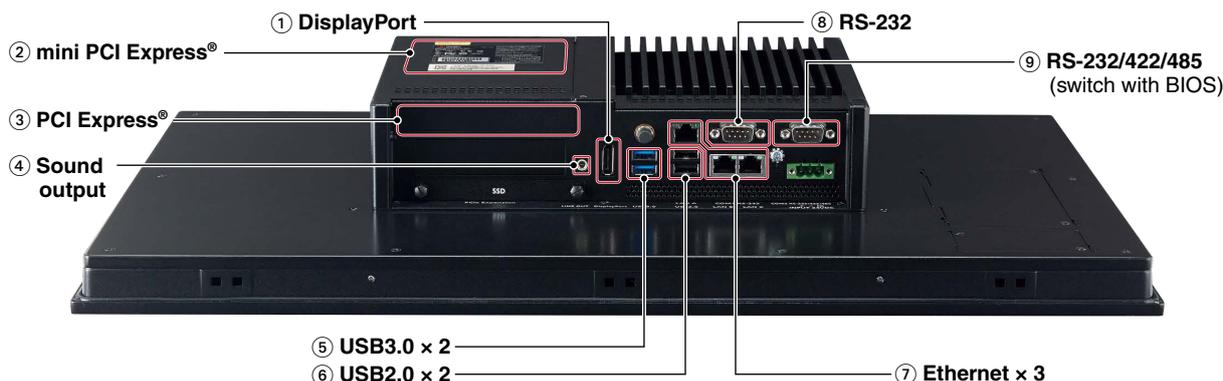
### Data analysis/diagnosis/monitoring

Equipped with Intel® Core™ i3 CPU, 8 GB memory, and 64 GB SSD. Simple analysis/diagnosis/monitoring of collected data contributes to improve shop floors.

### System expansion according to needs

Equipped with various interfaces, systems can be configured according to the customers' needs.

- ① **DisplayPort**  
Output to an external monitor. Screen can be displayed on a larger monitor.
- ②③ **PCI Express®/mini PCI Express®**  
Expand functions by using an expansion board.
- ④ **Sound output**  
For outputting sound by connecting a speaker with built-in amplifier. To output sound from GT SoftGOT2000, sound files can be created easily with GT Designer3. (See page 10)
- ⑤⑥ **USB3.0/USB2.0**  
Each interface has two ports for connecting to various USB compatible devices.
- ⑦ **Ethernet**  
Various Ethernet compatible devices can be connected to 3 ports. The network in the office can be separated from the one in shop floors to enhance security.
- ⑧⑨ **RS-232/422/485**  
For data collection from existing facilities.

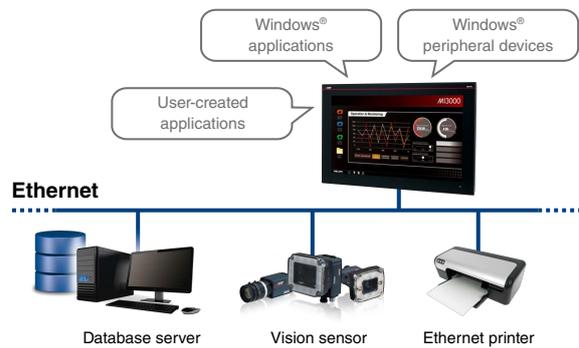




## Windows® OS and coordination with Edgecross enable wider usage

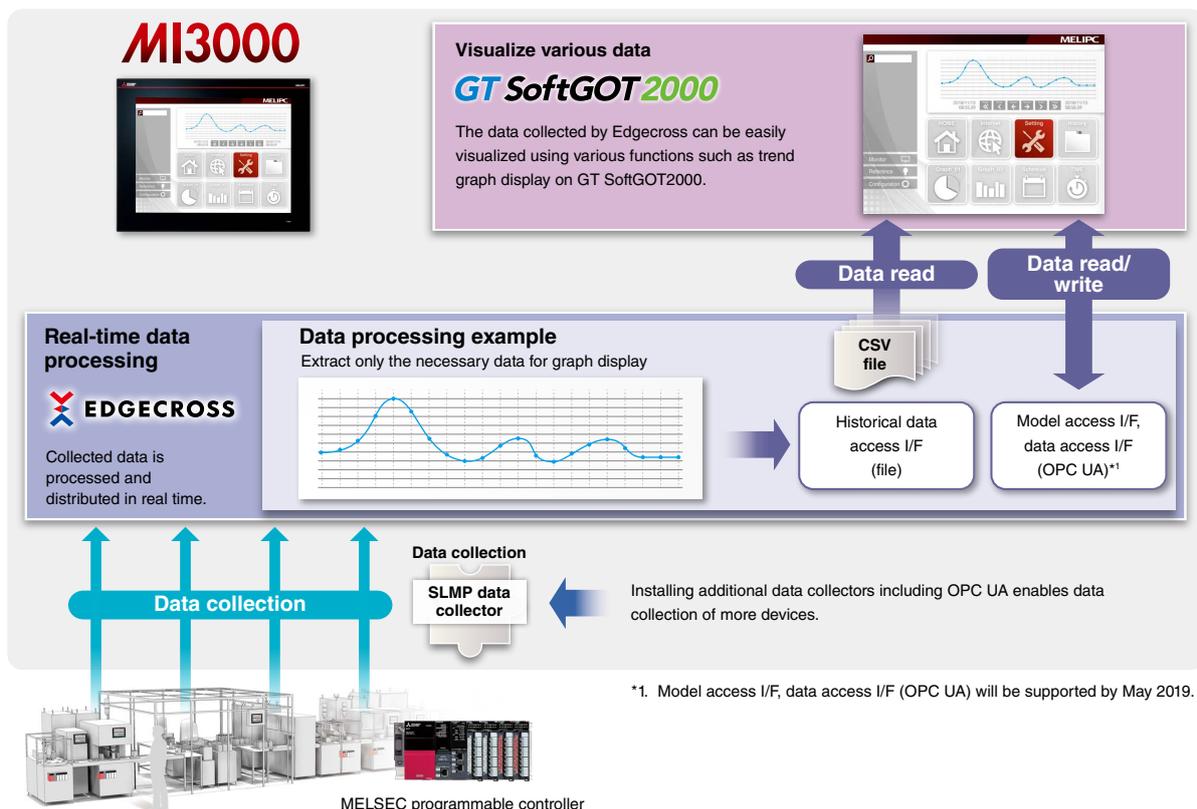
### Windows® 10 IoT Enterprise pre-installed

Not only familiar Windows® applications, but also user-created applications can be used to configure systems that meet requirements of individual customers. In addition, long-term support of Windows® 10 IoT Enterprise ensures safe use of facilities and devices with long life cycles.



### Edgecross compatible software pre-installed

Edgecross basic software, SLMP data collector, and GT SoftGOT2000 are pre-installed on MI3000. The data collected by Edgecross, SLMP data collector, and GT SoftGOT2000 can be monitored on the GT SoftGOT2000 screen.



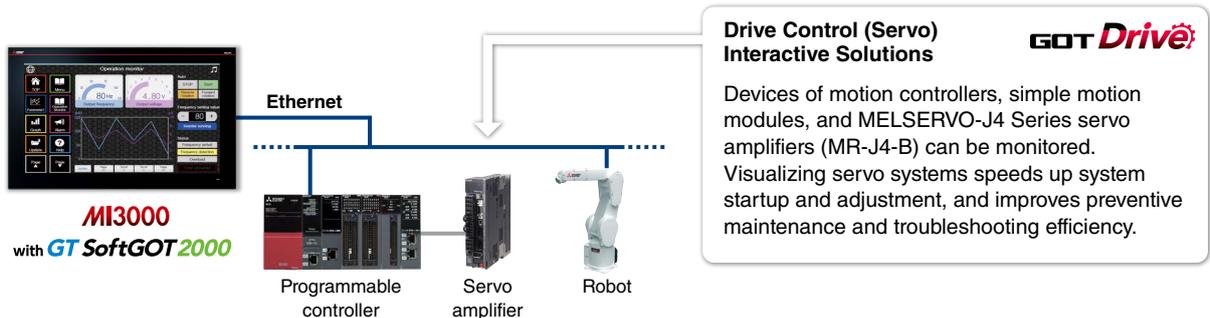
# Easily visualize shop floors with GT SoftGOT2000

## MI3000 with GT SoftGOT2000



### GT SoftGOT2000 pre-installed

GT SoftGOT2000 is pre-installed\*1 on MI3000. Various industrial devices can be directly connected\*2 and monitored in the same way as GOT2000 Series. The data collected by Edgexcross can also be monitored.



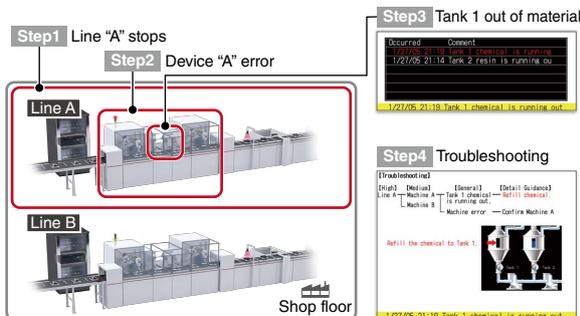
\*1. GT SoftGOT2000 license key (for USB port) (sold separately) is not required.

\*2. For the connectable model list and supported connection types, please refer to the Graphic Operation Terminal GOT2000 Series Catalog (L(NA)08270ENG), or refer to the GT SoftGOT2000 Version1 Operating Manual by starting up e-Manual Viewer that is pre-installed on MI3000.

### Use various functions of GT SoftGOT2000 on a panel computer

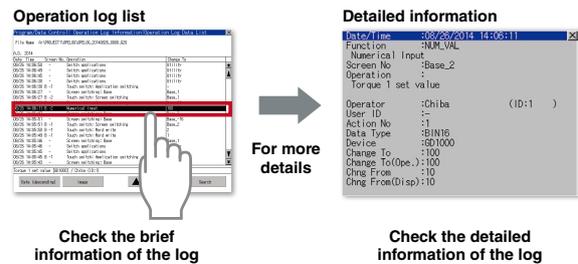
#### Alarm display

GT SoftGOT2000 displays communication errors (system alarms) of controllers and user-created alarms (user alarms).



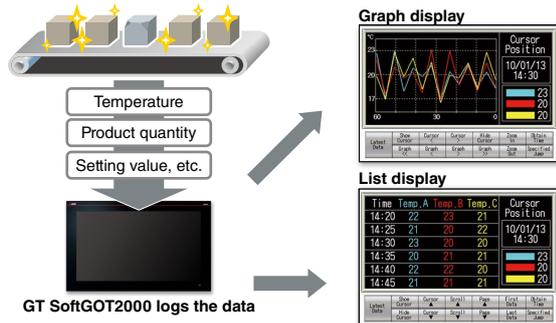
#### Operation log

GT SoftGOT2000 records the operation information, such as "what, when, and how" of an operation performed, in chronological order in a USB memory.



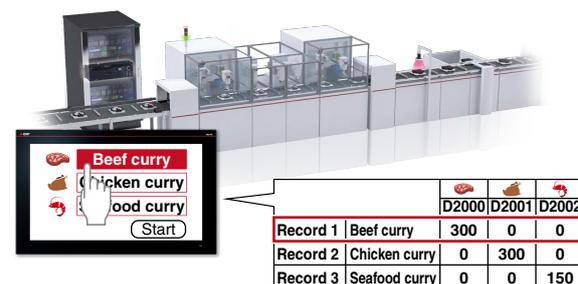
#### Logging & Graph/List

GT SoftGOT2000 collects the data from programmable controllers and other devices and displays the collected data in a historical trend graph and list.



#### Recipe

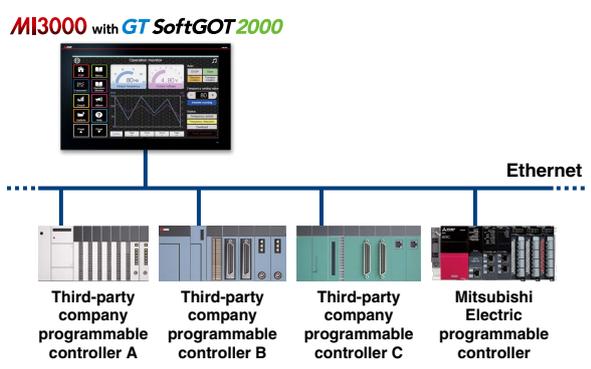
GT SoftGOT2000 saves the recipe information (device values) such as material blend and machine conditions. You can change the recipe on the GT SoftGOT2000 and write it to a programmable controller to quickly perform the changeover.





**Multi-channel** To be supported by May 2019

Up to four channels of industrial devices can be monitored via Ethernet on a single module of GT SoftGOT2000. With this function, you can flexibly configure systems and visually check devices.



**Operability**

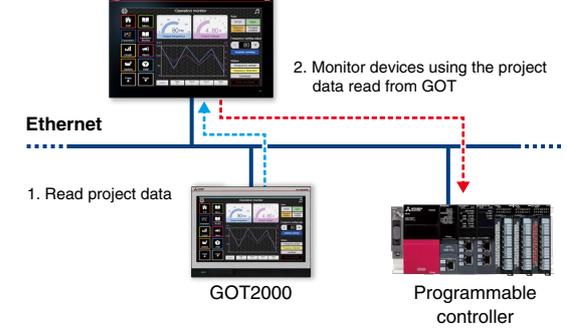
Not only touch operations, but also long-press operations\*1 can be used. Enabling momentary action and ON-delay of touch switches ensures safe operation and improves operability.  
 \*1. Long-press operations will be supported by May 2019.



**Interaction with GOT2000**

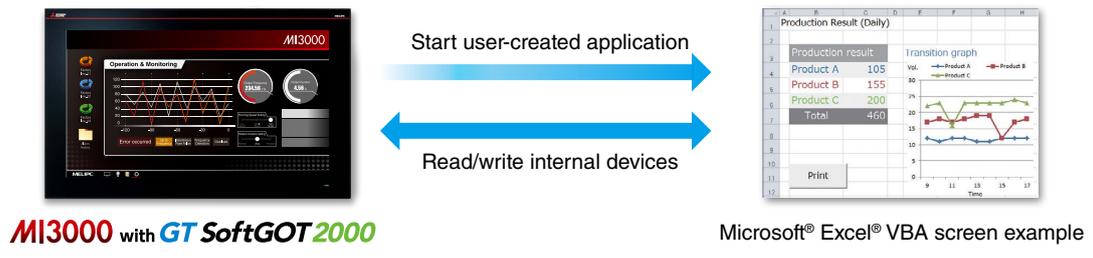
GT SoftGOT2000 allows monitoring of devices connected via Ethernet using the project data that is read from GOT at a shop floor. GT SoftGOT2000 and the GOT can display different screens. Since the project data dedicated for GT SoftGOT2000 is not required, you can quickly start remote monitoring. (SoftGOT-GOT link function)

**MI3000 with GT SoftGOT2000**



**Interaction with Windows® applications**

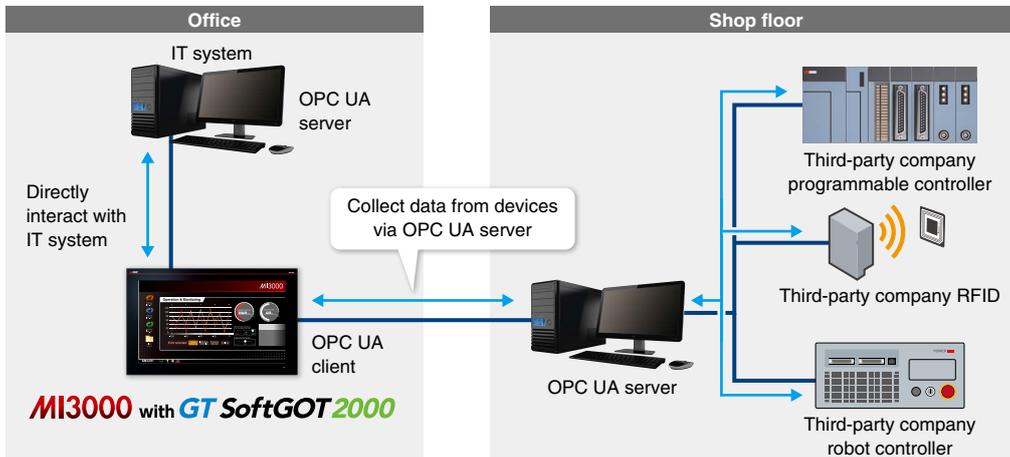
By creating a touch switch on the GT SoftGOT2000 screen, it is possible to start other applications (such as Microsoft® Excel®) while monitoring with GT SoftGOT2000. Interaction with Windows® applications makes it possible to build advanced and flexible systems.



- MELIPC
- MI3000
- GT SoftGOT2000
- System configuration
- Specifications
- Product list
- Support

## OPC UA client support for data collection and monitoring of various devices To be supported by May 2019

GT SoftGOT2000 accesses an OPC UA server as an OPC UA client. Since GT SoftGOT2000 collects data via the OPC UA server, various devices can be monitored even if connection to the devices are not supported by GT SoftGOT2000.



### OPC UA (OLE for Process Control Unified Architecture):

a highly reliable, open international standard for industrial communication that enables data exchange among devices from multiple vendors on different operating systems.

## Easily create project data

### Creating screens is easy

The display screen is created with GT Designer3. By converting the GOT type to MI3000, the project data for GOT2000 can be used as is. Ready to use sample screens are also available.



### Sound files can be created easily

Sound files for notification can be created easily with GT Designer3. Just enter text in GT Designer3 to create a sound file of a message. In addition to messages, sound effects and melodies are included. Three types of sound files can be combined to make effective audio guidance. (Speech synthesis function\*1)

\*1. GT Works Text to Speech License (SW1DND-GTVO-M) is required separately.

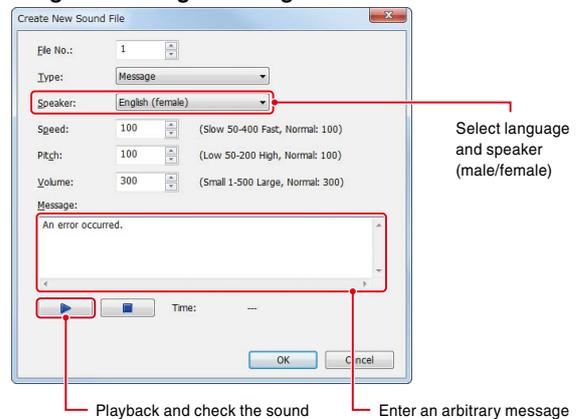
### Supported languages of messages

| Male   | Japanese | English | Chinese (Simplified) | Korean                | Spanish |         |
|--------|----------|---------|----------------------|-----------------------|---------|---------|
| Female | Japanese | English | Chinese (Simplified) | Chinese (Traditional) | Korean  | Spanish |

### Playable sound file types

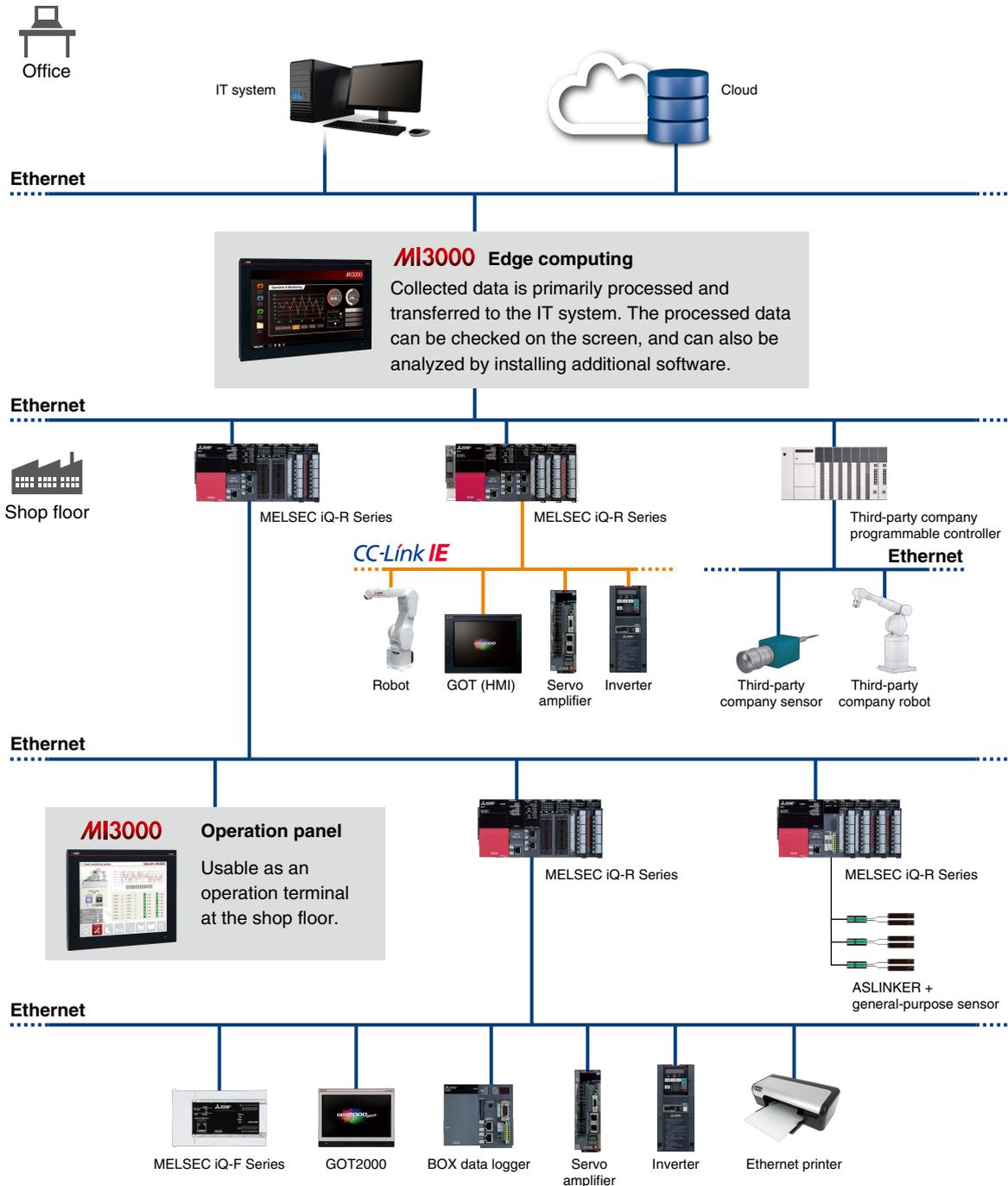
| Message                    | Sound effect                    | Melody                          |
|----------------------------|---------------------------------|---------------------------------|
| Create from arbitrary text | More than 50 files are included | More than 10 files are included |

### Image of creating a message



## System configuration

Utilization of pre-installed Edgexross basic software and SLMP data collector enables real-time monitoring of shop floor data and realizes coordination with IT systems. In addition, collected data is easily visualized with GT SoftGOT2000.



## MELIPC MI3000 specifications

### General specifications

| Item                               | Specifications  |           |
|------------------------------------|---|-----------|
|                                    | MI3321G-W   | MI3315G-W |
| Operating ambient temperature (°C) | 0...55  |           |
| Storage ambient temperature (°C)   | -20...60  |           |
| Operating ambient humidity         | 10...90% RH, non-condensing   |           |
| Storage ambient humidity           |   |           |
| Vibration resistance               | Compliant with IEC60068-2-64, 5...500Hz, one hour in direction X, Y, Z each   |           |
| Random vibration                   | 3 Grms  |           |
| Shock resistance                   | Compliant with IEC-60068-2-27, 10 G, half sine wave, 11 msec  |           |
| Operating atmosphere               | No corrosive gases, no flammable gases, no excessive conductive dust, no direct sunlight (as well as at storage)                          |           |
| Operating altitude <sup>*3*4</sup> | —   |           |
| Installation location              | Inside the control panel  |           |
| Overvoltage category <sup>*1</sup> | ≤ II  |           |
| Pollution degree <sup>*2</sup>     | ≤ 2   |           |
| Cooling method                     | Self-cooling (fan-less)   |           |
| Grounding                          | Grounding with a ground resistance of 100 Ω or less by using a ground cable that has a cross-sectional area of 2 mm <sup>2</sup> or more. |           |

\*1. This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within premises. Category II applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for up to the rated voltage of 300 V is 2500 V.

\*2. This index indicates the degree to which conductive material is generated in terms of the environment in which the equipment is used. Pollution level 2 is when only non-conductive pollution occurs. A temporary conductivity caused by condensing must be expected occasionally.

\*3. Do not use nor store the product under pressure higher than the atmospheric pressure of altitude 0 m. Doing so may cause malfunction.

\*4. No limitations to altitude. When used at a high altitude, the upper limits of the permissible voltage and the operating ambient temperature become lower. Please check performance before use at the customer side.

### Performance specifications

| Item   | Specifications   |   |
|--|--|---|
|  | MI3321G-W  | MI3315G-W   |
| Hardware   |  |   |
| MPU  | Intel® Core™ i3-6100U 2.30GHz (Dual Core)  |   |
| Main memory (byte)                                 | 8G   |   |
| Internal storage capacity (byte)                   | 64G  |   |
| Battery replacement                                | Not replaceable <sup>*2</sup>  |   |
| Battery life                                       | 4 years  |   |
| Extended storage interface                         | M.2 (2280) SATA SSD x 1  |   |
| Software   |  |   |
| OS   | Windows® 10 IoT Enterprise 2016 LTSB (64 bit)  |   |
| System language                                    | At initial startup: English  |   |
| Display interface (for external monitor output)    |  |   |
| Interface  | DisplayPort 1.4 x 1  |   |
| Resolution <sup>*1</sup>                           | Max. 3840 x 2160   |   |
| Extended slot                                      |  |   |
| PCI Express®                                       | x1 slot, (half size) x 1   |   |
| mini PCI Express®                                  | Full size x 2  |   |
| PCI  | —  |   |
| Ethernet (RJ-45)                                   |  |   |
| Interface  | 10BASE-T/100BASE-TX/1000BASE-T   |   |
| Number of channels                                 | 3  |   |
| RS-232 (D-sub 9-pin (male))                        |  |   |
| Number of channels                                 | 2 (RS-422/485 can also be used for one of the two channels <sup>*3</sup> )                   |   |
| Transmission rate (bps)                            | 300...115200   |   |
| RS-422 (D-sub 9-pin (male))                        |  |   |
| Number of channels                                 | 1 (RS-232/485 can also be used <sup>*3</sup> )   |   |
| Transmission rate (bps)                            | 300...115200   |   |
| RS-485 (D-sub 9-pin (male))                        |  |   |
| Number of channels                                 | 1 (RS-232/422 can also be used <sup>*3</sup> )   |   |
| Transmission rate (bps)                            | 300...115200   |   |
| USB (USB Type-A)                                   |  |   |
| USB3.0   | 2  |   |
| USB2.0   | 2  |   |
| Sound output (φ3.5 mini-jack (3-prong))            |  |   |
| Interface  | Audio Line-Out   |   |
| Number of ports                                    | 1  |   |
| Others   |  |   |
| Built-in clock precision                           | Daily difference: -2 seconds to +2 seconds<br>Monthly difference: -60 seconds to +60 seconds |   |
| Safety standards, radio laws (as of February 2019) | CE, UL, cUL, KC, BSMI, CCC, FCC  |   |
| External dimensions (H x W x D)                    | 349.8 x 558.4 x 88.8 mm (13.77 x 21.98 x 3.50 inch)  | 307.3 x 383.2 x 86 mm (12.10 x 15.09 x 3.39 inch) |
| Panel cutting dimensions (H x W)                   | 341.8 x 550.3 mm (13.46 x 21.67 inch)  | 298.5 x 374.5 mm (11.75 x 14.74 inch)             |
| Weight   | 9.8 kg (21.6 lb)   | 7.0 kg (15.4 lb)                                  |

\*1. Maximum resolution at 60 Hz.

\*2. The battery cannot be removed by users. For the battery replacement, please consult your local sales office.

\*3. The interface can be switched between RS-232, RS-422, and RS-485 with the BIOS.

## Display specifications

| Item                               | Specifications                  |                 |
|------------------------------------|---------------------------------|-----------------|
|                                    | MI3321G-W                       | MI3315G-W       |
| Display specifications             |                                 |                 |
| Display device <sup>*1*</sup>      | TFT color LCD                   |                 |
| Screen size                        | 21.5" widescreen                | 15"             |
| Resolution (dots)                  | Full HD: 1920 x 1080            | XGA: 1024 x 768 |
| Display colors                     | 16.77 million                   |                 |
| Contrast ratio                     | 5000:1                          | 700:1           |
| Backlight specification            | LED backlight (not replaceable) |                 |
| Life                               | 50,000 hours                    |                 |
| Touch panel                        |                                 |                 |
| Type                               | PCAP (Projected Capacitive)     |                 |
| Simultaneous press                 | Max. 10 keys <sup>*3</sup>      |                 |
| Transmittance                      | 90%±3%                          |                 |
| Others                             |                                 |                 |
| POWER LED                          | 2 colors (blue and orange)      |                 |
| Environmental protective structure | IP66 (front face)               |                 |

\*1. As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel. Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and dark dots cannot be reduced to zero. Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering. Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged

\*2. Flickering may occur due to vibration, shock, or the display colors.

\*3. Multiple touch keys cannot be pressed simultaneously while GT SoftGOT2000 is used.

## Power supply specifications

| Item  | Specifications   |           |
|---|--|-----------|
|   | MI3321G-W  | MI3315G-W |
| Power supply voltage  | 24 V DC (+20%, -20%)   |           |
| Power consumption   | Under the maximum load   | 90 W      |
|   | Stand alone  | 27 W      |
| Applicable wire size  | Single wiring (single wire, stranded wire): 0.2 to 2.5 mm <sup>2</sup> (AWG24 to AWG14)  |           |
|   | Rod terminal with an insulation sleeve: 0.25 to 2.5 mm <sup>2</sup> (AWG22 to AWG14)   |           |
|   | Double wiring (single wire, stranded wire): 0.2 to 1.5 mm <sup>2</sup> (AWG24 to AWG16)  |           |
| Applicable solderless terminal                                    | DN00508D (AWG20), DN00708D (AWG18), DN01508D (AWG16) (manufactured by DINKLE)<br>Crimp tool: DNT13-0101 (manufactured by DINKLE) |           |
| Applicable tightening torque (for terminal block terminal screws) | 0.20 N·m (M2.5)  |           |

## GT SoftGOT2000 (pre-installed software) specifications

| Item                          | Specifications   |
|-------------------------------|--|
| Resolution                    | 640 to 1920 x 480 to 1200  |
| Display color                 | 65536 colors   |
| Display language              | At initial startup: English <sup>*2</sup>  |
| Connection type <sup>*1</sup> | Ethernet connection, direct CPU connection, serial communication connection, CC-Link IE Controller Network connection, CC-Link IE Field Network connection, MELSECNET connection |

\*1. Required devices vary depending on the connection type. For the details, please refer to the GT SoftGOT2000 Version1 Operating Manual.

\*2. By switching display languages, Japanese and Chinese (Simplified) can be displayed. To upgrade the software version, use the English version of the upgrade software.

## iQ Edgex compatible software

### ■ Edge application

| Item                              | MI3000            |
|-----------------------------------|-------------------|
| Real-time data analyzer           | ● <sup>*1</sup>   |
| GT SoftGOT2000                    | ● (pre-installed) |
| MC Works64 Edge Computing Edition | ●                 |

\*1. Since MI3315G-W does not support the resolution that is recommended by real-time data analyzer, some parts of the screen are not shown on the display.

### ■ Data collector

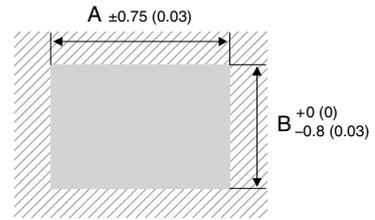
| Item   | MI3000            |
|--|-------------------|
| CC-Link IE Field Network Data Collector (MELIPC MI5122-VW)   | —                 |
| CC-Link IE Field Network Data Collector <sup>*1</sup> <span style="color: red; font-size: small;">(Supported soon)</span>      | ●                 |
| CC-Link IE Controller Network Data Collector <sup>*1</sup> <span style="color: red; font-size: small;">(Supported soon)</span> | ●                 |
| SLMP Data Collector  | ● (pre-installed) |
| OPC UA Data Collector  | ●                 |
| MTConnect Data Collector   | ●                 |

\*1. The network interface board by Mitsubishi Electric is required separately.

## Panel cutting dimensions

| Screen size      | Model     | A                | B                |
|------------------|-----------|------------------|------------------|
| 21.5" widescreen | MI3312G-W | 550.3<br>(21.67) | 341.8<br>(13.46) |
| 15"              | MI3315G-W | 374.5<br>(14.74) | 298.5<br>(11.75) |

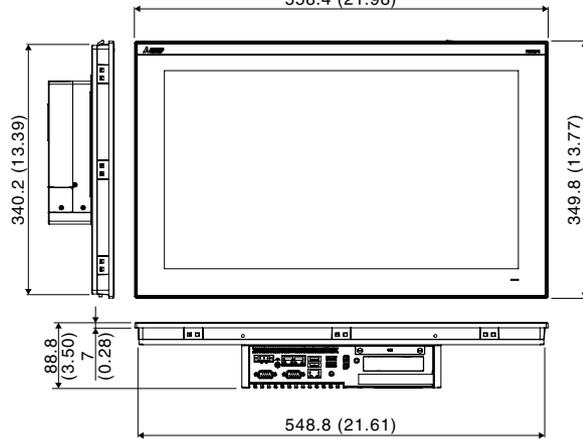
Unit: mm (inch)



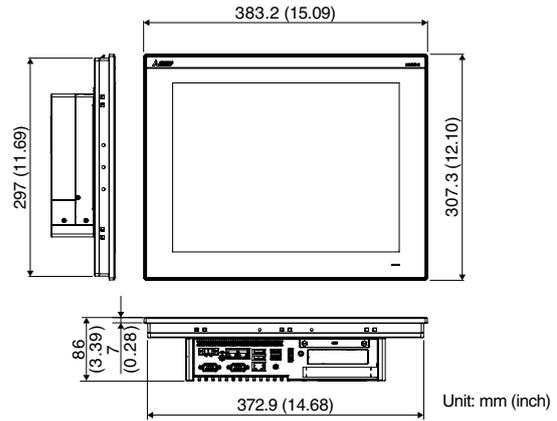
\* Panel thickness: 2 to 6 mm (0.08 to 0.24 inch)

## External dimensions

MI3321G-W



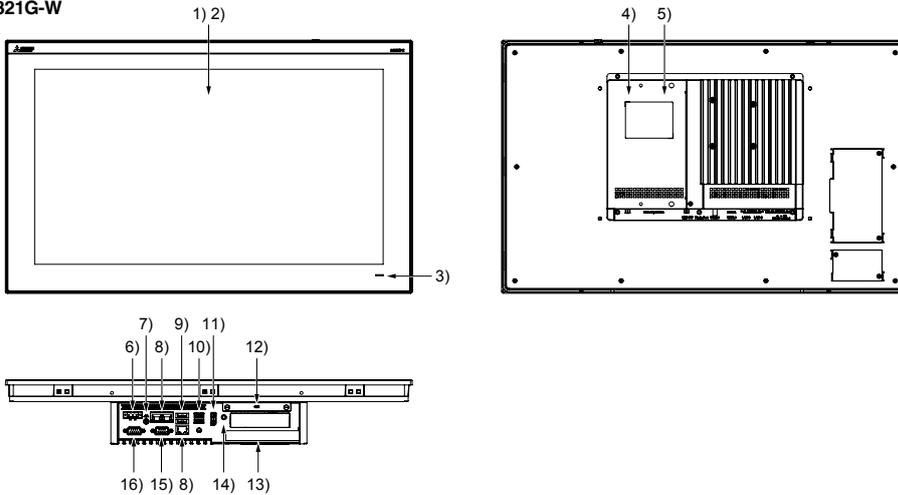
MI3315G-W



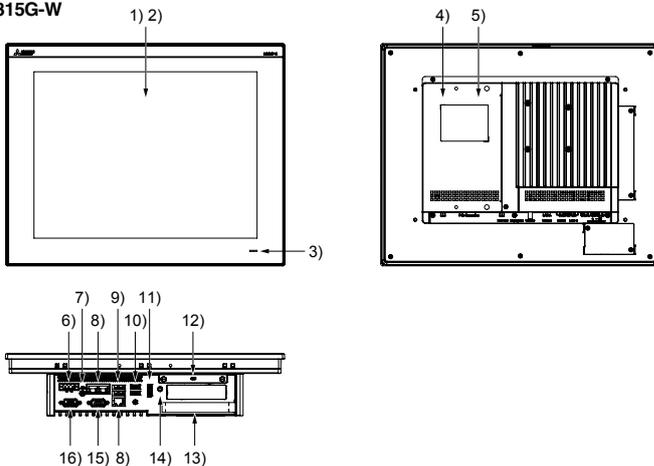
Unit: mm (inch)

## Part names

MI3321G-W



MI3315G-W



- 1) Display section
- 2) Touch panel
- 3) POWER LED
- 4) M.2 (2280) SATA interface (inside the cover)
- 5) mini PCI Express® interface (inside the cover)
- 6) Power supply terminal
- 7) Ground terminal
- 8) Ethernet interface
- 9) USB2.0 interface
- 10) USB3.0 interface
- 11) DisplayPort interface
- 12) SATA interface
- 13) PCI Express® interface
- 14) Sound output interface
- 15) RS-232 interface
- 16) RS-232/RS-422/RS-485 interface

## Product list

### MELIPC

| Product name  | Model     | Screen size               | Panel color | Outline   |
|---------------|-----------|---------------------------|-------------|---|
| MELIPC MI3000 | MI3321G-W | 21.5" widescreen, Full HD | Black       | Edgecross basic software, SLMP data collector, GT SoftGOT2000 pre-installed |
|               | MI3315G-W | 15" XGA                   | Black       |   |

### Engineering tool

| Product name  | Model          | Outline                                       |
|---|----------------|---|
| HMI/GOT Screen Design Software<br>MELSOFT GT Works3 | SW1DND-GTWK3-E | English Version<br>Standard license product*1 |
| GT Works Text to Speech License*2                   | SW1DND-GTVO-M  | Standard license product                      |

\*1. The desired number of licenses (2 or more) can be purchased. For details, please contact your local sales office.

\*2. To edit sound files, each personal computer requires one license.

### Option

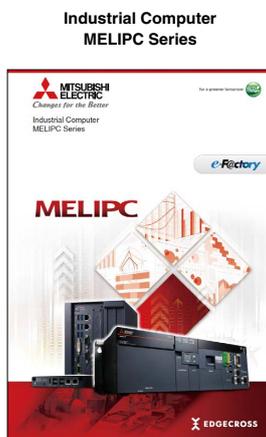
| Product name            | Model             | Outline  |
|-------------------------|-------------------|--|
| Network interface board | Q81BD-J71GF11-T2  | PCI Express® bus compatible, CC-Link IE Field Network (master/local station)   |
|                         | Q81BD-J71GP21-SX  | PCI Express® bus compatible, CC-Link IE Controller Network (control/normal station)                                      |
|                         | Q81BD-J71GP21S-SX | PCI Express® bus compatible, CC-Link IE Controller Network (control/normal station), with external power supply function |

### iQ Edgecross

| Product name              | Model            | Outline                                     |
|---------------------------|------------------|---|
| Real-time data analyzer*1 | SW1DND-RDA-MQ12  | One year subscription license, DVD included |
|                           | SW1DND-RDA-MZQ12 | One year subscription license               |

\*1. For the details, please refer to the Industrial Computer MELIPC Series catalog (L(NA)08578ENG). This product can be used when one year subscription license is purchased. Please consult your local Mitsubishi Electric representative, if other license agreement is required.

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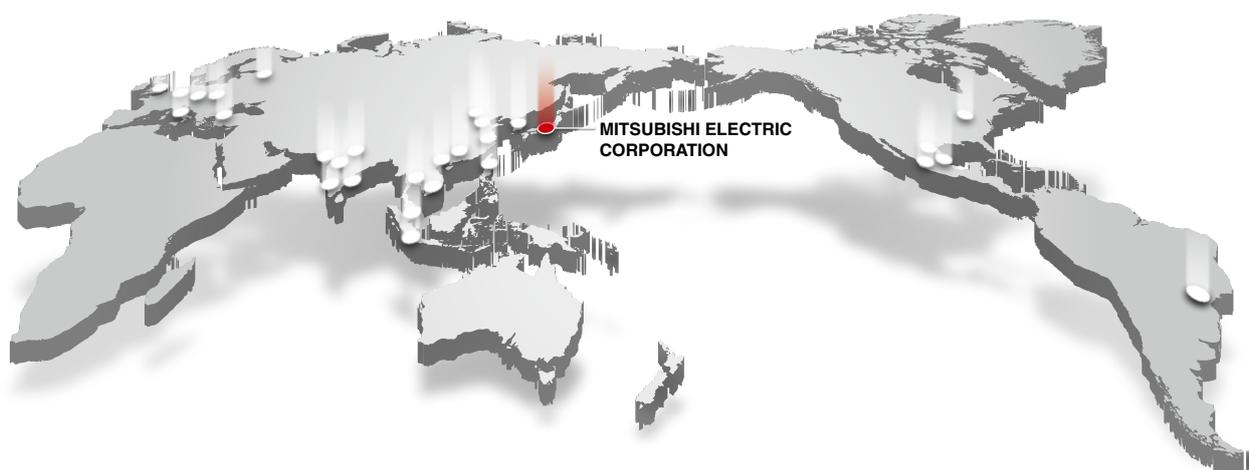
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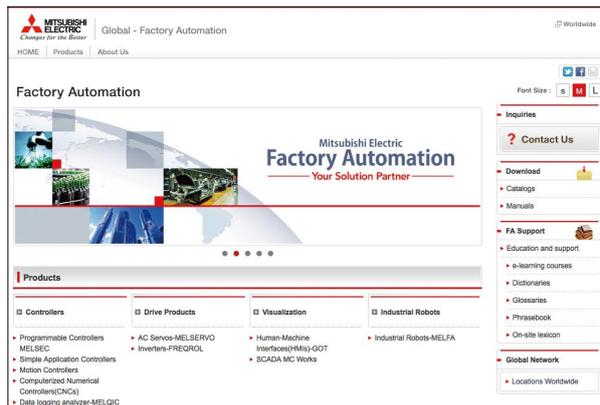
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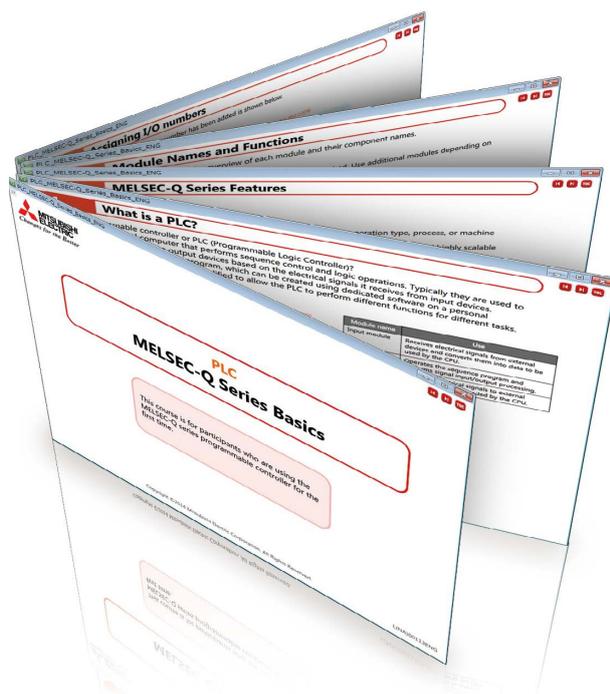
- Overview of available factory automation products
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## Online e-learning

An extensive library of e-learning courses covering the factory automation product range has been prepared. Courses from beginner to advanced levels of difficulty are available in various languages.



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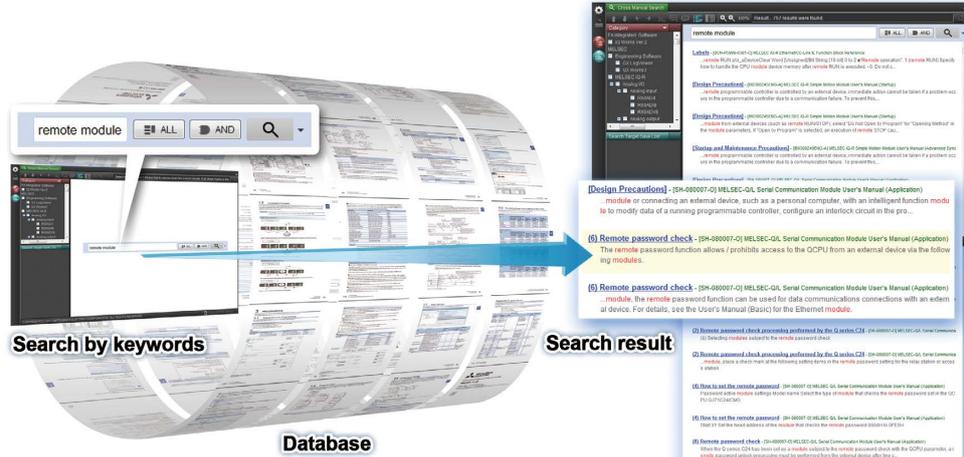
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HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN  
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### Country/Region Sales office

USA .....+1-847-478-2100  
Mexico .....+52-55-3067-7511  
Brazil .....+55-11-4689-3000  
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Taiwan .....+886-2-2299-2499  
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Singapore .....+65-6473-2308  
Thailand .....+66-2682-6522 to 31  
Indonesia .....+62-21-3192-6461  
Vietnam .....+84-8-3910-5945  
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