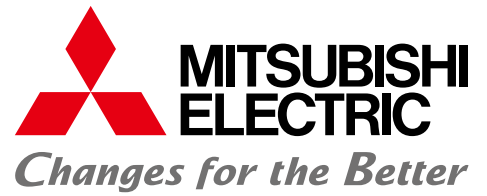




for a greener tomorrow



FA Application Package iQ Monozukuri Process Remote Monitoring



Easily introduce IoT technologies to the shop floor
Visualization of operation status improves manufacturing process and productivity



GT SoftGOT2000



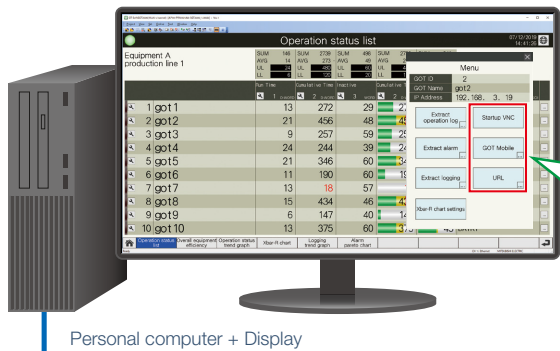
- Incorporating the package into existing equipment makes system implementation easy
- Collectively manage information that used to be managed individually
- Template screens to analyze the equipment status are included

iQ Monozukuri Process Remote Monitoring

iQ Monozukuri Process Remote Monitoring is an application package to easily introduce IoT technologies to the shop floor, collect and visualize information of multiple devices, and collectively manage the information.

Manufacturing process and productivity of the whole production can be improved by analyzing the data displayed on GT SoftGOT2000. The operation status of the shop floor and the information such as operation logs and alarms can be collected from each device via an on-site GOT.

iQ Monozukuri Process Remote Monitoring + GT SoftGOT2000

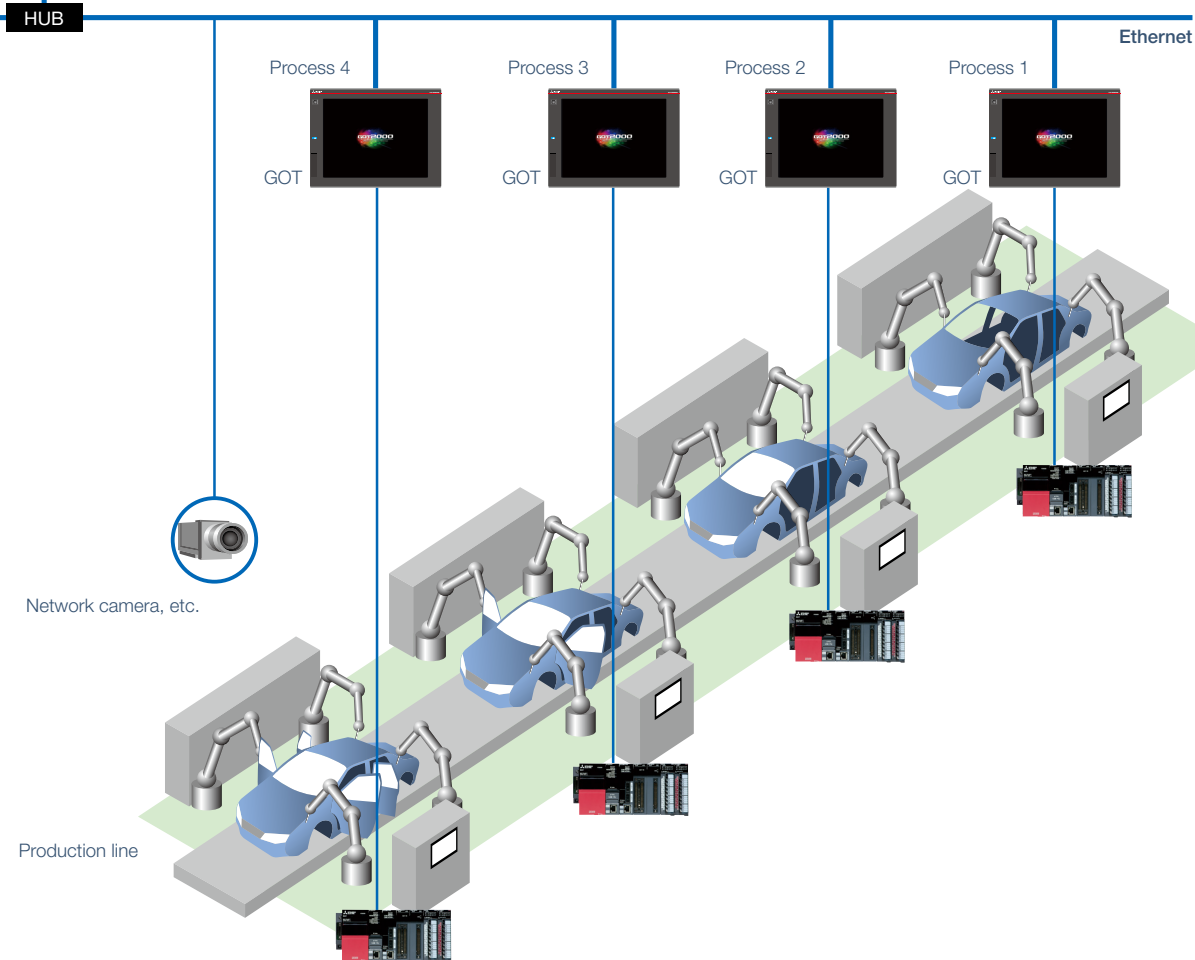


Information of multiple GOTs can be displayed and checked.

Other applications can be started to check information.

Example) Checking camera images at the shop floor

Example) Checking error screens of on-site GOTs



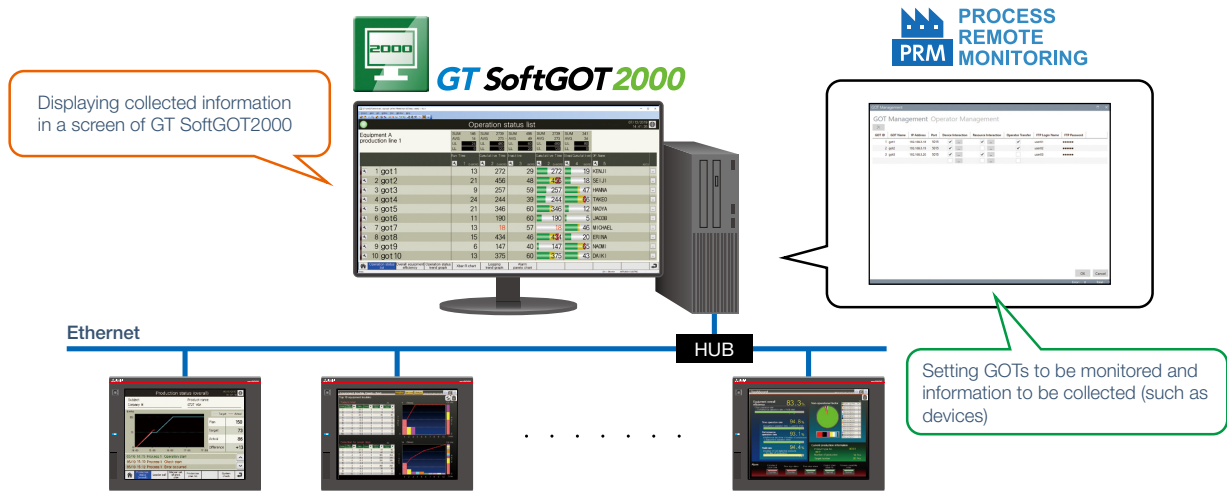
iQ Monozukuri Process Remote Monitoring

iQ Monozukuri Process Remote Monitoring consists of the Process Remote Monitoring setting tool and an iQ Monozukuri Process Remote Monitoring template project for GT SoftGOT2000 that easily realize "collection, visualization, and management of the information collected from multiple devices."

Collecting information of the shop floor

Process Remote Monitoring setting tool

Process Remote Monitoring setting tool collects and visualizes information of the shop floor. This tool can be used by selecting GOTs (more than one) that have the information to be collected and setting the information needed (such as devices or resource data). Without specialized knowledge such as programming, information to be displayed in GT SoftGOT2000 can be easily set.



Visualizing collected information

iQ Monozukuri Process Remote Monitoring template project for GT SoftGOT2000

An iQ Monozukuri Process Remote Monitoring template project for GT SoftGOT2000 is the project data (template screens) for GT SoftGOT2000 to visualize information that the Process Remote Monitoring setting tool collected from on-site GOTs. The following screens are included in the project data.

- A screen to monitor information of multiple kinds of equipment in a batch (operation status list, operation status trend graph)
- A screen to extract data that suits demands from resource data (extract resource data)
- A screen to analyze statuses of facilities (Xbar-R chart, alarm pareto chart)

Operation status list

Equipment A production line 1	1	2	3	4	5	6	7	8	9	10	Operator
1 got1	13	272	29	272	19	KENJI					
2 got2	21	456	48	456	13	SEIJI					
3 got3	9	257	59	257	47	HANNA					
4 got4	24	244	39	244	86	TAKEO					
5 got5	21	346	60	346	12	NAOYA					
6 got6	11	190	60	190	5	JUNCOB					
7 got7	13	18	57	18	46	MICHAEL					
8 got8	15	434	46	434	20	ERINA					
9 got9	6	147	40	147	35	NAOYA					
10 got10	13	376	60	376	43	DAIKI					

Xbar-R chart

Extract resource data

Extract alarm

Process: Extract alarm Compare operation logs Pareto Chart

Pareto Chart Display: Frequency Cumulative time

Specify comment row: Comment row No. Use the smallest comment row No.

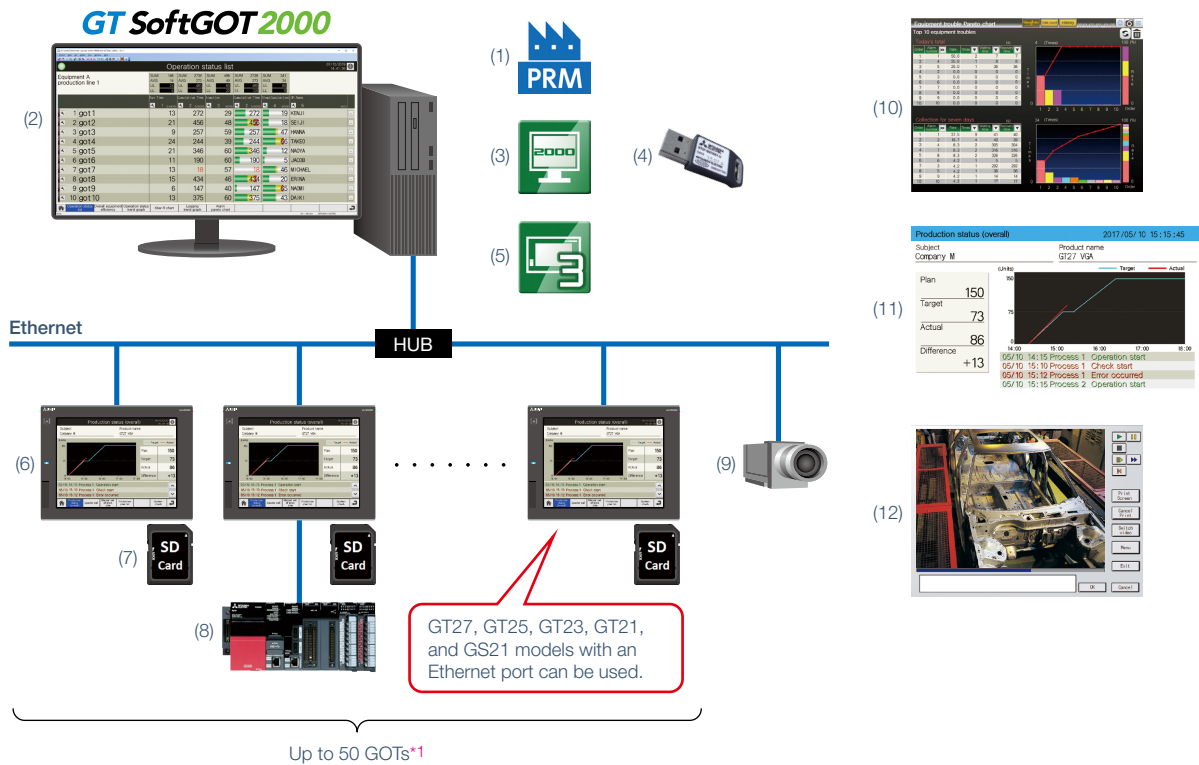
Extract all: Device

Target GOT: IP Address Name Specify name to [Specify GOT] [Specify]

Target date/time: Specify date/time [For one year] From specified date/time Limit specified date/time to [Specify date/time] [Specify]

Easily implement iQ Monozukuri Process Remote Monitoring system

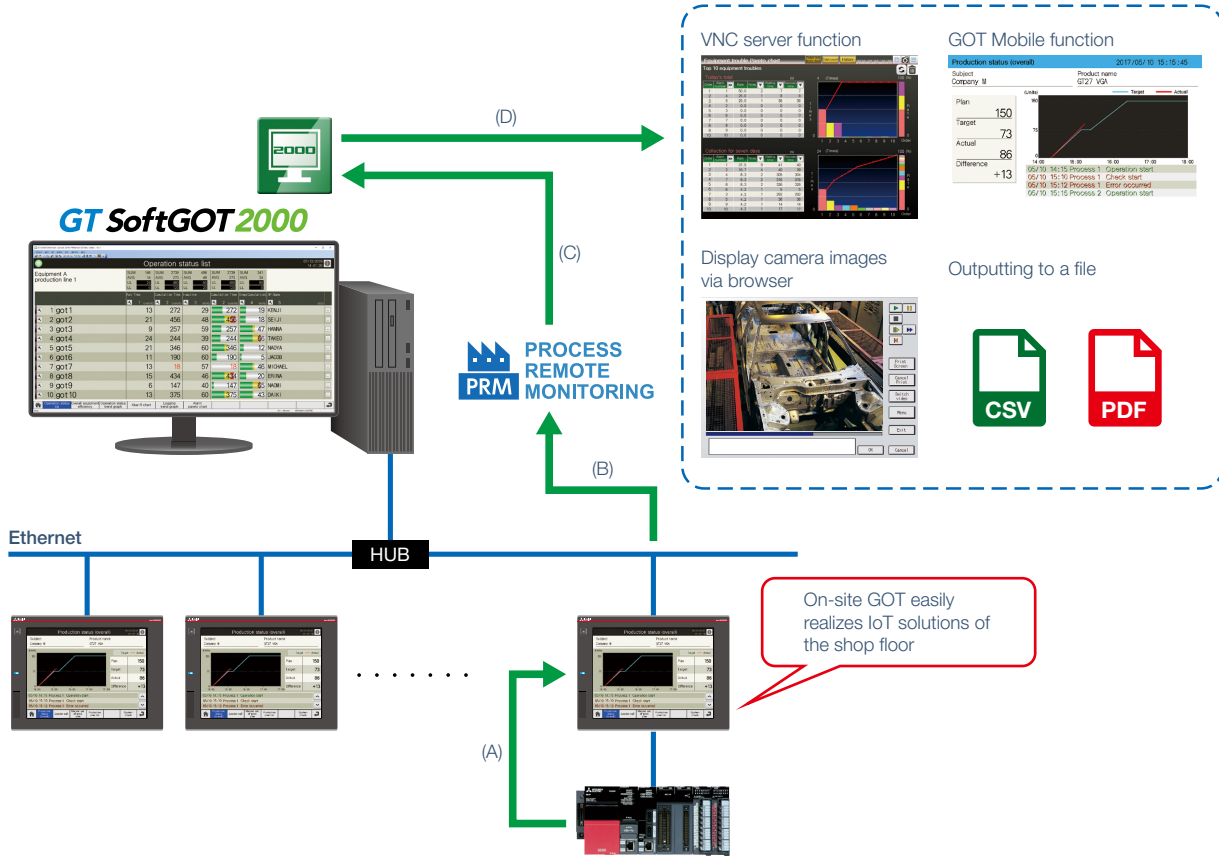
System configuration example



*1 Up to five GOTs can be managed for each license. To manage information of 50 GOTs, purchase the product including 10 licenses.

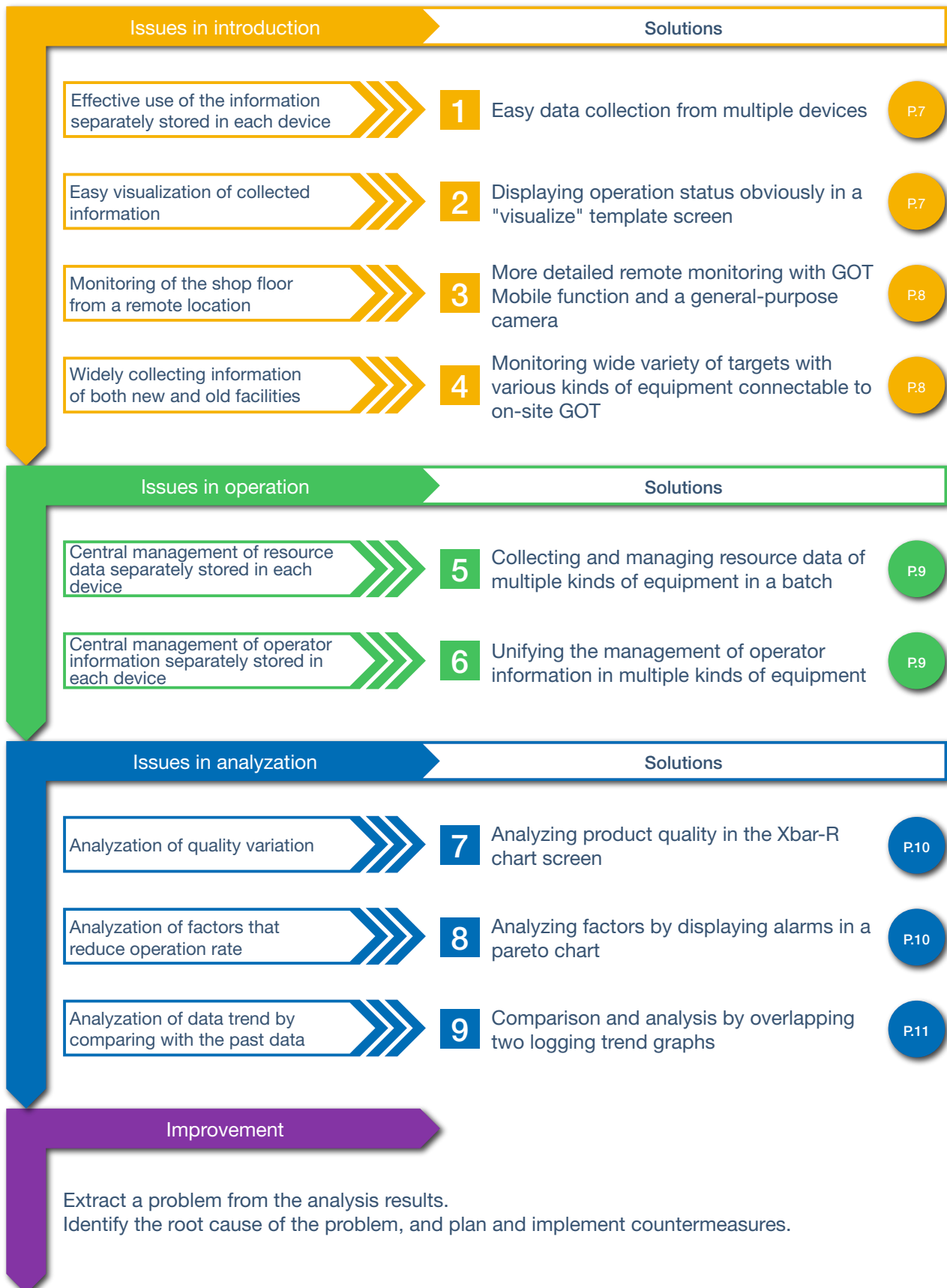
Mitsubishi Electric FA application package		
(1)	iQ Monozukuri Process Remote Monitoring	Process Remote Monitoring setting tool iQ Monozukuri Process Remote Monitoring template project for GT SoftGOT2000
Products to be prepare by users (Required)		
(2)	Personal computer + display or MELIPC MI3000	A personal computer to run the software necessary for iQ Monozukuri Process Remote Monitoring.
(3)	GT SoftGOT2000	Software to display processes monitoring and analysis results of resource data on the personal computer screen. The software is included in HMI/GOT Screen Design Software GT Works3.
(4)	GT SoftGOT2000 license key	License key to use GT SoftGOT2000. When using MELIPC MI3000 (see (2)), the license key is pre-installed so that it is not required to purchase separately.
(5)	GT Designer3	Software to create or change an iQ Monozukuri Process Remote Monitoring template project for GT SoftGOT2000 and on-site GOT project files. The software is included in HMI/GOT Screen Design Software GT Works3.
(6)	GOT2000	GT27, GT25, GT23, GT21, and GS21 models with an Ethernet port can be used.
Products to be prepare by users (Optional)		
(7)	Data storage	Required to use resource interaction or operator information management of iQ Monozukuri Process Remote Monitoring functions.
(8)	Devices such as programmable controller or drive equipment	Provides information of shop floor such as operating time, production quantity, and operating conditions to on-site GOTs. Models that support a communication driver of an on-site GOT can be used.
(9)	Network camera, etc.	Used to check the on-site conditions by video.
(10)	VNC server function license	License necessary to browse on-site GOT screens via a personal computer which uses this application package.
(11)	GOT Mobile function license	License necessary to browse on-site GOT Mobile screens via a personal computer which uses this application package.
(12)	Others	Prepare necessary items depending on the devices and functions to be used (browsers to display camera images or display web pages, user-created applications, etc.).

Data flow and each purpose



- (A) On-site GOTs collect data of connected devices.
- (B) Process Remote Monitoring setting tool collects data collected by on-site GOTs.
- (C) The data collected by Process Remote Monitoring setting tool is displayed in GT SoftGOT2000.
- (D) GT SoftGOT2000 outputs collected resource data files or starts other applications.

iQ Monozukuri Process Remote Monitoring solves issues at the shop floor



Introduction

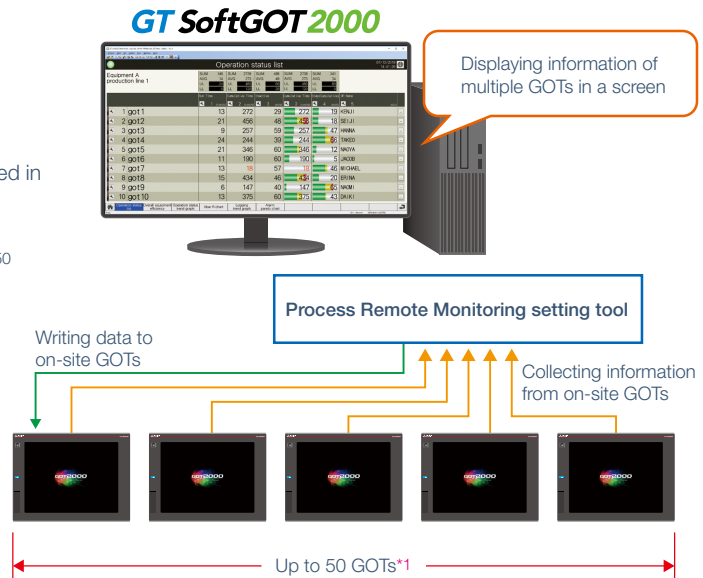
Easily collect and visualize information of multiple devices on a production line

1 Easy data collection from multiple devices

In an iQ Monozukuri Process Remote Monitoring system, information of up to 50 GOTs installed in a facility can be managed by collecting data with a dedicated tool (Process Remote Monitoring setting tool).*1

The collected facility information can be displayed and checked in the display screen of a personal computer.

*1 Up to five GOTs can be managed for each license. To manage information of 50 GOTs, purchase the product including 10 licenses.

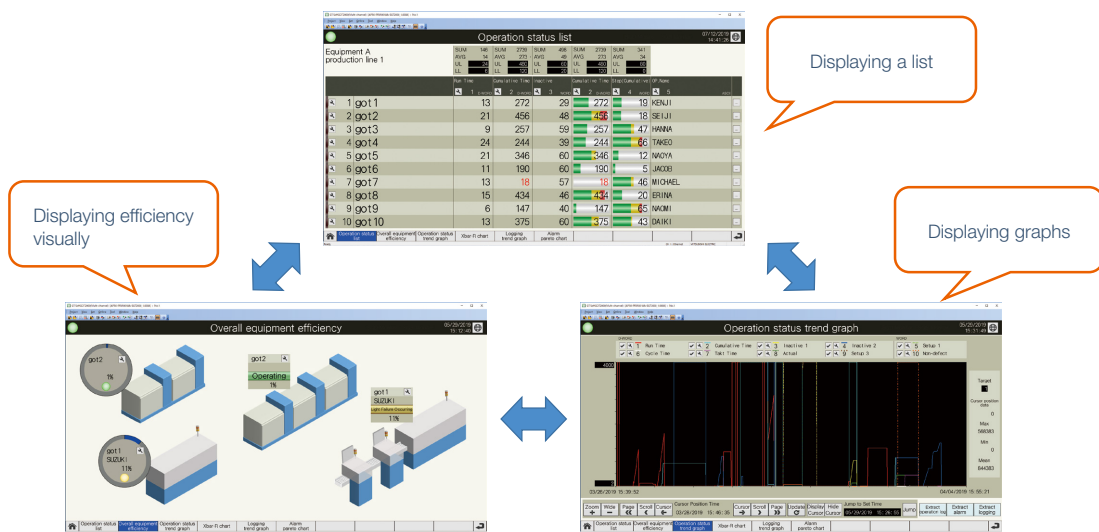


2 Displaying operation status obviously in a "visualize" template screen

This package includes template screens for Process Remote Monitoring to display collected data in GT SoftGOT2000.

Product lines can be visualized by displaying operation statuses in a list or on trend graphs.

Whether loss is occurring in facilities can be checked in the overall equipment efficiency screen so that the loss time decreases and early detection of error locations improves the effectiveness.

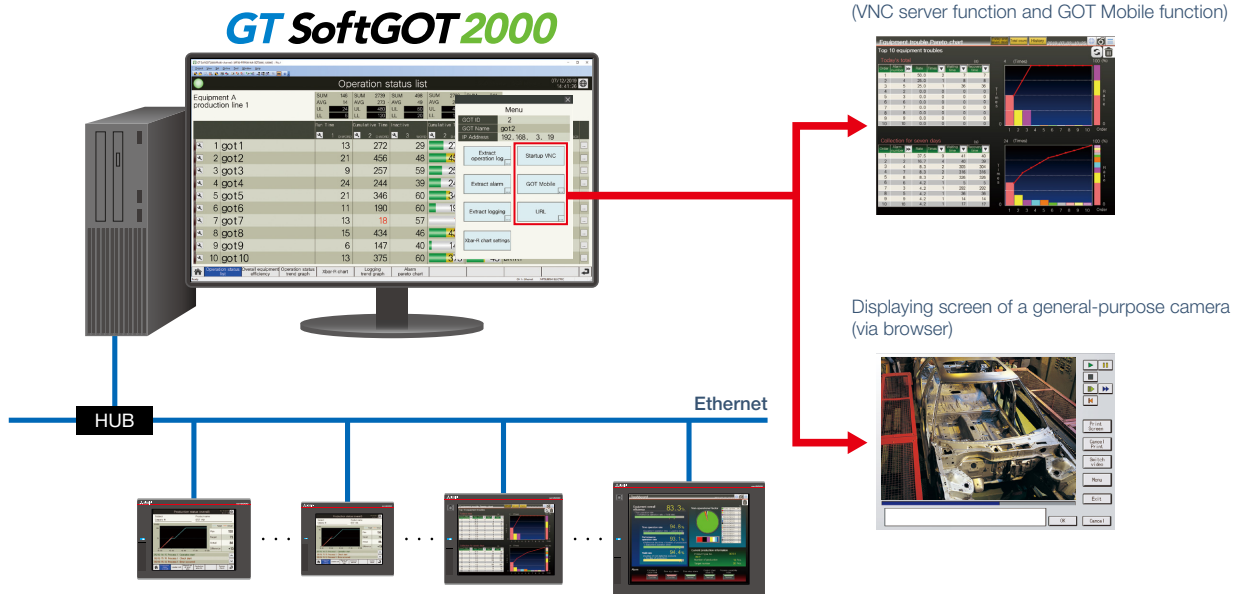


Introduction

Easily collect and visualize information of multiple devices on a production line

3 More detailed remote monitoring with GOT Mobile function and a general-purpose camera

By starting other applications from GT SoftGOT2000 in a personal computer, the screens of on-site GOTs can be checked on a personal computer apart from the on-site GOTs with remote connection (VNC server function, GOT Mobile function) and images of network cameras installed in the shop floor can be checked with a browser; therefore, the situation can be monitored without going to the shop floor.

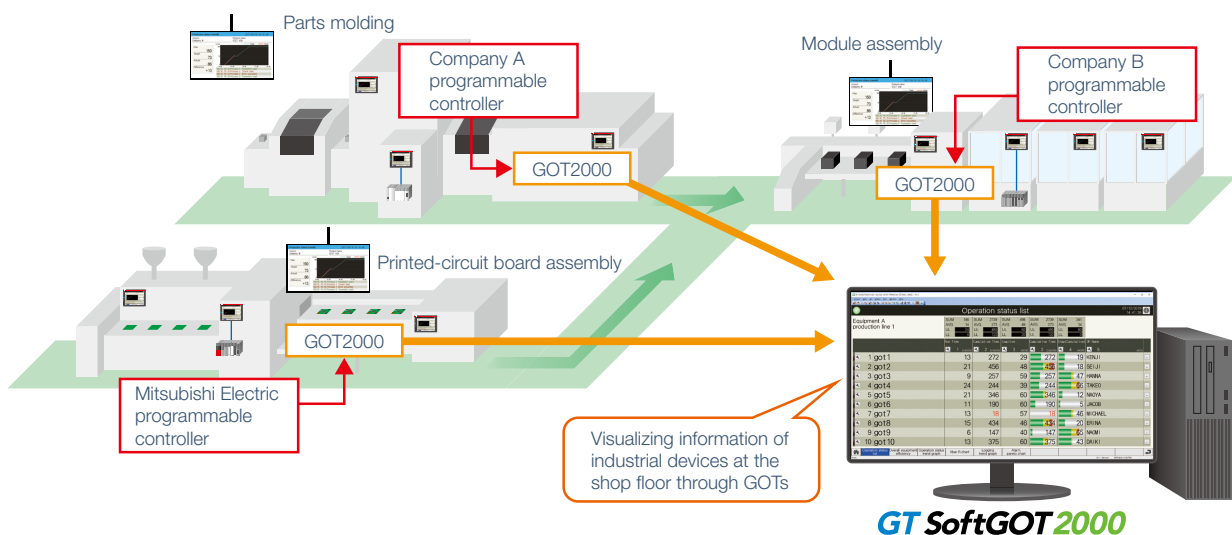


4 Monitoring wide variety of targets with various kinds of equipment connectable to on-site GOT

GOT acts as a gateway to collect information of industrial devices that are connected in various connection types (Ethernet, serial, etc.) and iQ Monozukuri Process Remote Monitoring aggregates the information.

GOTs can be connected to a wide variety of industrial devices because various types of communication drivers are supported.

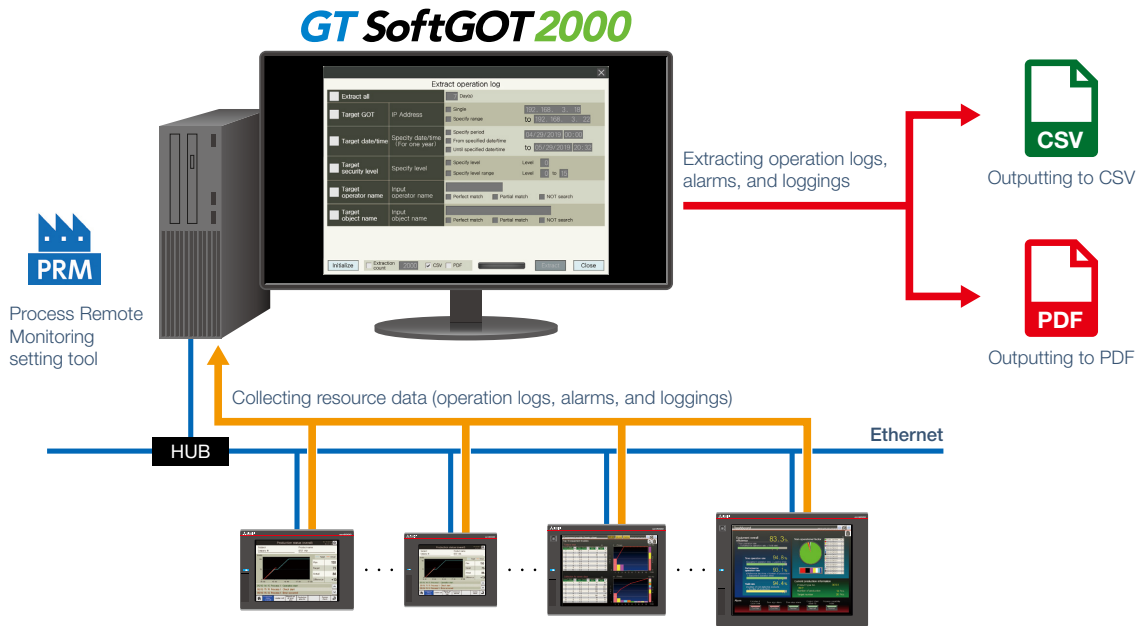
Any types of equipment that can be connected to GOTs can be monitored with iQ Monozukuri Process Remote Monitoring so that each equipment can be visualized and monitored collectively.



Operation Managing multiple kinds of equipment on a production line

5 Collecting and managing target resource data of multiple kinds of equipment in a batch

Resource data of operation logs, alarms, and loggings collected with GOTs on each equipment can be collected and managed in a batch. By extracting information that matches conditions such as date or operators from the stored data and outputting the information to a CSV file or a PDF file, the tendency of alarms can be analyzed.



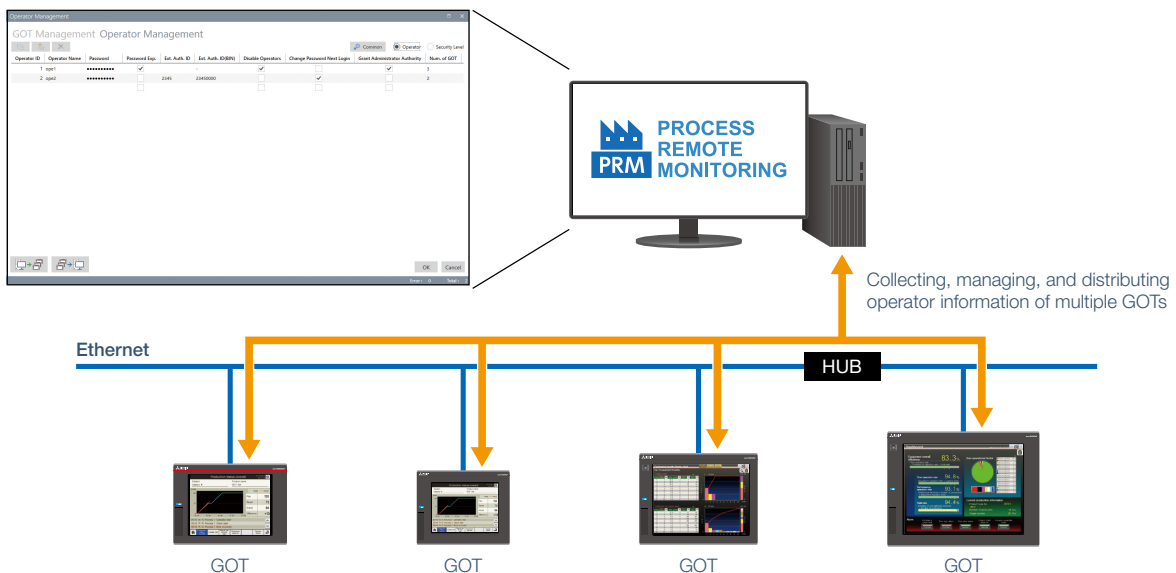
6 Unifying the management of operator information in multiple kinds of equipment

Operator information in multiple kinds of equipment can be read from on-site GOTs to a personal computer and can be edited on the personal computer with the Process Remote Monitoring setting tool.

The edited (added or deleted) operator information can be written to multiple on-site GOTs in a batch.

By doing so, operator information does not need to be set for each on-site GOT, and man-hours for managing can be reduced.

* Set the same administrator password to all on-site GOTs.



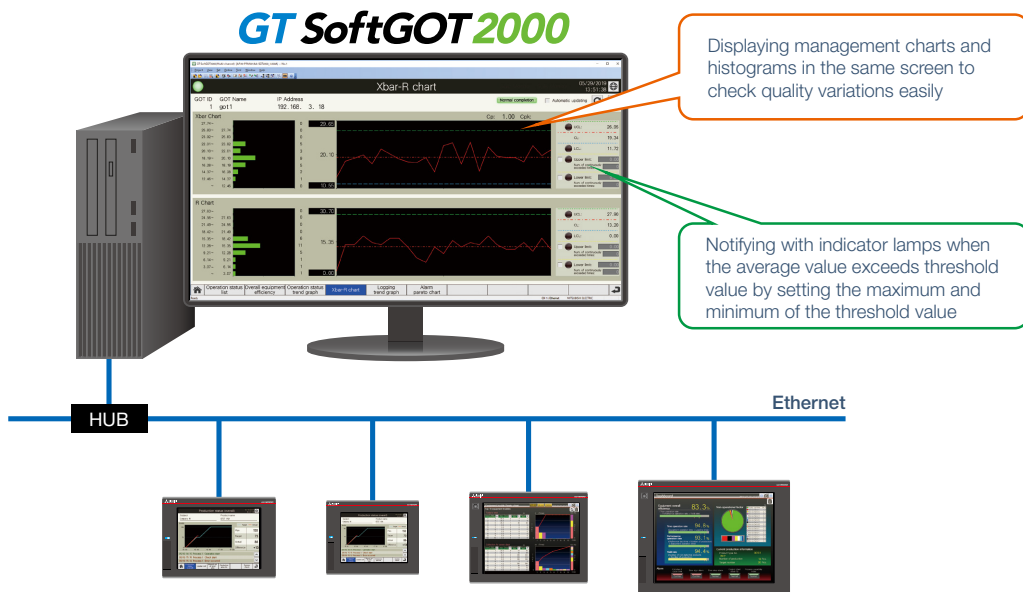
Analyzation Easily analyze with a template for analyzation

7 Analyzing product quality in the Xbar-R chart screen

The logging data collected and extracted with GOTs on each equipment can be displayed and checked in the Xbar-R chart screen and the process capability index (Cp and Cpk).

By displaying the Xbar-R chart and the histogram in the same screen, the variation of quality can be checked.

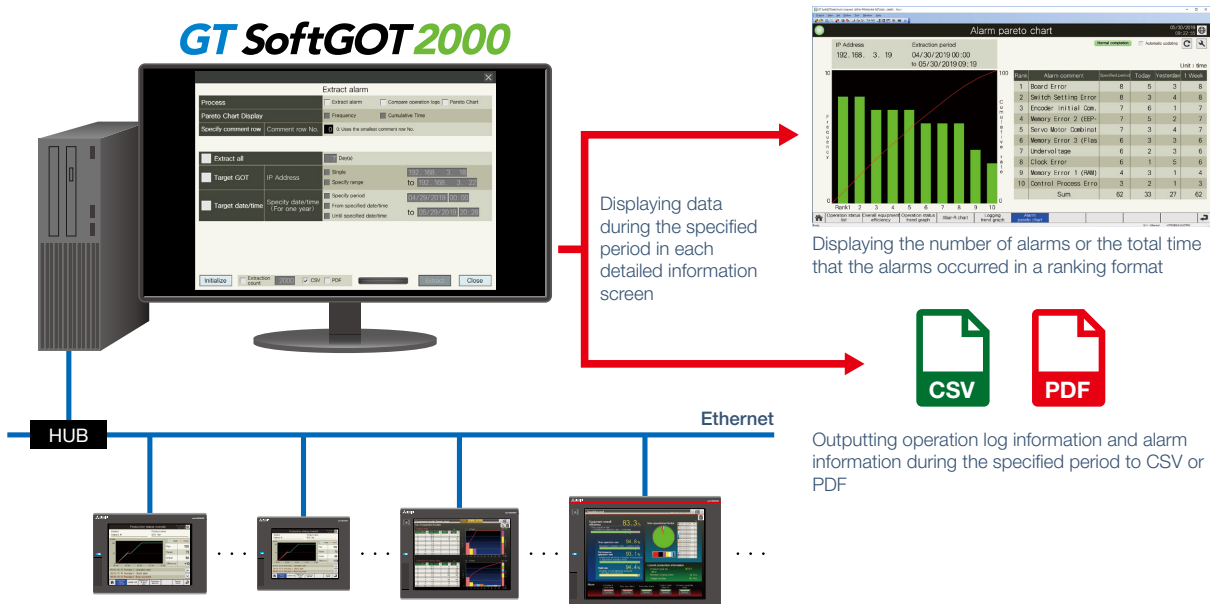
In addition, the notification can be displayed on the Xbar-R chart when the average value exceeds threshold value by setting the maximum and minimum of the threshold value.



8 Analyzing factors by displaying alarms in a pareto chart

The alarm pareto chart can be displayed by using the alarm information collected from GOTs of each equipment. The number of alarms or the total time that the alarms occurred displayed in the chart can be used for analyzing the tendency of the alarms.

In addition, the condition to occur an alarm can be analyzed by extracting operation log information and alarm information during the same period (to a file) with simultaneous extract function for operation logs and alarms.



9 Comparison and analysis by overlapping two logging trend graphs

Two sets of logging data collected with different IDs can be selected and overlapped on a screen.

By overlapping the normal data and the data of the current state, the waveforms can be compared and analyzed.

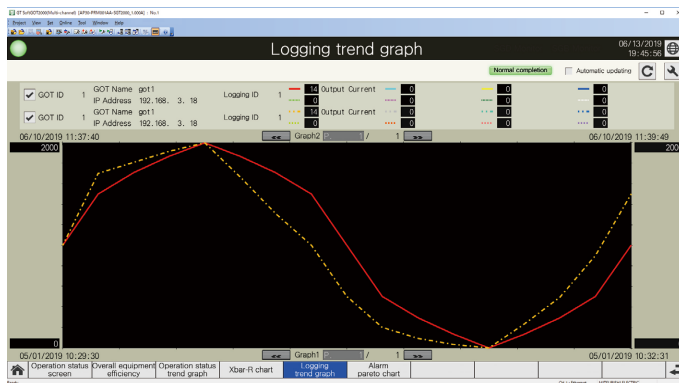
The logging data can be output to a file.

<Usage example 1>

When selecting sets of logging data of different GOTs at the same time, the differences for each equipment can be compared.

<Usage example 2>

When selecting sets of logging data of electric current values that have the same ID, error detection and deterioration diagnosis can be performed by comparing the normal data and the data of the current (actual) state.



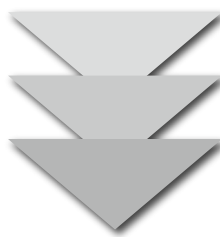
Output the logging data to a file



Outputting to CSV



Outputting to PDF



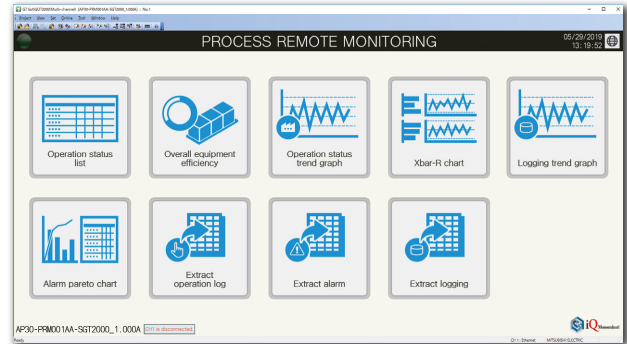
Improvement

Extract a problem from the analysis results.
Identify the root cause of the problem, and plan and implement countermeasures.

Ready-to-install template screens for Process Remote Monitoring

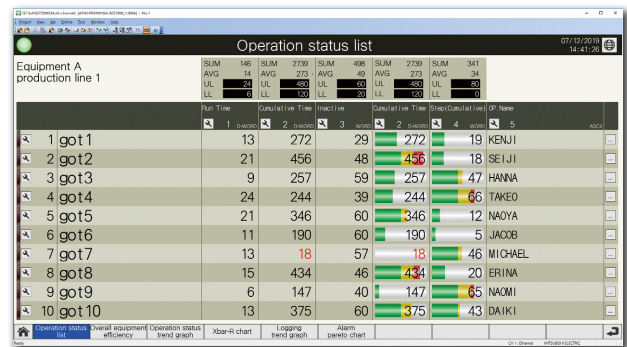
Main menu

The screen to switch to template screens of each function.



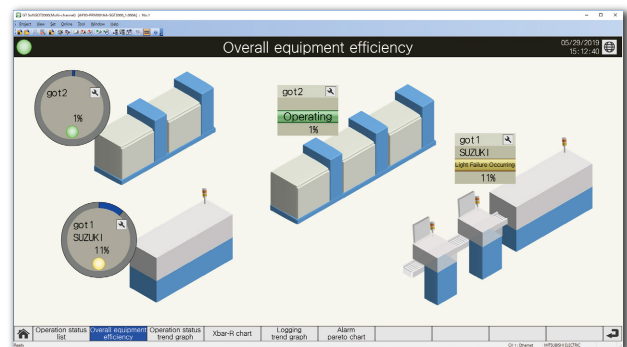
Operation status list

Displaying the operation statuses of selected on-site GOTs (devices) in a table format. Sum and average display and the upper and lower limit setting are available for each column.



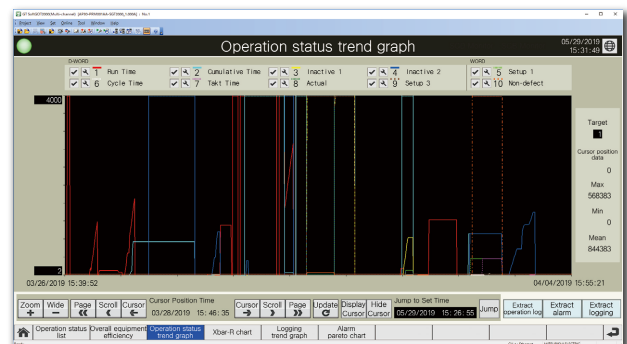
Overall equipment efficiency

Displaying the operation statuses of selected on-site GOTs (devices) with overall equipment effectiveness (OEE) on a schematic diagram of the production line.



Operation status trend graph

Displaying the operation statuses of selected on-site GOTs (devices) in a graph format.



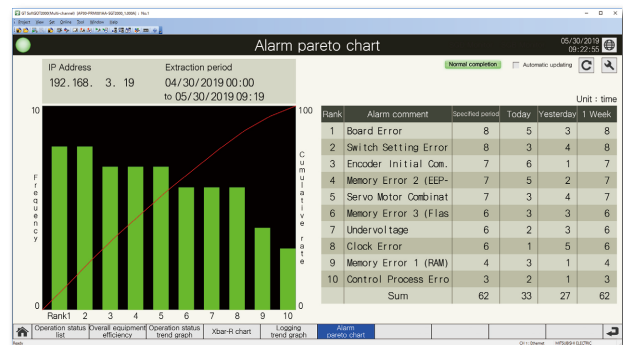
Xbar-R chart

Calculating the mean value (Xbar) and range (R) from the logging data collected as measurement values, and displaying them in an Xbar-R chart.



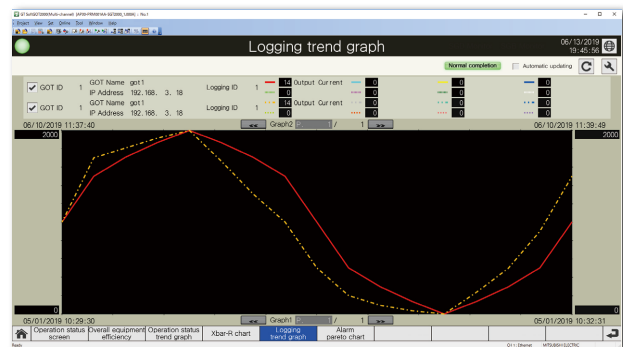
Alarm pareto chart

Aggregating alarms that occurred on multiple on-site GOTs and displaying them in a pareto chart and list.



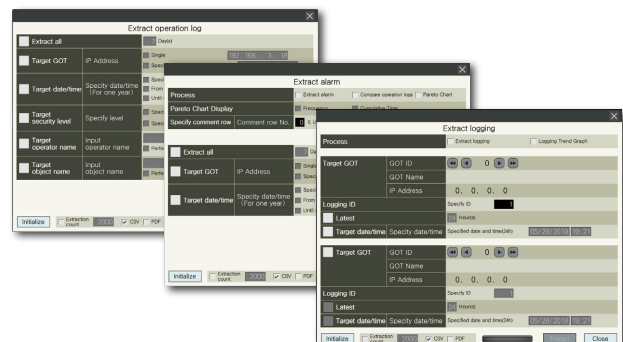
Logging trend graph

Select two different time axes and logging data of different on-site GOTs that have been collected and display them in the same graph.



Extraction of resource data (operation log, alarm, logging)

By extracting resource data according to the set conditions, output the data to a file or display it on the relevant template screen.

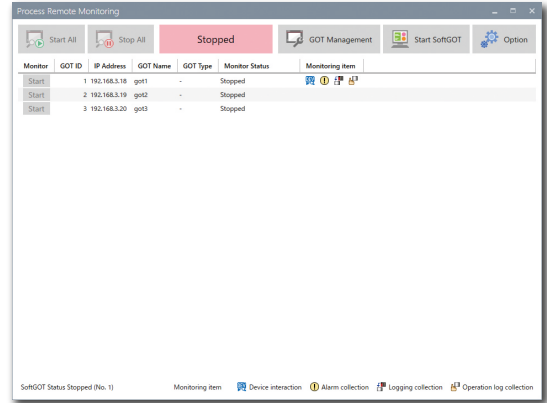


Ready to start with simple settings of Process Remote Monitoring Monitoring setting tool

1. Starting up Process Remote Monitoring setting tool

The Process Remote Monitoring screen appears.

Process Remote Monitoring



2. Setting options

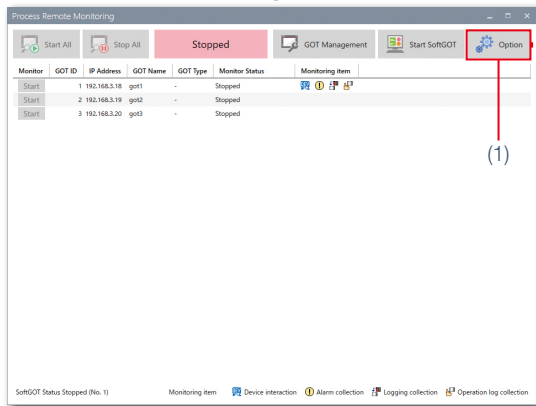
Click (1) button and the Option screen appears. Set the following items in this screen.

→(2) Activation: register the license key

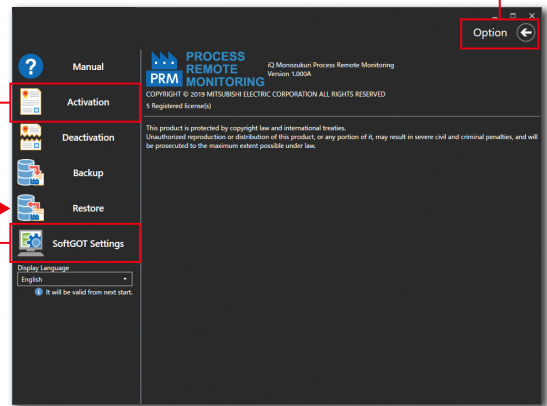
→(3) SoftGOT Settings: set the GT SoftGOT2000 project data that interacts with the Process Remote Monitoring setting tool
(only when changing initial settings)

After setting, click (4) to go back to the Process Remote Monitoring screen.

Process Remote Monitoring



Option

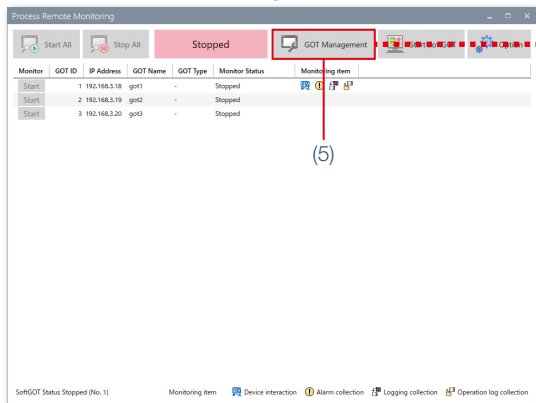


3. Setting GOTs to monitor

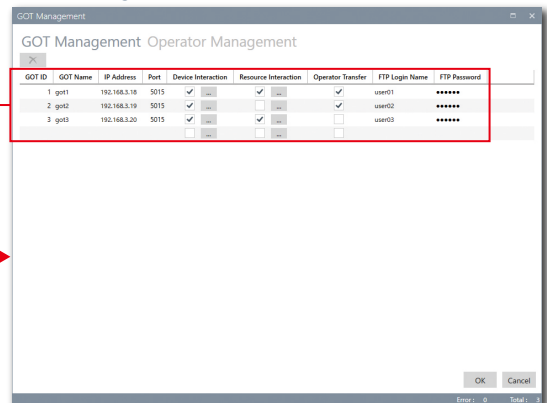
Click (5) on the Process Remote Monitoring screen and the GOT Management screen appears.

Set on-site GOTs to monitor in (6).

Process Remote Monitoring



GOT Management

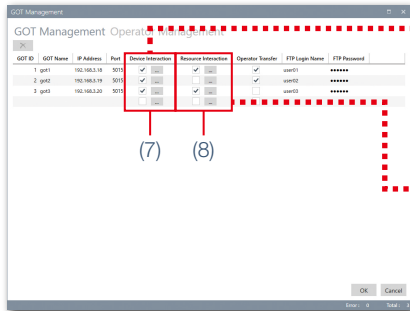


4. Setting data to collect from target GOTs

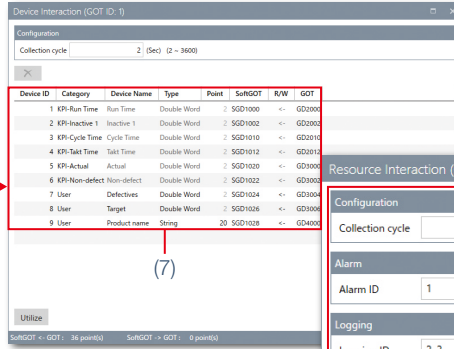
Set the following items in each screen depending on the purpose.

- (7) Collect device values: Device Interaction screen
- (8) Collect resource data: Resource Interaction screen

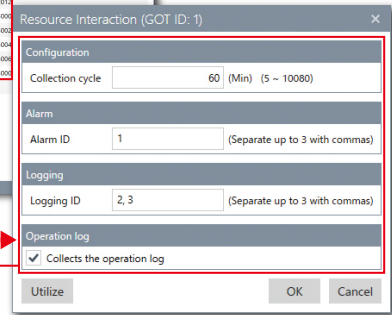
GOT Management



Device Interaction



Resource Interaction

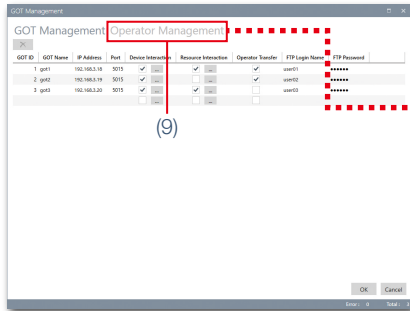


5. Setting operator management information

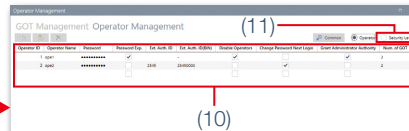
To manage the operator information, click (9) in the GOT Management screen and switch to the Operator Management (Operator) screen to set the following items.

- (10) Manage and edit the operator information: Operator Management (Operator) screen
- (11) Set security level of each operator: Operator Management (Security Level) screen
- (12) Set the common information of all operators: Common screen

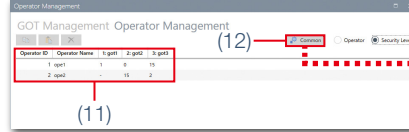
GOT Management



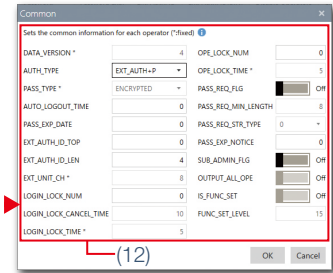
Operator Management (Operator)



Operator Management (Security Level)



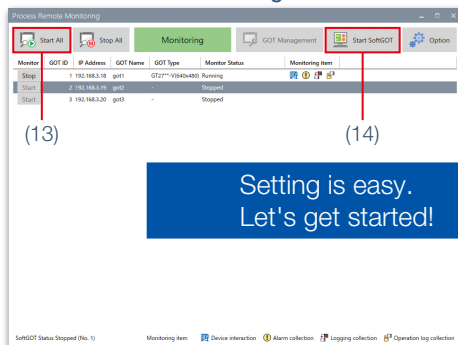
Common



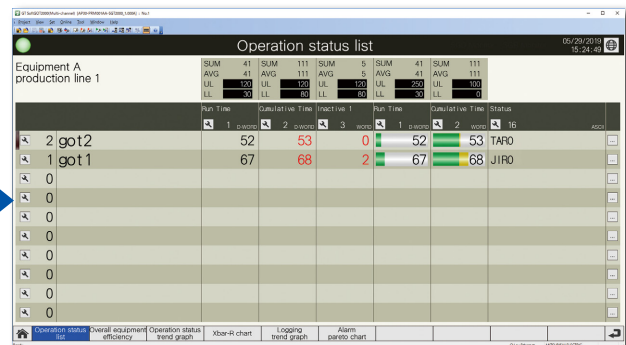
6. Starting monitoring

Go back to the Process Remote Monitoring screen, click (13), and start monitoring of on-site GOTs. When clicking on (14), GT SoftGOT2000 starts and the monitoring status can be checked.

Process Remote Monitoring



GT SoftGOT2000



Setting is easy. Let's get started!

Operating environment of iQ Monozukuri Process Remote Monitoring

Item	Description	
Personal computer	<ul style="list-style-type: none"> Personal computer that Microsoft® Windows® runs on. Industrial Computer MELIPC Series (MI5122-VW, MI3321G-W*1, MI3315G-W*1) 	
	CPU	An Intel compatible processor of 2.3 GHz with 2 Core, and i3 or more (3.0 GHz 4 Core or more is recommended)
	Required RAM	8 GB or more
	Storage	A solid-state drive is recommended
	Free storage space	During installation: 20 GB or more
	Virtual memory	100 MB or more
	Interface	<ul style="list-style-type: none"> Ethernet port: 1 channel or more (for GOT connection) USB port (USB-A): 1 channel or more (for GT SoftGOT2000 license key (GT27-SGTKEY-U) installation)*1
OS (Japanese, English, Simplified Chinese)	Windows® 10 (Home, Pro, Enterprise, IoT Enterprise 2016 LTSC) (64-bit edition)	
Display	Resolution	1920 × 1080 or higher is recommended
	Display colors	High Color (16-bit) or better
Other software (required)	<ul style="list-style-type: none"> Latest version compatible with .NET Framework 4.7.2 or later*2 GT SoftGOT2000 (Ver.1.217B or later)*3*4 GT Designer3 (GOT2000) (Ver.1.220E or later) Data transfer tool (Ver.3.35M or later)*2 	
Other hardware (optional)	Mouse, keyboard, and DVD-ROM drive that can be used by the operating systems mentioned above	

*1 A GT SoftGOT2000 license key is not required for the MI3321G-W and MI3315G-W because GT SoftGOT2000 (English version) is preinstalled.

*2 It is included in the installation DVD-ROM (PROCESS REMOTE MONITORING).

*3 iQ Monozukuri Process Remote Monitoring and GT SoftGOT2000 (Version 1.217B or later) run in coordination. Therefore, the operating environment of iQ Monozukuri Process Remote Monitoring has the same restrictions as GT SoftGOT2000. For the operating environment and restrictions of GT SoftGOT2000, please refer to the GT SoftGOT2000 Version1 Operating Manual.

*4 GT SoftGOT2000 is included in HMI/GOT Screen Design Software GT Works3. To use the software, installation of the license key (GT27-SGTKEY-U) is required.



Product list

Application package

Product name	Model	Number of licenses	Number of monitorable GOTs
iQ Monozukuri Process Remote Monitoring*1	AP30-PRM001AA-MA	1 license	5
	AP30-PRM001AA-MB	5 licenses	25
	AP30-PRM001AA-MC	10 licenses	50

*1 Process Remote Monitoring setting tool, iQ Monozukuri Process Remote Monitoring template project for GT SoftGOT2000, and the Process Remote Monitoring license are included.

Equipment necessary for system configuration: Products prepared by users

GOT: One of the following is required

Product name				Model		Screen size		
GT27	GT2715	GT2715-XTBA	15" XGA	GT25	GT2508	GT2508-VTBA	8.4" VGA	
		GT2715-XTBD				GT2508-VTBD		
	GT2712	GT2712-STBA	12.1" SVGA			GT2508-VTWA		
		GT2712-STBD				GT2508-VTWD*1		
		GT2712-STWA				GT2508F-VTNA		
		GT2712-STWD*1				GT2508F-VTND		
	GT2710	GT2710-STBA	10.4" SVGA		GT2505	GT2505-VTBD	5.7" VGA	
		GT2710-STBD			GT25 Wide	GT2510	GT2510-WXTBD	10.1" WXGA
		GT2710-VTBA					GT2510-WXTSD	
		GT2710-VTBD				GT2507	GT2507-WTBD	7" WVGA
	GT2710-VTWA	GT2507-WTSD						
	GT2710-VTWD*1	GT25 Rugged	GT2507T		GT2507T-WTSD	7" WVGA		
GT2708	GT2708-STBA		8.4" SVGA	GT25 Handy	GT2506HS	GT2506HS-VTBD	6.5" VGA	
	GT2708-STBD	GT2505HS		GT2505HS-VTBD	5.7" VGA			
	GT2708-VTBA			GT23	GT2310	GT2310-VTBA	10.4" VGA	
GT2708-VTBD	GT2310-VTBD							
GT2705	GT2705-VTBD	5.7" VGA	GT21 Wide	GT2107	GT2107-VTBD	7" WVGA		
	GT25	GT2512			12.1" SVGA		GT21	GT2104
GT2510			GT2510-VTBA	GT2510-VTBD		10.4" VGA		
							GT2510	GT2510-VTWA
GT2510			GT2510F-VTND	GS21		GS2107		

*1 To comply with the ATEX directive and KCs regulation, options (protective sheet and special fitting) are required separately. (Only protective sheet is required for GT2508-VTWD.) Communication units and option units cannot be used. When using these units, GOT does not conform to the standards. For the details, please refer to the Technical Bulletin "GOT2000 Series in Compliance with the ATEX Directive and KCs Certification Requirements" (No. GOT-A-0101).

Software: Required

Product name	Model	Description
HMI/GOT Screen Design Software MELSOFT GT Works3	SW1DND-GTWK3-E	English version, standard license product*1
License key for GT SoftGOT2000*2	GT27-SGTKEY-U	USB port license key

*1 Volume license product and additional license product are also available. The desired number of licenses (2 or more) can be purchased. For details, please contact your local sales office.

*2 License key for GT SoftGOT2000 is required for each personal computer that uses iQ Monozukuri Process Remote Monitoring.

Memory card: Required to use resource interaction and operator management

Product name	Model	Specifications
SD memory card	NZ1MEM-2GBSD	SD memory card for GOT, 2 GB
	NZ1MEM-4GBSD	SDHC memory card for GOT, 4 GB
	NZ1MEM-8GBSD	SDHC memory card for GOT, 8 GB
	NZ1MEM-16GBSD	SDHC memory card for GOT, 16 GB

Other options: Arbitrary

Product name	Model	Number of licenses
VNC Server Function License*1	GT25-VNCSKEY-1	1 license
	GT25-VNCSKEY-5	5 licenses
	GT25-VNCSKEY-10	10 licenses
	GT25-VNCSKEY-20	20 licenses
GOT Mobile Function License*1	GT25-WEBSKEY-1	1 license
	GT25-WEBSKEY-5	5 licenses
	GT25-WEBSKEY-10	10 licenses
	GT25-WEBSKEY-20	20 licenses

*1 1 license is required for 1 GOT unit.

MI3000 with GT SoftGOT2000

Industrial Computer MELIPC Series MI3000
with GT SoftGOT2000 pre-installed



MELIPC Series MI3000
Panel computers equipped with
integrated touch screens

Useful at various stages of production

Easy-to-install system

Since GT SoftGOT2000 is pre-installed on MI3000, the iQ Monozukuri Process Remote Monitoring system can be installed quickly.

Suitable for use in edge computing

Utilization of pre-installed Edgecross Basic Software and SLMP Data Collector makes it easy to process big data of manufacturing and realizes coordination with IT systems.

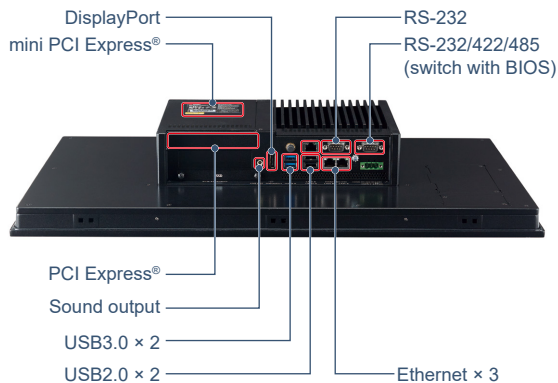
Beautiful, stunning, large screen monitor

Large 21.5-inch widescreen display and 15-inch display models are available. Colorful images are displayed with 16.77 million colors.

Windows® OS enables wider usage

Not only familiar Windows® applications, but also user-created applications can be used to configure systems that meet requirements of individual customers.

System expansion according to needs



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

Related materials



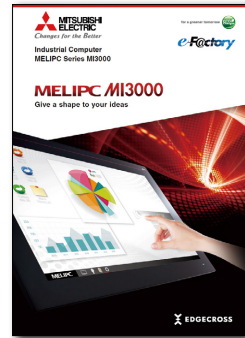
Graphic Operation Terminal
GOT2000 Series
L(NA)08270ENG



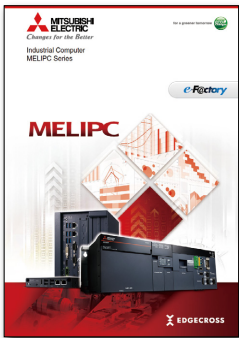
Graphic Operation Terminal
GOT2000 Compatible
HMI Software GT SoftGOT2000
L(NA)08606ENG



Monitoring Control System
Solutions
L(NA)08577ENG



Industrial Computer
MELIPC Series MI3000
L(NA)08600ENG



Industrial Computer
MELIPC Series
L(NA)08578ENG

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The actual color may differ slightly from the pictures in this catalog.
 The actual display may differ from what are shown on GOT screen images.

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American Offices

USA Mitsubishi Electric Automation, Inc. 500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A. Tel: +1-847-478-2100	Mexico Mitsubishi Electric Automation, Inc. Mexico Branch Mariano Escobedo #69, Col. Zona Industrial, Tlalnepantla Edo. Mexico, C.P.54030 Tel: +52-55-3067-7511	Brazil Mitsubishi Electric do Brasil Comercio e Servicos Ltda. Avenida Adelino Cardana, 293, 21 andar, Bethaville, Barueri SP, Brasil CEP 06401-147 Tel: +55-11-4689-3000
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Asia-Pacific Offices

China Mitsubishi Electric Automation (China) Ltd. No.1386 Hongqiao Road, Mitsubishi Electric Automation Center, Shanghai, China Tel: +86-21-2322-3030	Taiwan SETSUYO ENTERPRISE CO., LTD. 6F, No.105, Wugong 3rd Road, Wugu District, New Taipei City 24889, Taiwan Tel: +886-2-2299-2499	Korea Mitsubishi Electric Automation Korea Co., Ltd. 7F-9F, Gangseo Hangang Xi-tower A, 401, Yangcheon-ro, Gangseo-Gu, Seoul 07528, Korea Tel: +82-2-3660-9530
Singapore Mitsubishi Electric Asia Pte. Ltd. 307 Alexandra Road, Mitsubishi Electric Building, Singapore 159943 Tel: +65-6473-2308	Thailand Mitsubishi Electric Factory Automation (Thailand) Co., Ltd. 12th Floor, SV.City Building, Office Tower 1, No. 896/19 and 20 Rama 3 Road, Kwaeng Bangpongpan, Khet Yannawa, Bangkok 10120, Thailand Tel: +66-2682-6522 to 31	Indonesia PT. Mitsubishi Electric Indonesia Gedung Jaya 11th Floor, JL. MH. Thamrin No.12, Jakarta Pusat 10340, Indonesia Tel: +62-21-3192-6461
Vietnam Mitsubishi Electric Vietnam Co., LTD. Ho Chi Minh Head Office Unit 01-04, 10th Floor, Vincom Center, 72 Le Thanh Ton Street, District 1, Ho Chi Minh City, Vietnam Tel: +84-8-3910-5945	India Mitsubishi Electric India Pvt. Ltd. Pune Branch Emerald House, EL -3, J Block, M.I.D.C., Bhosari, Pune - 411026, Maharashtra, India Tel: +91-20-2710-2000	Australia Mitsubishi Electric Australia Pty. Ltd. 348 Victoria Road, P.O. Box 11, Rydalmere, N.S.W. 2116, Australia Tel: +61-2-9684-7777

European Offices

Germany Mitsubishi Electric Europe B.V. German Branch Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany Tel: +49-2102-486-0	UK Mitsubishi Electric Europe B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, U.K. Tel: +44-1707-28-8780	Italy Mitsubishi Electric Europe B.V. Italian Branch Centro Direzionale Colleoni - Palazzo Sirio, Viale Colleoni 7, 20864 Agrate Brianza (MB), Italy Tel: +39-039-60531
Spain Mitsubishi Electric Europe B.V. Spanish Branch Carretera de Rubi 76-80-Apdo.420, 08190 Sant Cugat del Valles (Barcelona), Spain Tel: +34-935-65-3131	France Mitsubishi Electric Europe B.V. French Branch 25, Boulevard des Bouvets, 92741 Nanterre Cedex, France Tel: +33-1-55-68-55-68	Czech Mitsubishi Electric Europe B.V. Czech Branch Avenir Business Park, Radlicka 751/113e, 158 00 Praha 5, Czech Republic Tel: +420-251-551-470
Turkey Mitsubishi Electric Turkey A.S. Umraniye Branch Serifali Mahallesi Nutuk Sokak No:5, TR-34775 Umraniye / Istanbul, Turkey Tel: +90-216-526-3990	Poland Mitsubishi Electric Europe B.V. Polish Branch ul. Krakowska 50, 32-083 Balice, Poland Tel: +48-12-347-65-00	Russia Mitsubishi Electric (Russia) LLC St. Petersburg Branch Piskarevsky pr. 2, bld 2, lit "Sch", BC "Benuea", office 720; RU-195027 St. Petersburg, Russia Tel: +7-812-633-3497
South Africa Adroit Technologies 20 Waterford Office Park, 189 Witkoppen Road, Fourways, Johannesburg, South Africa Tel: +27-11-658-8100		

The release date varies depending on the product and your region. For details, please contact your local sales office.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
 NAGOYA WORKS: 1-14, YADA-MINAMI 5, HIGASHI-KU, NAGOYA, JAPAN