HMI

Visualisation Tools

Powerful Communication
Simple Words and Pictures

System and Process Visualisation /// Touch Screen and Key Operation /// Powerful Maintenance Tools /// PLC Program Display /// Direct MES Integration /// HMIs /// GOTs /// IPCs /// SCADA /// Software ///

Perfect Vision

More than a terminal

With innovative technology Mitsubishi Electric has created new standards in operator interaction. Features such as the ladder monitoring function enhance and support the work of programmers, operators and maintenance staff.

Easier operation

Simple intuitive keyboards are complimented by flexible and dynamic touch screen solutions. Each type of HMI solution allows data to be gathered from various FA devices and facilitates its access as information using powerful graphic and text tools.

Intelligent design

High performance, market leading, operator terminals are the result of intelligent yet carefully planned design. For example front mounted USB ports make programming and data access simpler and quicker than ever before.

High-speed operation thanks to fast processors.

100's of drivers are available for connection to Mitsubishi or other third party products.

Units with high IP ratings ensure easy and carefree cleaning, especially useful for situations that require full wash downs.

More design freedom through connectivity and mounting as units can be used in portrait or landscape configurations.

High resolution screens offer bright clear displays that can be viewed from a wide range of angles.

Ultra-slim designs occupy less panel space/depth.

Advanced screen design software such as GT Designer 2 enable screens to be quickly and efficiently created.

Flexible operation allows Mitsubishi HMIs to be used in industrial and commercial applications.

Advanced communication

Direct Connection to a SQL database through a dedicated MES interface gives users greater access to operational data from across their entire plant – and all from the shop floor.
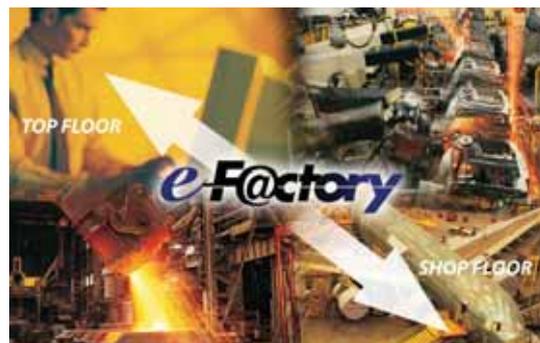
Simple configuration

All of the HMI software packages come with pre-defined graphic libraries to help users get started quickly. Some of the software programs also have simulators so that system operation can be checked before downloading into an HMI or IPC.

Reliable and economical

Ultra slim mounting as well as optional screen orientation make Mitsubishi HMI's simple and economical to add to almost any system. Conformance to shipping approvals and standards are a clear demonstration of Mitsubishi's commitment to quality.

Vision1000 – A Complete Line

Central storage and control of FA device information with Mitsubishi HMIs

Mitsubishi's Vision 1000 concept brings together a wide range of human machine interfaces (HMIs) and software solutions that let you see what is really happening in the production process.

This combination of three visualization technologies from a single manufacturer, allows users to choose the best solution to fit their requirements.

■ Dedicated HMI solutions

The GOT1000 series of graphic operator terminals provide the very latest in touch-screen display technology. This gives users a bright clear display of information with the flexibility of touch screen input.

The GOT units are designed for fundamental integration with Mitsubishi automation technology. This means easier, faster project development as well as increased system performance and additional access to core functions in Mitsubishi's automation hardware.

Factory automation users want more transparency and more information on control and machine processes.

In countless applications highly flexible HMI and IPC units are an intelligent, cost-effective alternative to bulky control consoles. Both their size and their many application advantages make them the clearly superior choice.

The GOT 1000 series utilises the latest touchscreen technology

The complete product range of the GOT series

■ **Open HMI solutions**

The E1000 range of HMIs is designed and built on the latest open technology combining Microsoft's Windows CE platform with Intel Xscale processors.

This leading edge technology delivers fast and reliable operation ensuring maximum uptime for HMI users.

A wide range of open HMI solutions

The complete product range of the E series

■ **Industrial PC (IPC) solutions**

Mitsubishi's range of IPC1000 solutions offer customers a robust platform for developing their own solutions.They are designed to provide the flexibility of high-performance PC power but with a sturdy industrial design to protect them during operation. This means users can install an IPC1000 in their manufacturing environment with complete confidence.

Flexible software solutions

A range of Mitsubishi automation software called MELSOFT supports the IPCs. This provides users with a choice of software components that they can embed into their own solution or complete visualization packages such as MX4SCADA.

In addition there are software support packages for each of the HMI terminals. They offer libraries of predefined functions and images as well as an intuitive and flexible work environment.

MELSOFT is a wide range of software solutions designed to optimize your plant productivity.

High performance industrial PCs

GOT1000 – The Next Generation's V

GOT HMI's can help users see what is happening anywhere in their process.

Seeing is believing

The touch-sensitive control screen, which greatly facilitates data entry and parameter editing, is one of the most popular features of the GOT operator terminals. Many users find the easy touch screen operation and flexible use enhance their HMI projects.

Mitsubishi's GOT series offers a wide range of models from small 3-colour touch screens to large TFT's and handheld units. In addition there are multiple system accessories that can add diverse capabilities such as networking, camera inputs and direct MES integration depending upon the GOT unit selected.

Powerful technology

The GOT1000 series has been designed with the needs of the user in mind. For example:

■ **Diagnostics functions**

The GOT1000 series' innovative error reporting system ensures fast trouble-shooting and minimum downtime. Predefined screens provide direct access to the PLCs I/Os and even the buffer memory of special-function modules.

Features such as alarm handling, historical trending and memory areas for storing help texts or bitmaps also contribute to rapid troubleshooting and fault correction.

■ **Transparent Mode**

GOT1000 units can also allow users to download programs to the connected Mitsubishi PLC through the existing connection established with the GOT display unit.

■ **Flexible program storage**

The GOT units can be programmed with the GT Works2 software package, which runs on any Windows® compatible PC. Programs can be stored either in the control unit's integrated non-volatile RAM, in a plug-in EPROM module or a CF card.

■ **High resolution screens**

High resolution screens, with up to 65,536 colours on selected GOT1000 units, can display complex graphics, photos, CAD drawings and even PDFs and office documents such as MS Excel and WORD. This document flexibility allows the GOT to truly become the shop floor information resource as well as a data monitoring tool.

■ **High-speed processing**

A 64-bit RISC processor is combined with a specially developed high-speed graphics processor to make the GOT1000 units fast and responsive to user inputs, changes in data and display drawing times.

Vision

Versatile

In addition to the wide ranging support for Mitsubishi PLC's, frequency inverters and servo amplifiers, GOT1000 series can also be connected to an increasing range of automation products from other manufacturers. This enables users to build a common visualization strategy for their operation independently of the control solution used.

Multilingual

Furthermore, support for Unicode 2.1 enables users to easily create multi-language displays in languages as diverse as Russian and Japanese. This is especially useful for companies who export machines. It enables them to be easily localized while still maintaining a core system for the manufacturers engineers to maintain service and support.

Brilliant colours in high resolution

GOT1000 units can be used globally with their support for Unicode characters

GOT1000 at a glance

Display:
From Monochrome LCD to STN or TFT 65.536 colours

Resolution:
From 128 x 64 up to 1024 x 768

Function keys:
Except of 2 units, all panels have touch screen and definable touch keys

Networks capability:
Ethernet, CC-Link, MELSECNET/10*

Interface:
RS232C, RS422, RS485, USB*

*not available for all units

Information sharing

An integrated server function allows the monitoring and data collection of information by a remote personal computer. Error information can also be checked and transmitted to the PC. This feature makes data and system maintenance functions very easy as there is no longer any need to visit every factory to collect data or status information from every GOT.

E1000 – Open HMI Technology

E1000 is designed to give a window into the manufacturing process.

Features that users value

The E1000 and its predecessor, MAC E series HMI's, have a long history of pioneering HMI design. Over many years development and the accumulated experience of thousands of users has sharpened these HMIs to become the leading edge products many users are now familiar with. Features that have remained the keystone of this success include:

■ Multi-language support

All the MAC E and E1000 units support multi-language applications created within the programming software. These applications allow the operators to select the user interface language they wish to use as Unicode is supported.

■ Dual driver support

All E series operator terminals (except the MAC E50) can access two different systems simultaneously acting as a protocol converter or as an information gateway. This has enabled many users to create systems that span many third party automation products that would not normally be possible.

A modern-day control center

Mitsubishi's E1000 series of HMIs offer operator display solutions from small easy text displays to large multi-colour, high resolution, graphic displays with touch screen. These practical operator terminals can often replace an entire control console. They enable an operator to manage and if need be intervene in the application by very easily changing the process data parameters. The units in the E1000 series perfectly match the MELSEC range of controllers and are very simple to operate.

The E1000 series operator terminals provide a huge leap forward in display technology, as ergonomics and ease of use were central to the new series design. The E1000 proves again how open HMI technology can be the key to integrated automation.

Highly compatible

8

This functionality is supported both on the standard RS232C and RS422 ports and via the extended Profibus/DP and Ethernet interfaces. For example, you can write data words from a PLC directly into the parameter settings of a frequency inverter.

In addition, by using E1000 utilities and tools, remote "viewing" of the locally displayed screen is also possible across an intranet or internet connection making sure you know exactly what is going on at a machine level.

High performance design

By combining the latest Intel XScale RISC processor with 32 MB of Strataflash and 64 MB RAM, the E1000 not only offers high performance while running Windows CE.NET but also security and "peace of mind".

With this powerful combination of technology valuable production data and machine operational information is protected even if a power failure occurs during a file write process.

High performance in the most demanding applications
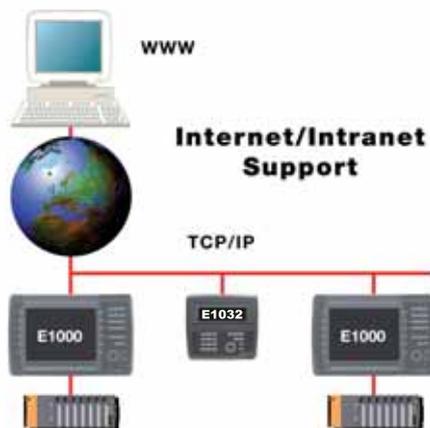
Data management

Data storage and sharing are important functions of the manufacturing process and operator terminals are quickly becoming the gateway to that data. The E1000 series makes access to data easier and more flexible than ever before. Users can choose between the use of:

■ Combined Ethernet – internet connectivity for factory wide or global access to data.

■ Direct connection to a modem for simple remote telemetry solution (GSM/GPRS/PSTN) where a system may be installed at an inaccessible location.

■ A new external CF data card interface on the front of the E1000 also means data can be "taken" away on a removable data card for safe/permanent storage and processing.

■ Local printing directly from the HMI display is also possible where a local hard copy of processed data is required.

E1000 at a glance

Display:
From Monochrome LCD to STN or TFT 65.536 colours

Resolution:
From 16 x 2 up to 80 x 60 char (640 x 480)

Function keys:
From 4 to 50 (physical or touch screen)

Networks capability:
Profibus/DP, Ethernet*

Interface:
RS232C, RS422*, RS485*, USB*

*not available for all units

IPC1000 –
Industrial PCs

Industrial PCs are especially contructed for heavy-duty industrial applications

■ **The economical solution**

Not all applications require full PC expansion and processing. This is exactly where the IPCs of the MicroClient series are in a class of their own. These ultra compact Panel PCs provide basic PC operation and offer a choice of 12.1" and 15" displays. The MicroClient solution provides entry level PC power and rugged design all for a budget price.

For reducing the unit size and removing one of the major moving parts that could fail, the MicroClient panels are also designed to operate without a cooling fan.

■ **Full processing power**

Mitsubishi's V-Panel Express series provides all of the traditional PC flexibility users expect. Expandable configurations including up to 2 PCI cards and a choice of 15" or 17" displays mean users can tailor their IPC to their own requirements. The V-Panel Express series does not need a cooling fan.

Rugged and industrial in design and performance

The Mitsubishi's Industrial PC (IPC) range is ruggedly designed for heavy duty industrial applications and environments. These PCs feature high quality, fast performance, attractive design and brilliantly legible displays. They are ideal as process visualisation platforms, particularly in combination with the GT SoftGOT1000 and SCADA software packages.

When your requirements exceed the limits of a traditional HMI control unit, you need a PC-based system.

Compact yet powerful

The new IPC1000 Series terminals are available in two basic formats, the MicroClient series and the fully featured V-Panel Express series.

■ **Rugged design**

A wide operating and storage temperature range, tough vibration resistance and high IP ratings mean Mitsubishi's IPCs can be used in many locations.

IPC1000 at a glance

Display:
TFT from 12.1" to 17" touch screen

Resolution:
From 800 x 600 up to 1280 x 1024

Processor:
Intel Celeron M 800 MHz or
Pentium M 1,5 GHz

Basic memory:
512 MB (RAM)

Built in harddisk:
40 GB

Interfaces*:
1 x RS232C, 1 to 5 x USB 2.0,
1 x 10/100 MBaud Ethernet,
1 x 1000 MBaud Ethernet (only V-Panel Express)

*not available for all units

GT Works2 –
A Complete Software Suite

IPC or HMI?

GT Works2 is a single software environment that can be used to develop screen designs/content for either a PC/IPC or a traditional hardware unit such as the GOT1000 series.

This flexibility from a single design tool means reduced cost of ownership as users only have to learn one software tool. In addition there is a greater re-use of existing projects.

GT Works2

One project 2 targets

GOT1000

IPC with SoftGOT

Flexible project targeting

GT Works2, comprehensive yet flexible

All in one

GT Works2 is a multi tool software solution which include:

■ **GT Designer2**

This is the core design and development software.

■ **GT Simulator2**

A simulation package that allows users to simulate their projects operation as if it were really installed on a GOT1000.

■ **GT SoftGOT1000**

A PC based HMI environment that allows users to deploy their created HMI screen directly to a PC or IPC.

High function, easy to use

GT Works2 offers a comprehensive library of graphical elements that enable users of any skill level to quickly create the screen designs they need.

Integrated wizards, user-friendly menus and helpful dialog boxes enable users to set-up projects, complete security settings and change language settings with a minimum of fuss.

GT Designer2 has a comprehensive graphic library.

Advanced simulation

Debugging and commissioning can be an expensive and time consuming activity. However, with GT Works2 the integrated simulation software allows users to check the function and operation of their screen designs without any additional hardware. This can significantly help reduce costs and development time.

In addition if GX Developer and GX Simulator are also used then the combined PLC and HMI solution can be tested and debugged even before any electrical panels have been purchased or even wired.

11

E-Designer –
Clear, Simple, Easy

Powerful software that enhances your productivity

This is complimented by a library of ready-to-use symbols and objects which speed up screen design and creation.

Multilingual projects

Users who export control systems with local language displays will find E-Designers multilingual project support a big benefit. Up to ten screen languages can be loaded in to a small database allowing operators to switch between any loaded languages. All text blocks from the database can be easily exported and imported with the Application Languages Manager.

Multi driver support

Communication drivers for all MELSEC PLCs and many third-party PLCs are available as standard. These can be updated online via the Internet without exiting E-Designer.

The E-Designer software helps users to quickly start creating screen designs for use on MAC E and E1000 terminal units. Its intuative design excellently supports new users but also enhances the productivity of experienced users.

Ease of use

E-Designer has many features designed to improve the working process, for example the software's Block Manager gives a complete graphical overview of a project, making project management and debugguing easier and quicker.

Dual driver technology

Simultaneous connection using dual driver technology

Intuative operation aids quick project creation

12

MX4 –
SCADA and HMI in Harmony

Increase your Return On Assets (ROA) with MX4 SCADA, delivering scalable, flexible and reliable control and monitoring systems that reduce your operating costs and improve productivity. A fully integrated package, MX4 SCADA's easy-to use configuration tools and powerful features enable you to quickly develop and deploy solutions which can handle the most complex requirements for any size enterprise.

Scalable, flexible, reliable
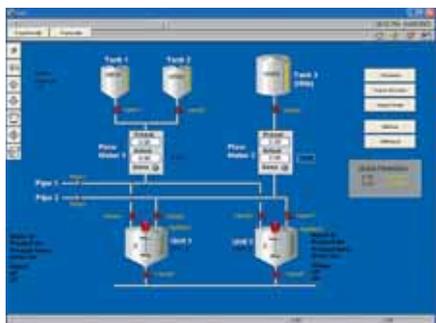
Clear and powerul communication for all levels of application

■ Tailored solutions

MX4 SCADA 's exceptional flexibility maximizes your productivity by allowing user to create optimal system architectures in the way that best suits them -giving access to both centralised and distributed processing.

■ Scalable solutions

Based on Microsoft technologies, MX4 SCADA has been designed with an innovative, scalable architecture. This preserves your initial investment by allowing your system to grow with your requirements, without modifying system hardware or software.

■ Reliable and redundant solutions

MX4 SCADA minimizes downtime by offering unrivalled reliability. It utilizes DCS style, built-in, redundancy that can tolerate system failures anywhere with no loss of functionality or performance.

■ Business benefits

Integrating MX4 with business systems lets users maximise productivity, improve product quality and reduce both maintenance and operating costs.

■ Free development package

MX4 is available as a free development package, which helps to reduce the cost of usage. Key features include graphical process visualisation, historical/real time trending and advanced alarming and reporting.

The installation procedure is customisable and totally scalable - simply upgraded with a new software key. It is also fully compatible with MX4 HMI. FastLinx is included with MX4 for fast and simple interfacing to MELSEC PLCs.

■ Simple to configure

A full set of user expandable libraries with graphics symbols and templates are included.
There are also other time saving features such as express Wizards for PLC communications, Genies for configuration of complex animation objects and Super Genies for repetitive plant processes.

13

Visualisation and productivity

Enterprise PC (MES/ERP/SCADA)

Servo amplifiers

Remote I/Os

Pressure storage tank

Filling tubes

Transport conveyor (OUT)

Rotational conveyor

Transport conveyor (IN)

Frequency Inverter

PLC

Local HMI, plant wide information
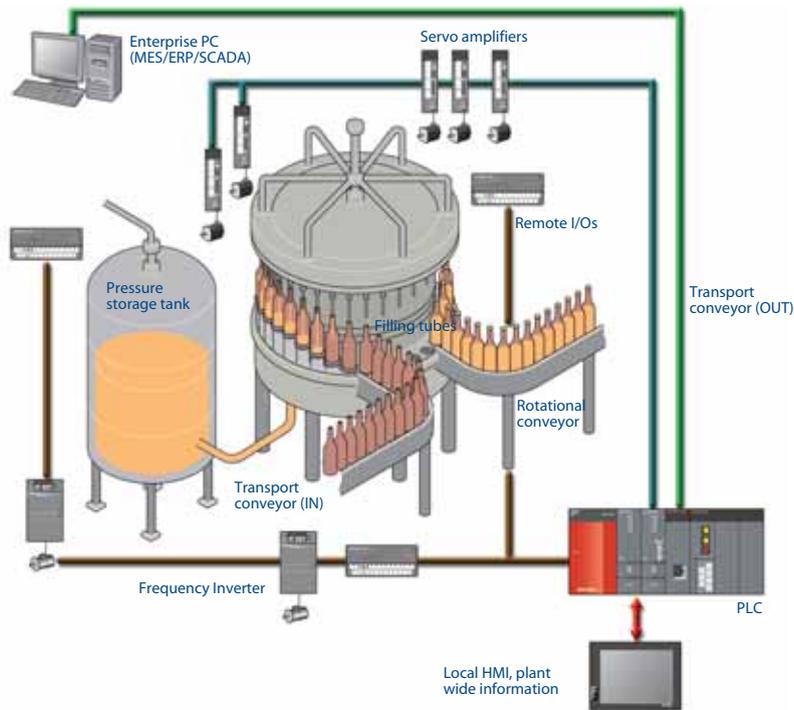
HMI technology can easily consolidate information at one point.

In fact some HMIs have the ability to report errors remotely, even contacting the maintenance team before the line operators are aware there is a problem. The potential of visualisation tools to improve process "uptime" is enormous.

The Business Cycle

Fast data retrieval, greater transparency require simplier and more effiecient control architectures. Because of this the demand for high reliability SCADA and PC based solutions is critical especially when feeding data in to a businesses central MES and ERP systems. But even now it is possible to see a future trend for embeding direct MES functionality in to PLC stations and high function HMIs. This can provide huge gains for the manufacturer, i.e.; reducing system complexity by removing a layer of intermedary PCs; increased data security by providing quicker respose and industrialised hardware; localised control points giving increased access to vital information.

The use of HMI technology has been increasing as manufacturers increasingly demand information in realtime. The boundries between "shop floor" data and business operation/process data is fast becoming blurred and places higher demands on visualisation and data processing tools to span the wide range of "new" applications.

New challenges

Using visualisation tools to support maintenance has never been high on the agenda of machine and process engineers, but if system downtime is considered as one of the most costly problems manufacturers face, then why not? HMI screen's can be configured to easily report on all of the critical control aspects of a system aiding efficient problem diagnosis.

e-F@ctory

As a manufacturer and supplier of automation products Mitsubishi Electric has long recognised these key issues and has developed solutions for its own complex production needs. This has resulted in many innovations such as GOT displays that have "built in" maintetance screens as well as the ability to review and monitor PLC programs. Other advances include MES interfaces for direct connection of PLC and HMI technology to MES SQL databases.

Mitsubishi's Vision1000 visualisation solutions are a clear part of today's e-F@ctory helping manufacturers increase productivity in a scalable and reliable way.
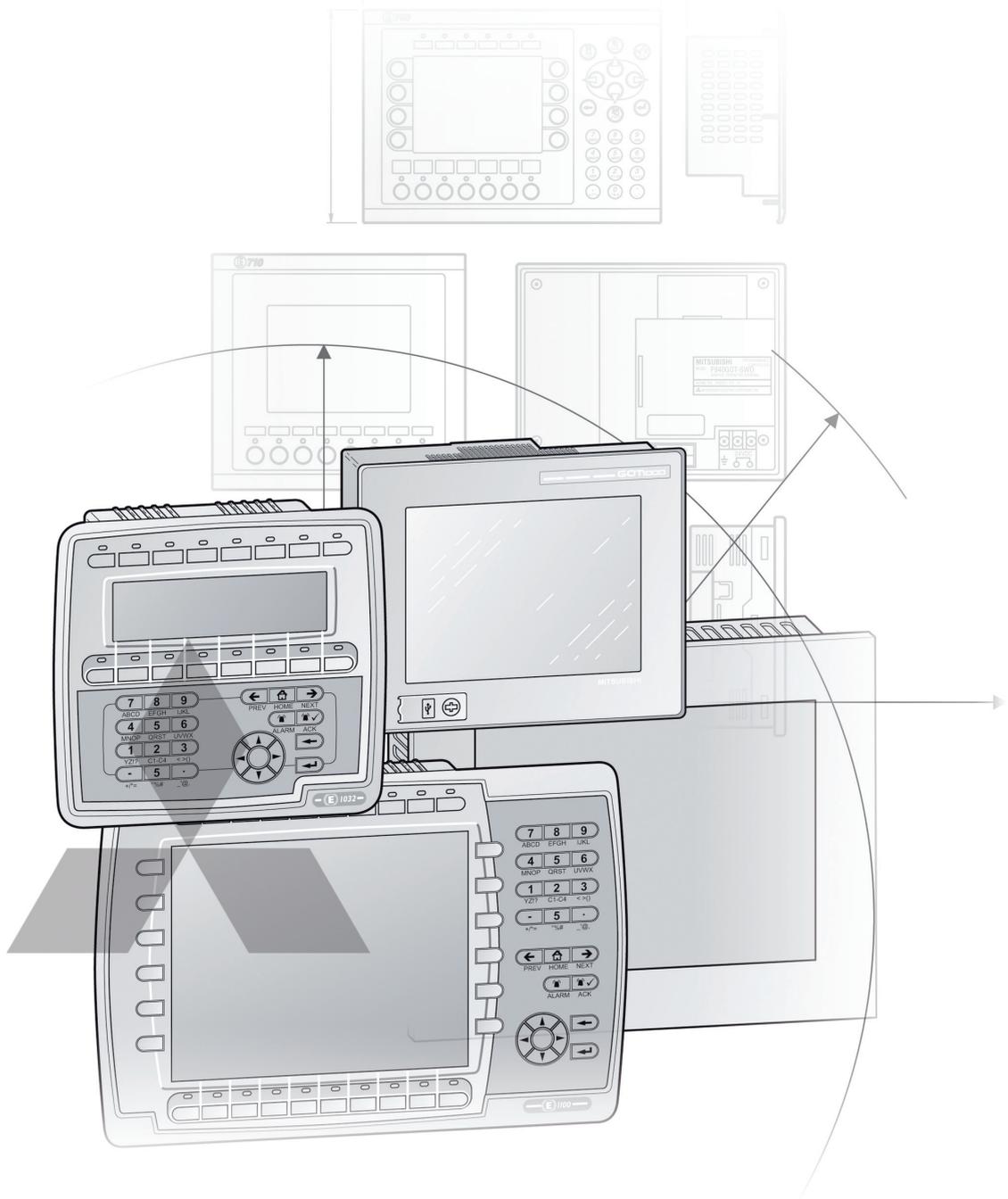
Technical Information Section

Further Publications within the Factory Automation Range

Technical Catalogues

Technical catalogue System Q

Product catalogues for programmable logic controllers and accessories for the further MELSEC PLC series

Technical catalogue Alpha and FX family

Product catalogues for programmable logic controllers and accessories for the Alpha and FX families

Technical catalogue Frequency inverters

Product catalogue for frequency inverters and accessories

Technical catalogues MELSERVO and Motion Controllers

Product catalogues for servo motors and amplifiers of the MR-J2S Series and Motion Controllers with SSCNET

Technical catalogue Robots

Product catalogue forMELFA industrial robots and accessories

More information?

This technical catalogue is designed to give an overview of the extensive range of operator terminals of the GOT, E series and Industrial PCs and Visualization software. If you cannot find the information you require in this catalogue, there are a number of ways you can get further details on configuration and technical issues, pricing and availability.

For technical issues visit the www.mitsubishi-automation.com website.

Our website provides a simple and fast way of accessing further technical data and up to the minute details on our products and services. Manuals and catalogues are available in several different languages and can be downloaded for free.

For technical, configuration, pricing and availability issues contact our distributors and partners.

Mitsubishi partners and distributors are only too happy to help answer your technical questions or help with configuration building. For a list of Mitsubishi partners please see the back of this catalogue or alternatively take a look at the "contact us" section of our website.

About this technical catalogue

This catalogue is a guide to the range of products available. For detailed configuration rules, system building, installation and configuration the associated product manuals must be read. You must satisfy yourself that any system you design with the products in this catalogue is fit for purpose, meets your requires and conforms to the product configuration rules as defined in the product manuals.

Specifications are subject to change without notice. All trademarks acknowledged.

MITSUBISHI ELECTRIC

1
2
3
4
5
6
7

MITSUBISHI ELECTRIC

HMI Control Units for Human-Machine Communication

The interface between human and technology

Users of today's factory automation systems want more and clearer information on the control systems of their plant and machinery. HMI control terminals and process visualisation software enable an informative dialogue between operator and machine, making them the ideal complement to the MELSEC PLC systems and other factory automation components.

HMI control units make factory system functions transparent, enabling the operator to monitor and edit process data quickly and easily.

You can choose between HMI control units with text and graphical displays. Fully programmable function keys and displays make the units even more user-friendly. The units can be programmed and configured with a PC running the intuitive Windows-based programming software package.

HMI units can be installed directly on your machines and require nearly no additional modules for connection to the PLC and other factory automation components. They provide direct access to all information and process data, with text or graphical displays.

An IP65 rating (and higher) ensures that the HMIs will always perform reliably, even under the toughest conditions.

Features

● Simple installation and user-friendly operation
● Broad range of applications
● Clear text and graphics process displays
● Report generation for quality control and process data exchange
● Precise, informative messages and instructions in error situations
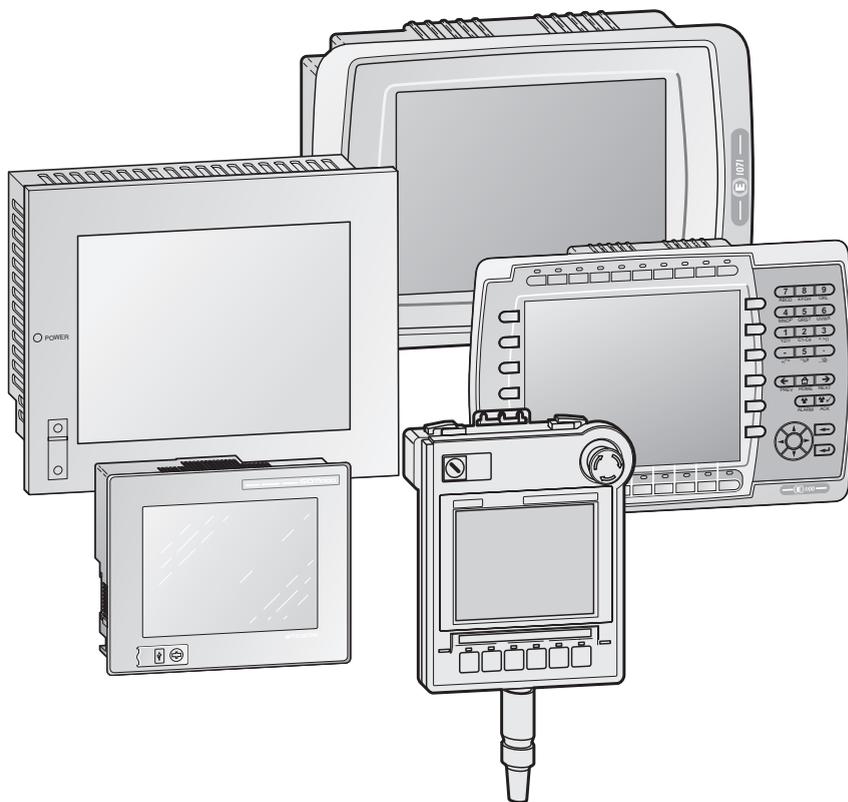
Vision 1000

Mitsubishi Electric's Vision 1000 contains different product lines for human-machine communication, e.g. operator terminals, IPCs, and visualization software, and summarizes them as a concept, with proprietary and open solutions, exactly co-ordinated with the respective application.

Specifications		GT1020-LBL / GT1020-LBD / GT1020-LBD2	GT1150-QLBD, GT1150HS-QLBD / GT1155-QSBD, GT1155HS-QLBD	GT1550-QLBD / GT1555-QSBD / GT1555-QTBD	GT1562-VNBA, GT1562-VNBD / GT1565-VTBA, GT1565-VTBD	GT1572-VNBA, GT1572-VNBD / GT1575-VNBA, GT1575-VNBD	GT1575-VTBA, GT1575-VTBD / GT1575(V)-STBA, GT1575-STBD	GT1585(V)-STBA, GT1585-STBD / GT1595-XTBA, GT1595-XTBD
Display unit		STN, monochrome	STN, 16 grayscales/ STN, 256 colours	STN, 16 grayscales / STN, 4096 colours / TFT, 65536 colours	TFT, 16 colours / TFT, 65536 colours	TFT, 16 colours / TFT, 256 colours	TFT, 65536 colours	TFT, 65536 colours
Display format (W x H)	mm	86 x 34	115 x 86	115 x 86	171 x 128	211 x 158	211 x 158	246 x 185 / 304 x 228
Resolution	pixels	160 x 64	320 x 240	320 x 240	640 x 480	640 x 480	640 x 480 / 800 x 600	800 x 600 / 1024 x 768
Character height		User definable						
Applicable PLC		All MELSEC PLC systems						
Applicable third party manufactures		All major PLC manufacturers						
Printer interface		—	—	USB (optional)	USB (optional)	USB (optional)	USB (optional)	USB (optional)
Real-time clock		—	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
Keyboard		Touch-panel	Touch-panel	Touch-panel	Touch-panel	Touch-panel	Touch-panel	Touch-panel
Function keys		Touchkeys	Touchkeys	Touchkeys	Touchkeys	Touchkeys	Touchkeys	Touchkeys
LED indicators		—	1 (POWER)	1 (POWER)	1 (POWER)	1 (POWER)	1 (POWER)	1 (POWER)
Weight	kg	0.2	0.7	1.1	1.9	2.3	2.3 / 2.4	2.8 / 4.9

MITSUBISHI ELECTRIC

PLC, HMI and different Networks in Cooperation

ETHERNET

MELSECNET
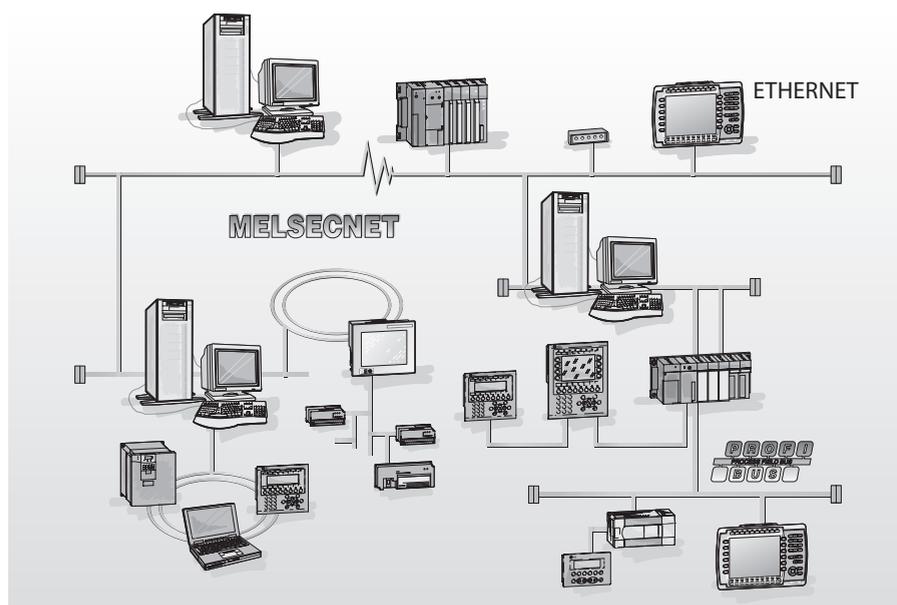
HMI and networks

Network support, communication between devices and data exchange are all standard features in today's factory automation systems. The HMI control units and process visualisation software provide full support for the commonest standard networks.

The control units are normally connected to the RS422 or RS232 port, of the factory automation components which provides a 1:1 link. In MELSECNET the control units can be configured as slaves. If you require a standard open network you can choose between PROFIBUS/DP, CC-Link and Ethernet TCP/IP.

Data communications over longer distances via modem are also possible – this means you can monitor and edit your configuration, programs and data from the comfort of your desk.

Supported Networks

● **Modem Links**
Enables connections over larger distances.

● **Ethernet**
For connection of multiple control units to the PLC system in installations extending over larger areas.

● **MELSECNET/10/H**
Enables high-speed access (up to 25 Mbaud) to the PLC from multiple locations via the GT15.

● **Multi Driver support**
The control units can be used e.g. as a gateway between 2 systems (E1000) and a gateway between 4 systems (GT15).

● **PROFIBUS/DP**
E series control units can be connected as slaves in systems using the open field bus protocol.

● **Multidrop-Net**
Enables programming and data logging from a central location using a PC; the individual stations operate autonomously and independently of one another.

● **No-Protocoll-Link**
Enables connection of barcode readers and other serial devices to the PLC via the E series control units.

● **A-BUS/Q-BUS**
Direct connection of the GT15 to the PLC's expansion port for fast communications.

Interfaces

● RS422
● RS232C
● RS485/RS422*
● MELSEC A-BUS*
● MELSEC Q-BUS*
● PROFIBUS/DP*
● Modbus TCP*
● Ethernet TP (coaxial or twisted pair)*
● CC-Link*
● USB*

*Standard or optional dependent on the operator terminal type

E1032	E1060	E1041 / E1043	E1061 / E1063	E1070, E1070 Pro+	E1071, E1071 Pro+	E1100, E1100 Pro+	E1101, E1101 Pro+ / E1151, E1151 Pro+
LCD monochrome	STN colour	TFT colour/ TFT grayscale	STN colour/ STN grayscale	TFT colour	TFT colour	TFT colour	TFT colour
135 x 36	120 x 91	75 x 54	145 x 110	134 x 100	134 x 100	211 x 158	211 x 158 / 304 x 228
240 x 64	320 x 240	320 x 240	320 x 240	640 x 480	640 x 480	800 x 600	800 x 600 / 1024 x 768
User definable							
All MELSEC PLC systems							
All major PLC manufacturers							
RS232C, USB, LAN	RS232C, USB, LAN	RS232C, USB, LAN	RS232C, USB, LAN	RS232C, USB, LAN	RS232C, USB, LAN	RS232C, USB, LAN	RS232C, USB, LAN
Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
Membrane	Membrane	Touch-panel	Touch-panel	Membrane	Touch-panel	Membrane	Touch-panel
8	16	Touchkeys	Touchkeys	16	Touchkeys	20	Touchkeys
16	16	1 (POWER)	1 (POWER)	16	1 (POWER)	20	1 (POWER)
0.9	1.1	0.56	0.87	1.3	1.1	2.3	2.0 / 3.7

GOT1000

Complex processes displayed simply

The graphic operator terminals of the GOT1000 series represent the top products by MITSUBISHI ELECTRIC. They provide a high-resolution fully graphical display and a touch-sensitive user surface. The depth of only 50 mm makes it to one of the slimmest operator panel on the market. State changes and user inputs can be entered easily.

The 64-bit RISC processor used in the GOT1000 series is combined with a specially developed high-speed graphics processor. Together, they deliver impressive response and display drawing times.

With the GOT1000 the user accesses all MELSEC PLCs special function modules in order to test individual parts of the plant. The PLC programs can be monitored graphically (ladder diagram).

The control units are programmed with the GT Works software package running on a PC under MS Windows®. Programs can be stored either in the control unit's integrated, battery-powered RAM, in plug-in EPROM modules or on Compact flash memory cards.

A vast number of indicating instruments like indicators, pressure gauges, analog and digital measuring devices, etc. can be replaced by corresponding graphical objects.

Lots of ready-to-use practical objects are included in the MS Windows® compatible programming software and reduce program development time.

All units feature an integrated real-time clock, password access control and alarm and recipe handling.

The GOT1000 features Unicode 2.1 support. This enables users to easily create multi-language displays.

Operator Terminals GT11

Multi-talent for Stand-alone Applications

The graphical control units of the GT11 series combines particularly easy operation with maximum functionality and modest space requirements. Portable handy types are available too.

The 5.7" STN touchscreen offers brilliant screens with up to 256 colours.

The graphic display configuration on the touch screen is variable, giving the operator quick and easily-comprehensible access to information on machine functions.

With Compact Flash cards it is easy to transfer and save project data and operation system updates. The fast USB port on the front of the units makes it possible to transfer project data without opening the cabinet or control console.

Mitsubishi PLC's, servo amplifiers, frequency inverters and several automation components can be programmed and parametrized directly via the GOT.

All GT11 units have a built-in recipe functionality.

Operator Terminals GT15

Complex processes displayed simply

Every GT15 operator panel offers a TFT colour touch screen with outstanding graphic properties. Screen sizes from 5.7" to 15" are available.

In terms of networks, the GT15 are especially powerful with options for MELSEC-NET/10/H, CC-Link and Ethernet as well as the four-driver-concept (4 drivers at the same time and the possibility of data exchange via gateway between the drivers as well as third party manufacturers).

All GT15 units provide all mayor interfaces, especially named is the fast USB port on the front side of the panel. It can be used for all kinds of direct data exchange or project up and downloads.

The graphic display configuration on the touch screen is variable, giving the operating staff all possibilities of modern applications.

Operator Terminals F900GOT

The F900GOT Series - A Window through to Your MELSEC PLC

Would you like to cut your costs and improve efficiency? You can with the F900GOT series control units.

In addition to standard display and diagnostics functions this unit also supports fully-programmable graphical images and "touch-keys".

Data communication with the MELSEC FX, MELSEC AnS/QnAS, MELSEC AnU/QnA series and MELSEC System Q is performed via the RS422 port as standard. A printer can be connected to the integrated RS232 port.

The control units are programmed with the GT Works software package running on a standard PC under MS Windows®. Programs can be stored either in the control unit's integrated, battery-powered RAM or in plug-in EPROM modules.

MITSUBISHI ELECTRIC

Provided Connections for GOT1000

GOT1000
(Operator terminals GT11 and GT15)

USB GT09-C20-USB-5P via frontside USB

GT01-C30R2-GP

GT01-C30R2-9S

GT01-C30R4-25P

GT01-C30R4-8P

MELSEC System Q

MELSEC AnS/QnAS series

MELSEC FX family

Personal Computer

Provided Connections for F900GOT units

F940GOT

FX-232-CAB1

FX-50DU-CAB0/EN

QC30R2

FX-40DU-CAB/EN

MELSEC System Q

MELSEC AnS/QnAS series

MELSEC FX

General Operating Conditions

Operating Conditions		GT10	GT11	GT15	F900GOT
Ambient temperature in operation	display	0 – +50 ℃			0 – +50 ℃
	main body unit	0 – +55 ℃ (0 – +50 ℃ for vertical installation)		0 – +55 ℃	0 – +50 ℃
Storage temperature		-20 – +60 ℃			-20 – +70 ℃
Ambient relative humidity		10 – 90 % (non-condensing)			35 – 85 %
Noise durability		1000 Vpp tested by noise generator; 1 μs at 30 – 100 Hz			1000 Vpp tested by noise generator; 1 μs at 30 – 100 Hz
Dielectric withstand voltage		1500 V AC, > 1 min / 500 V DC, > 1 min			1500 V AV, > 1 min.
Shock resistance		15 G (3 times each in 3 directions)			10 G (3 times each in 3 directions)
Vibration resistance		1 G: resistant to vibrations from 9 – 150 Hz for 80 min. along all 3 axes			1 G: resistant to vibrations from 10 – 55 Hz for 2 hours along all 3 axes
Altitude		Max. 2000 m above NN			Max. 2000 m above NN
Applicable installation position		Cabinet or command panel			Cabinet or command panel
Over-voltage category		Max. II			
Pollution degree		Max. 2			
EMC		89 / 336 / EEC und 93 / 68 / EEC			
Environment		Avoid environments containing aggressive gases			Avoid environments containing aggressive gases

2

OPERATOR TERMINALS GOT

2

OPERATOR TERMINALS GOT

■ GOT Series Operator Terminals

F920GOT-BBD

F930GOT-BBD

F930GOT-BWD-E

**F940GOT-LWD-E/-SWD-E,
F940WGOT-TWD-E**

The **F920GOT-BBD** is a fully graphical 2-colour operation terminal. The combination of a numerical keypad plus definable function keys offers a high degree of functionality. The 128kB of flash memory ensures that all data is secured and saved in the case of power failure.
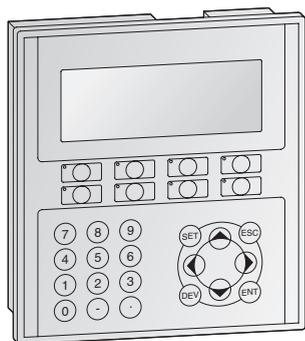
The **F930GOT-BBD** is a graphical 2-colour operation terminal. The combination of a numerical keypad plus definable function keys offers a high degree of functionality. The 256 kB of flash memory ensures that all data is secured and saved in the case of power failure. The F930GOT-BBD is equipped with an integrated touch display, for those who wish to combine the use of both a keyboard terminal with a touch-screen .
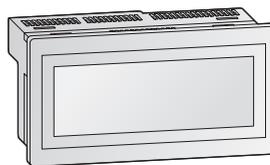
This entry-level **F930GOT-BWD-E** touch screen offers a simple monochrome graphical display in a compact housing. The combination of touch screen and IP65 design makes the unit easy to keep clean in environments that need a high level of hygiene or cleanliness. User screens can be created using a wide variety of graphical elements and stored in the onboard, 256 kB memory. Other special functions include alarm processing, recipe handling and data sampling.

Building on the F930 specifications, the **F940GOT-□WD-E** features a doubling of screen size and resolution making the display crisp and easy to view. The **F940GOT-SWD-E** provides the additional benefit of a colour screen. The **F940WGOT-TWD-E** unit offers a bright, clear 256 colour TFT display which can be used in both a split screen configuration and in landscape or portrait mounting positions. The unit also boasts a further doubling of memory, over the standard F940, to 1MB.

Specifications		F920GOT-BBD	F930GOT-BBD	F930GOT-BWD-E	F940GOT-LWD-E / F940GOT-SWD-E	F940WGOT-TWD-E
Display unit	type	STN, 2-colours, backlit	LCD, 2-colours, backlit	STN, monochrome	LCD, monochrome / LCD, 8-colours	TFT, 256 colours, backlit
	dimensions (mm)	60 x 30	117 x 42	117 x 42	115 x 86 (5.7")	155.5 x 87.8
	text (lines x characters)	User definable	User definable	User definable	User definable	User definable
	character height (mm)	User definable	User definable	User definable	User definable	User definable
	graphical resolution (pixels)	128 x 64	240 x 80	240 x 80	320 x 240	480 x 234
Power supply		5 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Internal memory capacity		128 kB	256 kB	256 kB	512 kB	1 MB
Memory card slot		—	—	—	—	—
Keyboard type		Membrane	Membrane/Touch-panel	Touch-panel	Touch-panel	Touch-panel
Function keys	internal	6 (user assignable) +numerical keyboard with 12 keys	6 (user assignable) + numerical keyboard with 12 keys	Touch keys (max. 50 keys/screen)	Touch keys (max. 50 keys/screen)	Touch keys (max. 50 keys/screen)
	external	—	—	—	—	—
LED indicators		—	8 (green)	—	1 (Power ON)	1 (Power ON)
Interfaces	serial	RS232C, RS422	RS232C, RS422	RS232C, RS422	RS232C, RS422	2 x RS232C, 1 x RS422
Interface slot for optional cards		1	1	1	1	—
Real-time clock		Integrated	Integrated	Integrated	Integrated	Integrated
Network communication possibilities	type	Serial	Serial	Serial	Serial	Serial
	max. no. of nodes	4	4	4	4	4
IP Rating (front panel)		IP65	IP65	IP65	IP65	IP65
Dimensions WxHxD (mm)		106 x 134 x 35.5	168 x 183 x 37.5	146 x 75 x 49	162 x 130 x 57	215 x 133 x 70.6
Weight (kg)		0.3	0.6	0.3	1.0	0.8
Order information	Art. no.	146508	146721	128789	113862 / 113841	136797
Accessories		Programming software (refer to page 42), cables and interface adapters (refer to page 20)				

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GT1020

GT1150-QLBD, GT1155-QSBD

GT1150HS-QLBD, GT1155HS-QSBD

GT1550-QLBD/GT1555-QSBD/ GT1555-QTBD

The new **GT1020** series has a bright 3.7-inch STN black-and-white liquid crystal display with 3-color backlight for use in a variety of display applications.

Recipe management, alarming and messaging are included as standard. The unit has a built-in memory for up to 4000 16-bit data words which can be used to store or exchange data with a connected PLC.

The GT1020-LBD/-LBL have a RS422 and a RS232 terminal and the GT1020-LBD2 has a RS232 terminal only.

The GT11 panels **GT1150-QLBD** and **GT1150HS-QLBD** (16 colours) as well as the **GT1155-QSBD** and **GT1155HS-QSBD** (256 colours) are the standard models of the GOT1000 series and offer a full array of basic functions for stand-alone use.

Beside their outstanding speed and performance they offer a modern design and a first on the market front USB port for project download and PLC maintenance.
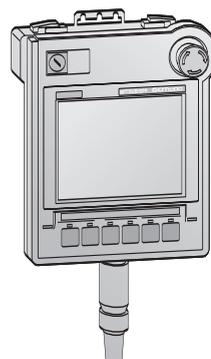
The **GT1150HS-QLBD** and **GT1155HS-QSBD** are handsome portable terminals and boast top level quality for medium sized terminals. They share the same functions as all GT11 series terminals.

Mitsubishi Electric Controllers, inverters and servo amplifiers can be easily programmed via the USB transparent functionality.

All GT11 terminals feature recipes, alarms, multi-language and Unicode support. Furthermore they offer various graphical object libraries.
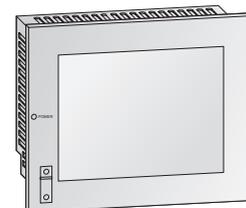
GT1550-QLBD, **GT1555-QSBD** and **GT1555-QTBD** have an exceptionally clear display of 16 shades monochrome over 4096 colour to 65536 full-colour display.

Windows fonts for clear text presentation as well as CF card interface for project operation systems and data are available.

The panels can be mounted and used horizontal or vertical.

Specifications		GT1020-LBL /-LBD /-LBD2	GT1150-QLBD / GT1150HS-QLBD	GT1155-QSBD / GT1155HS-QSBD	GT1550-QLBD / GT1555-QSBD / GT1555-QTBD
Display unit	type	STN, monochrome	STN, 16 grayscales	STN, 256 colours	STN monochrome / STN 4096 colours / TFT, 65536 colours
	dimensions (mm)	86.4 x 34.5 (3.7")	115 x 86 (5.7")	115 x 86 (5.7")	115 x 86 (5.7")
	text (lines x characters)	User definable	User definable	User definable	User definable
	character height (mm)	User definable, Windows fonts	User definable, Windows fonts	User definable, Windows fonts	User definable, Windows fonts
	graphical resolution (pixels)	160 x 64	320 x 240	320 x 240	320 x 240
Power supply		5 V DC / 24 V DC / 24 V DC	24 V DC	24 V DC	
Internal memory capacity		512 kB	3 MB	3 MB	9 MB
Memory card slot		—	1 (CF card)	1 (CF card)	1 (CF card)
Keyboard type		Touch-panel	Touch-panel	Touch-panel	Touch-panel
Function keys	internal	Touch keys	Touch keys	Touch keys	Touch keys (300 per screen)
	external	—	—	—	—
LED indicators		—	1 (Power ON)	1 (Power ON)	1 (Power ON)
Interfaces	serial	RS232, RS422 / RS232	RS232C, RS422 (1ch) / RS232C, RS422 (2ch)	RS232C, RS422 (1ch) / RS232C, RS422 (2ch)	RS232
	parallel	—	—	—	—
	others	—	USB (front) / USB (top)	USB (front) / USB (top)	USB (at front panel)
Interface slot for optional cards		—	1, for recipes and list editors	1, for recipes and list editors	2
Real-time clock		—	Integrated	Integrated	Integrated
Network communication possibilities	type	Serial	Serial	Serial	Ethernet (TCP/IP), CC-Link, RS422, A-Bus, Q-Bus, MELSECNET/10
	max. no. of nodes	2	2	2	
IP Rating (front panel)		IP67	IP67F	IP67F	IP67F
Dimensions WxHxD (mm)		113 x 74	164 x 135 x 56 / 176 x 220 x 93	164 x 135 x 56 / 176 x 220 x 93	167 x 135 x 60
Weight (kg)		0.2	0,7 / 1.0	0,7 / 1.0	1.1
Order information	Art. no.	200738 / 200491 / 200492	162709 / 170180	162710 / 170181	203472 / 203471 / 203470
Accessories		Programming software (refer to page 42), cables and interface adapters (refer to page 20)			

**GT1562-VNBA/VNBD,
GT1565-VTBA/VTBD**
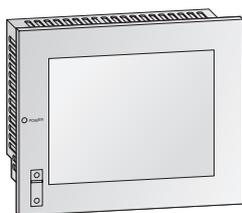
**GT1572-VNBA/VNBD,
GT1575-VNBA/VNBD**
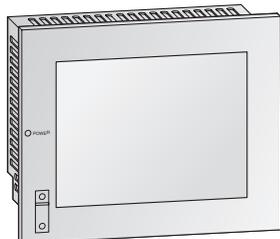
**GT1575-VTBA/VTBD,
GT1575-STBA/STBD,
GT1575V-STBD**
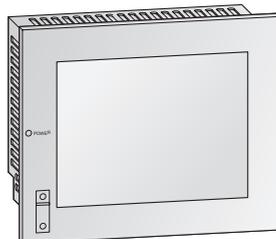
**GT1585-STBA/STBD,
GT1595-XTBA/XTBD,
GT1585V-STBD**
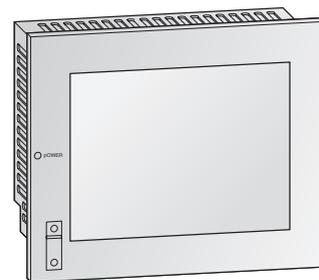
The proprietary operating system as well as the completely new developed hardware result in an outstanding performance and quality of the **GT15** operator terminals. The user can choose between several fast project up- and download options; high-speed serial connection with 115 kBaud, USB or project transfer via CF-card is available.

In addition, the GT15 offer Ethernet project transfer via the Ethernet interface GT15-J71E71-100.

MELSEC PLCs can easily be programmed using the front USB port with integrated Transparent Mode, so updates on PLCs, servo amplifiers, inverters and GOT terminals can be accomplished without opening the cabinet.

The file system of the CF card is PC compatible. Projects and operating system components can be downloaded to the CF card. The GT15 can load the files from the CF card. This is a crucial advantage for manufacturers of serial machines.

In terms of networks, the GT15 are especially powerful with options for MELSECNET/10/H, CC-Link and Ethernet as well as the four-driver-concept (4 drivers at the same time and the possibility of data exchange via gateway between the

drivers as well as third party manufacturers).

The new Video models GT1585V-STBD and GT1575V-STBD additionally dispose of a video/RGB input to monitor images from PC's, cameras and vision sensors on the GOT.

All GT15 operator terminals listed on this page are available as AC type (**-A** models*) or as DC type (**-D** models).

*Not for the video models

Specifications		GT1562-VNBA / GT1565-VTBA GT1562-VNBD / GT1565-VTBD	GT1572-VNBA / GT1575-VNBA GT1572-VNBD / GT1575-VNBD	GT1575-VTBA / GT1575-STBA GT1575-VTBD / GT1575-STBD, GT1575V-STBD	GT1585-STBA / GT1595-XTBA GT1585-STBD /GT1595-XTBD, GT1585V-STBD
Display unit	type	TFT, 16 colours / 65536 colours	TFT, 16 colours / 256 colours	TFT, 65536 colours (expandable)	TFT, 256 colours (expandable)
	dimensions (mm)	171 x 128 (8.4")	211 x 158 (10.4")	211 x 158 (10.4")	246 x 185 (12.1") / 304 x 228 (15")
	text (lines x characters)	User definable	User definable	User definable	User definable
	character height (mm)	User definable, Windows fonts	User definable, Windows fonts	User definable, Windows fonts	User definable, Windows fonts
	graphical resolution (pixels)	640 x 480	640 x 480	640 x 480 / 800 x 600	800 x 600 / 1024 x 768
Power supply	A types	100 – 240 V AC	100 – 240 V AC	100 – 240 V AC	100 – 240 V AC
	D types	24 V DC	24 V DC	24 V DC	24 V DC
Internal memory capacity		VN types: 5 MB (expandable up to 53 MB) VT types: 9 MB (expandable up to 57 MB)	5 MB (expandable up to 53 MB)	9 MB (expandable up to 57 MB)	9 MB (expandable up to 57 MB)
Memory card slot		1 (compact flash 256 MB max.)	1 (compact flash 256 MB max.)	1 (compact flash 256 MB max.)	1 (compact flash 256 MB max.)
Keyboard type		Touch-panel	Touch-panel	Touch-panel	Touch-panel
Function keys	internal	Touch keys	Touch keys	Touch keys	Touch keys
	external	—	—	—	—
LED indicators		1	1	1	1
Interfaces	serial	RS232C	RS232C	RS232C	RS232C
	parallel	—	—	—	—
	others	USB (on panel front)	USB (on panel front)	USB (on panel front)	USB (on panel front)
Interface slot for optional cards		1 / 2	1	2	2
Real-time clock		Integrated	Integrated	Integrated	Integrated
Network communication possibilities	type	Ethernet (TCP/IP), CC-Link, RS422, A-Bus, Q-Bus, MELSECNET/10	Ethernet (TCP/IP), CC-Link, RS422, A-Bus, Q-Bus, MELSECNET/10	Ethernet (TCP/IP), CC-Link, RS422, A-Bus, Q-Bus, MELSECNET/10	Ethernet (TCP/IP), CC-Link, RS422, A-Bus, Q-Bus, MELSECNET/10
IP Rating (front panel)		IP67	IP67	IP67	IP67
Dimensions WxHxD (mm)		241 x 150 x 56	303 x 214 x 56	303 x 214 x 56	316 x 242 x 56 / 397 x 296 x 61
Weight (kg)		1.9	2.3	2.3 / 2.4	2.8 / 4.9
Order information	Art. no.	166240 / 162705 169480 / 169481	166241 / 166242 169482 / 169483	162706 / 162707 / 169484 / 169485, video model 203496	162708 / 169464 / 169486 / 203469, video model 203495
Accessories		Options cards (refer to page 19), programming software (refer to page 42), cables and interface adapters (refer to page 20)			

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**F940GOT-SBD-RH-E,
F943GOT-SBD-RH-E**
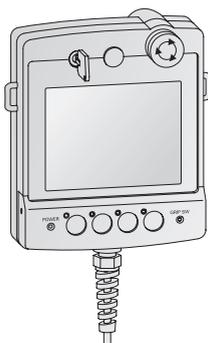
**F940GOT-LBD-RH-E,
F943GOT-LBD-RH-E**
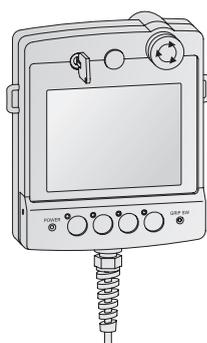
**F940GOT-SBD-H-E,
F943GOT-SBD-H-E**
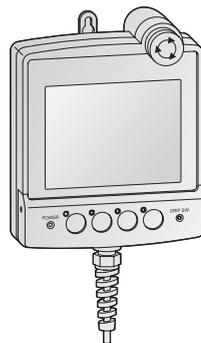
**F940GOT-LBD-H-E,
F943GOT-LBD-H-E**
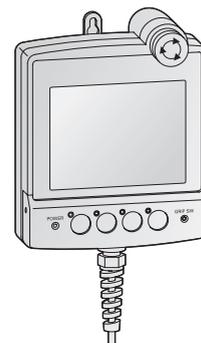
The handy graphic operator terminals F940GOT-/F943GOT type **RH** provide a high-resolution fully graphical display with a touch-sensitive user surface and user-programmable function keys. The terminal also features an Emergency Stop switch, a key switch and a Dead-man switch, which can be integrated in the application.

These safety functions are the special advantages to the standard type H handy operator teminals F940GOT/F943GOT.

A colour display type (**F940GOT/ F943GOT-SBD-RH-E**) or a monochrome display type (**F940GOT/F943GOT-LBD-RH-E**) is available.

The Handy operator terminals of the **F940GOT** type RH series provide an RS422 and an RS232C interface each and the **F943GOT** type RH series provide twoRS232C interfaces each for communication.

The handy graphic operator terminals F940GOT-/F943GOT type **H** provide a high-resolution fully graphical display with a touch-sensitive user surface and user-programmable function keys. The terminal also features an Emergency Stop switch.

A colour display type (**F940GOT/ F943GOT-SBD-H-E**) or a monochrome display type (**F940GOT/F943GOT-LBD-H-E**) is available.

The Handy operator terminals of the **F940GOT** type H series provide an RS422 and an RS232C interface each and the **F943GOT** type H series provide twoRS232C interfaces each for communication.

Specifications		F940GOT-SBD-RH-E / F943GOT-SBD-RH-E	F940GOT-LBD-RH-E / F943GOT-LBD-RH-E	F940GOT-SBD-H-E / F943GOT-SBD-H-E	F940GOT-LBD-H-E / F943GOT-LBD-H-E
Display unit	type	LCD, 8 colours, backlit	LCD, monochrome, backlit	LCD, 8 colours, backlit	LCD, monochrome, backlit
	dimensions (mm)	115 x 86 (6.5")	115 x 86 (6.5")	115 x 86 (6.5")	115 x 86 (6.5")
	text (lines x characters)	User definable	User definable	User definable	User definable
	character height (mm)	User definable	User definable	User definable	User definable
	graphical resolution (pixels)	320 x 240	320 x 240	320 x 240	320 x 240
Power supply		24 V DC (+10 / -15 %)	24 V DC (+10 / -15 %)	24 V DC (+10 / -15 %)	24 V DC (+10 / -15 %)
Internal memory capacity		512 kB	512 kB	512 kB	512 kB
Memory card slot		—	—	—	—
Keyboard type		Touch-panel	Touch-panel	Touch-panel	Touch-panel
Integrated function keys		1 emergency stop switch, 4 function keys, touch keys (max. 50 keys/screen)	1 emergency stop switch, 4 function keys, touch keys (max. 50 keys/screen)	1 emergency stop switch, 4 function keys, touch keys (max. 50 keys/screen)	1 emergency stop switch, 4 function keys, touch keys (max. 50 keys/screen)
Safety functions		Emergency stop switch with 2 contacts, Dead-man switch with 3 positions and 2 contacts	Emergency stop switch with 2 contacts, Dead-man switch with 3 positions and 2 contacts	Emergency stop switch with 2 contacts	Emergency stop switch with 2 contacts
LED indicators		4 + 1 (EMERGENCY STOP) + 1 (Power ON)	4 + 1 (EMERGENCY STOP) + 1 (Power ON)	4 + 1 (EMERGENCY STOP) + 1 (Power ON)	4 + 1 (EMERGENCY STOP) + 1 (Power ON)
Interfaces	serial	RS232C, RS422 / 2 x RS232C	RS232C, RS422 / 2 x RS232C	RS232C, RS422 / 2 x RS232C	RS232C, RS422 / 2 x RS232C
	parallel	—	—	—	—
	others	—	—	—	—
Interface slot for optional cards		—	—	—	—
Real-time clock		Integrated	Integrated	Integrated	Integrated
IP Rating		IP54	IP54	IP54	IP54
Dimensions WxHxD (mm)		156 x 191 x 69.5	156 x 191 x 69.5	156 x 191 x 63.5	156 x 191 x 63.5
Weight (kg)		0.87	0.87	0.79	0.79

Order information	Art. no.	143390 / 143413

Accessories	Programming software (refer to page 42), cables and interface adapters (refer to page 22)

Operator Terminals E1000 and MAC E Series

The E Series - State-of-the-Art Operation and Process Design!

The E series operator terminals provide a unique concept of flexible display blocks. The dialog screen is displayed quickly and can be adopted to suit the users needs.

These operator terminals in many cases are capable of replacing a complete control console.

They permit simple alteration of process data and thus influence the particular application.

The units in the E series are perfectly matched to the range of MELSEC controllers and yet easy to operate.

The features include user-definable text, control parameter and data editing, alarm handling, recipes and menu operation.

Programming is performed with an MS-Windows® compatible PC running the E-Designer software package.

"Dialog blocks" consisting of text and/or graphics form the basis of all E applications. Via the object-orientated programming system, each dialog block displays all signals and values allocated to the object in digital and analog form.

The individual dialog blocks that make up a E application form a hierarchical tree structure with the needed function assigned to each dialog block. Thus, they are adopted to the machine and process functions. The result is a clear operator guidance with a clear information flow and clear text messages in case of an error.
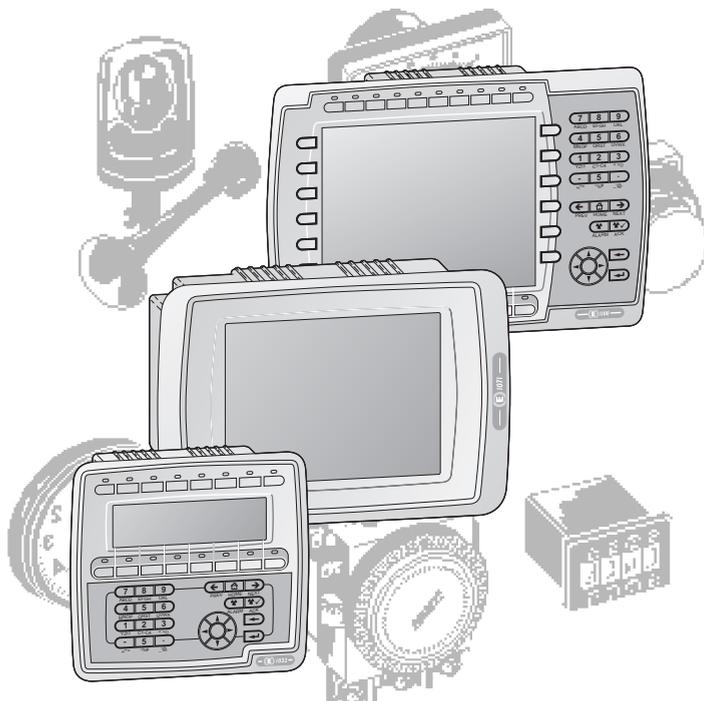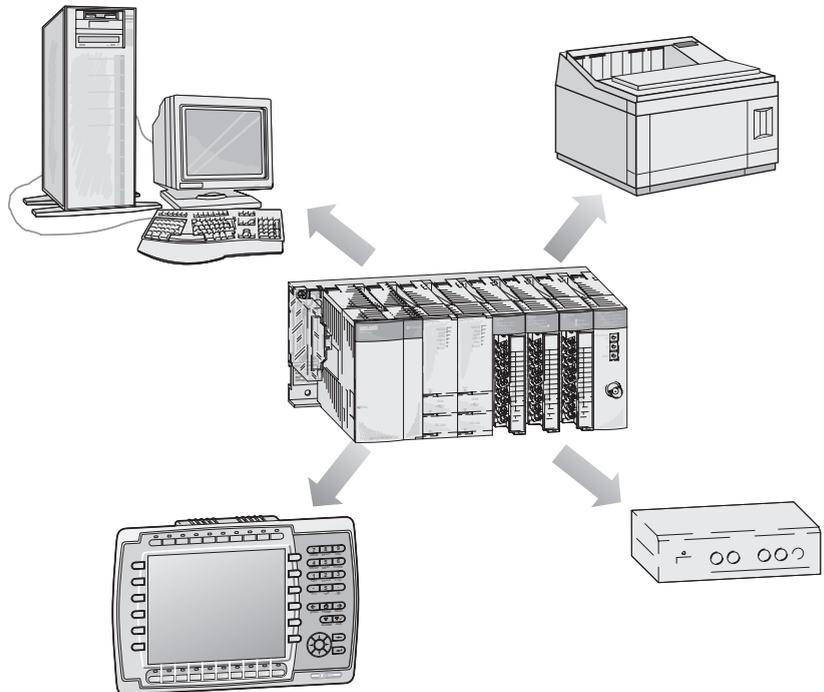
Text and graphic blocks return static or dynamic information to the operator.

Text blocks display numeric values and text. The display supports scrolling, so the size of textblocks is not limited by the number of lines on the screen.

The blocks can be output to a printer under PLC control.

The graphics block size is limited by the display which has a resolution of 240 x 64 pixel up to 1024 x 768 pixel.

Static objects for example, can be displayed in different font sizes or with predefined graphic objects.

Dynamic objects are predefined as well for easier application development and can be scaled to any size.

In addition to these predefined objects self-created bitmap graphics can be imported and managed in libraries.

RS232C

NO-Protocol-Mode

Ethernet

Communications

All E series control units are fitted with an RS422 and an RS232 interface for connection to the PLC.

This second port enables the unit to be run in transparent mode.

This means that the E series is capable of communicating simultaneously with both the connected PLC system and a PC (via the MX4 HMI or GX IEC Developer software).

The E units can also be linked to the PC via modem.

Another communications option is the no-protocol mode for the connection of serial peripheral devices (e.g. bar-code readers).

Printer, mouse, keyboard or a USB memory stick can be connected to an E1000 control unit via the integrated USB host port.

3

OPERATOR TERMINALS E SERIES
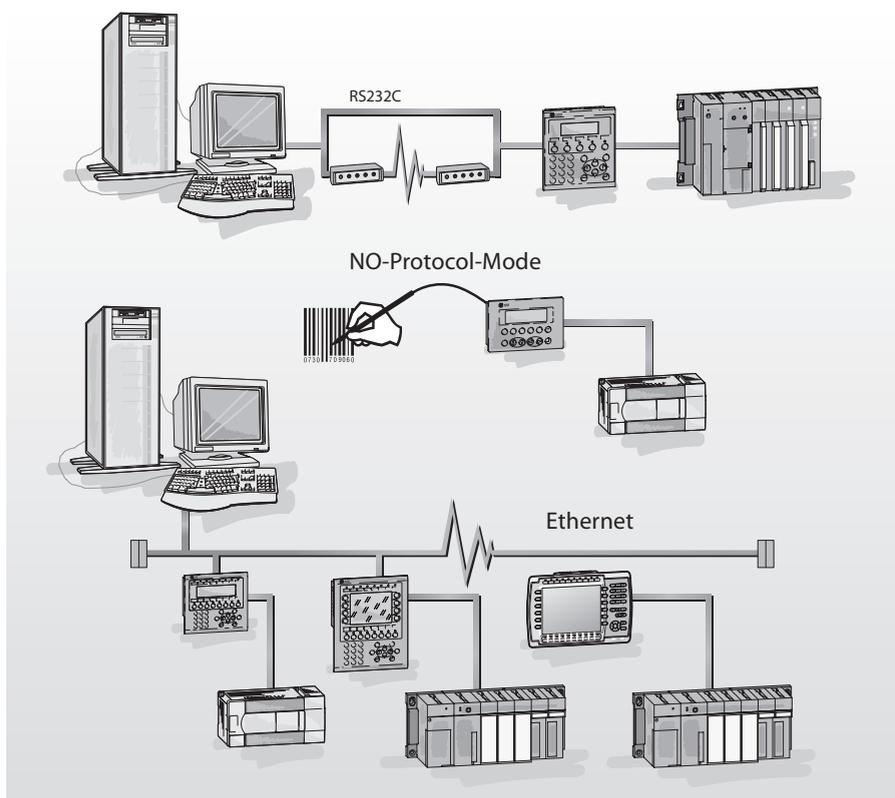
Networking

All E1000 operator terminals feature an integrated Ethernet adapter to realize an Ethernet network. For the MAC series terminals is an communications interface MAC-IFC-ETTP available.

Within this network up to 30 stations can be connected to one PLC in a segment.

The connection to open networks can be established through an optional interface for PROFIBUS/DP with a transfer rate of up to 12 Mbit.

Dual Driver

The E series operator terminal can communicate with two components of different manufactures; also data exchange between the two drivers is possible.

Ethernet

Dual Driver

PROFIBUS/DP
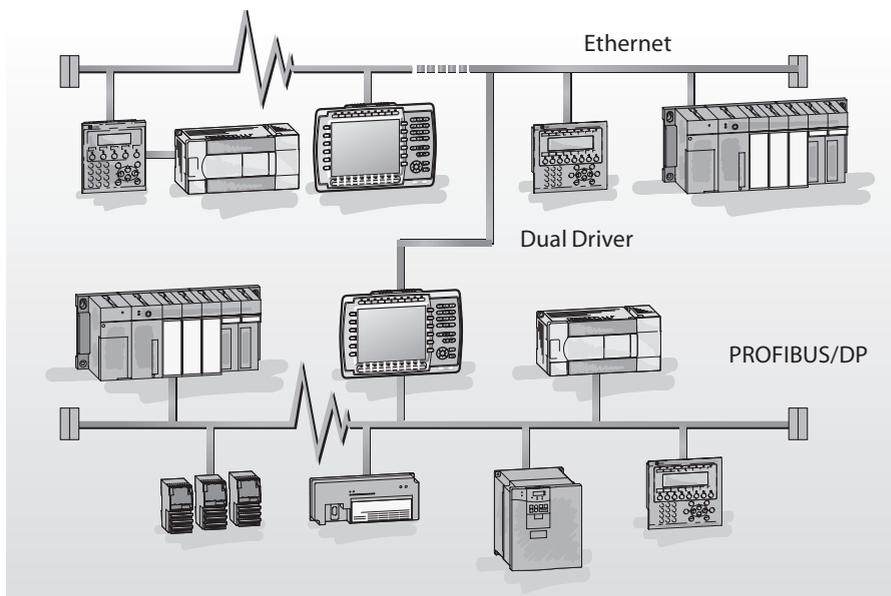
Operating Conditions	Specifications
Ambient temperature in operation	0 – +50 °C (all E series operator terminals)
Operating temperature range	Max. 90 % (non-condensing)
Storage temperature	-20 – +60 °C
Noise durability	1000 Vpp tested by noise generator; 1 µs at 30 – 100 Hz
Dielectric withstand voltage	1500 V AC, > 1 min.
Shock resistance	10 G (3 times each in 3 directions)
Vibration resistance	1 G: resistant to vibrations from 10 – 55 Hz for 2 h. along all 3 axes
Insulation resistance	> 5 MΩ (500 V DC)
Grounding	Class 3 (100 Ω)
Environment	Avoid environments containing aggressive gases, install in a dust-free location.
Cooling	Self-cooling
Certifications	UL / CSA / CE / DNV / RINA / LR

■ E Series Operator Panels

E50

E100
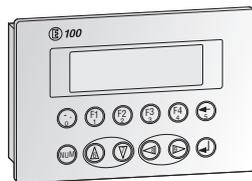
E150
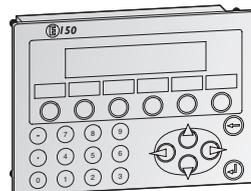
E200
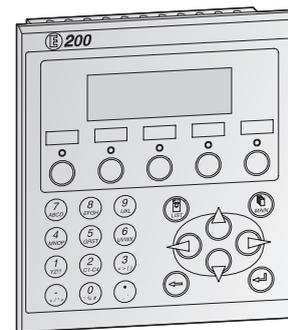
The **E50** is a key-oriented HMI unit with four function keys and an LCD display with two rows and 16 characters each. It can display up to 50 text blocks, which can be paged with the function keys. Values can be edited directly with the unit's keyboard. The RS232C and RS422 ports are both integrated in a 25-pin connector.

The **E100** has 4 programmable function keys with freely definable labels and alternating function assignment. Recipes, passwords and changes can be entered via input keys. The unit has an LCD display with two rows and 20 characters each. It has one RS232C port and a RS422 port, which can be connected to either two PLCs or a PLC and a printer, bar code reader and other RS232 devices.

The **E150** unit features 6 programmable function keys with definable labels and numerical keypad. Recipes, passwords and editing changes can all be entered and edited directly with the units keyboard. The unit offers an LCD display with two rows and 20 characters each. It has one RS232C port and a RS422 port, which can be connected to either two PLCs or a PLC and a printer, bar code reader and other RS232 devices.

The **E200** terminal offers 5 programmable function keys with freely definable labels and alternating function assignment. LEDs indicate the process status. Recipes, passwords, texts, alarms and changes can be entered via input keys. The E200 offers an LCD display with four rows and 20 characters each. It posseses one RS232C port and a RS422 port, which can be connected to either two PLCs or a PLC and a printer, bar code reader and other RS232 devices.

Specifications		E50	E100	E150	E200
Display unit	type	LCD, mono, backlit	LCD, mono, backlit	LCD, mono, backlit	LCD
	dimensions (mm)	55.7 x 100	73.5 x 11.5	73.5 x 11.5	70.4 x 20.8
	text (lines x characters)	2 lines x 16 characters	2 lines x 20 characters	2 lines x 20 characters	2 lines x 20 characters
	character height (mm)	5	5 (user definable)	5 (user definable)	5 (user definable)
	graphical resolution (pixels)	—	—	—	—
Power supply		5 V DC (± 5 %)	5 V DC (± 5 %)	5 V DC (± 5 %)	24 V DC (20 – 30 V)
Internal memory capacity		16 kB	64 kB	64 kB	64 kB
External memory card		—	—	—	—
Keyboard type		Membrane	Membrane	Membrane	Membrane
Function keys	internal	4	4	6 (user assignable) + numerical keyboard with 12 keys	5 (user assignable) + numerical keyboard with 12 keys
	external	—	—	—	—
LED indicators		—	—	—	5 (2 colours: red, green)
Interfaces	serial	RS232C, RS422 (via adapter)	RS232C, RS422	RS232C, RS422	RS232C, RS422
	parallel	—	—	—	—
	others	—	Modbus (via optional adapter)	Modbus (via optional adapter)	Modbus (via optional adapter)
Interface slot for optional cards					
Real-time clock		—	Integrated	Integrated	Integrated
Network communication possibilities (optional)	type	Modbus	Modbus, serial	Modbus, serial	Modbus, serial
	max. no. devices		(serial = 4)	(serial = 4)	(serial = 4)
IP Rating (front panel)		IP65	IP65	IP65	IP65
Dimensions WxHxD (mm)		104 x 69 x 38	142 x 90 x 29	142 x 100 x 29	147 x 163,5 x 38
Weight (kg)		0.2 kg	0.25 kg	0.5 kg	0.7 kg
Order information	Art. no.	129590	88413	135935	69344
Accessories		Programming software E-Designer (refer to page 44), cables and interface adapters (refer to page 21)			

MITSUBISHI ELECTRIC

E300

E600

E610

E615
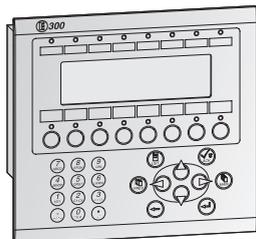
The **E300** has a key-oriented user interface with program-mable function keys. The graphical screen can display symbols, alarms, graphs and texts in a variety of sizes. Reci-pes, passwords, texts, alarms, and changes can be entered via input keys.
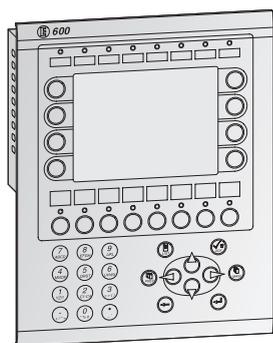
The E300 terminal offers also a printer interface and an optional communication inter-face for network connection and for optional expansion cards.

The **E600** features the same functions as the E300, but offers additionally a bigger dis-play and more function keys.
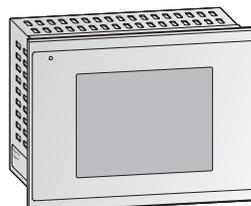
The operator terminals **E610** and **E615** feature a touch-screen with a resolution of 320 × 240 pixels each. The model E610 has a 16 grayscales display and the E615 can show 256 colours.

Freely programmable touch-keys on the LCD display helps the user to input recipes or texts and to change the PLC application.
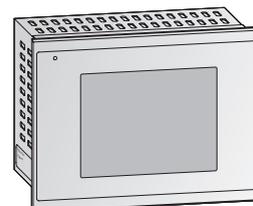
Both operator teminals con be mounted and used horizontal or vertical.

The units have an RS232C, RS422 and RS485 port each as well as an optional slot for communication and expan-sion cards.

Specifications		E300	E600	E610	E615
Display unit	type	LCD, mono, backlit	LCD, mono, backlit	LCD, 16 grayscales, backlit	LCD, 256 colours, backlit
	dimensions (mm)	127.2 x 33.9	120 x 64	115.2 x 86.4	115.2 x 86.4
	text (lines x characters)	4 (8) lines x 20 (40) characters	16 lines x 40 characters	User definable	User definable
	character height (mm)	User definable	User definable	User definable	User definable
	graphical resolution (pixels)	—	—	320 x 240	320 x 240
Power supply		24 V DC (20 – 30 V)	24 V DC (20 – 30 V)	24 V DC (20 – 30 V)	24 V DC (20 – 30 V)
Internal memory capacity		400 kB (expandable)	400 kB (expandable)	400 kB (expandable)	400 kB (expandable)
External memory card		1 (PCMCIA card 4 or 8 MB)	1 (PCMCIA card 4 or 8 MB)	1 (PCMCIA card 4 or 8 MB)	1 (PCMCIA card 4 or 8 MB)
Keyboard type		Membrane	Membrane	Touch-panel	Touch-panel
Function keys	internal	8 (user assignable) +numerical keyboard with 12 keys	16 (user assignable) +numerical keyboard with 12 keys	—	—
	external	Max. 128 (optional with IFC-128/E)	Max. 128 (optional with IFC-128/E)	Max. 128 (optional with IFC-128/E)	Max. 128 (optional with IFC-128/E)
LED indicators		16 (2 colours: red, green)	16 (2 colours: red, green)	1 (Power ON)	1 (Power ON)
Interfaces	serial	RS232C, RS422	RS232C, RS422	RS232C, RS422, RS485	RS232C, RS422, RS485
	parallel	Optional with IFC-PI	Optional with IFC-PI	Optional with IFC-PI	Optional with IFC-PI
	others	Ethernet, Profibus, Modbus (via optional adapter)	Ethernet, Profibus, Modbus (via optional adapter)	Ethernet, Profibus, Modbus (via optional adapter)	Ethernet, Profibus, Modbus (via optional adapter)
Interface slot for optional cards		1	1	1	1
Real-time clock		Integrated	Integrated	Integrated	Integrated
Network communication possibilities		Ethernet TCP/IP, Modbus, Profibus/DP (all optional) Max. 4 terminals to one PC	Ethernet TCP/IP, Modbus, Profibus/DP (all optional); Max. 4 terminals to one PC	Ethernet TCP/IP, Modbus, Profibus/DP (all optional); Max. 4 terminals to one PC	Ethernet TCP/IP, Modbus, Profibus/DP (all optional); Max. 4 terminals to one PC
IP Rating (front panel)		IP65	IP65	IP65	IP65
Dimensions WxHxD (mm)		212 x 198 x 69	214 x 232 x 69	200 x 150 x 70	200 x 150 x 70
Weight (kg)		1.5	1.6	1.7	1.7
Order information	Art. no.	64458	104496	135945	135946
Accessories		Programming software E-Designer (refer to page 44), cables and interface adapters (refer to page 21)			

◢◣ MITSUBISHI ELECTRIC

■ **Graphical Operator Terminal E1000**

E1032

E1060

E1041 / E1043

E1061 / E1063

The **E1032** is a key-oriented user-friendly interface with programmable function keys. The graphical screen can display symbols, alarms, historical graphs and texts with the use of windows fonts. Recipes, passwords, texts, alarms and changes can be entered via input keys.
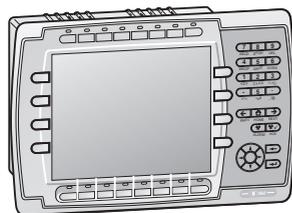
The **E1060** colour display with 65,536 colours and 16 screen-oriented function keys provides user-friendly operation. Recipes, text and editing changes are entered via keys.

Password levels protect the system against unauthorised access, while sixteen separate alarm groups keep you informed on all-important developments.
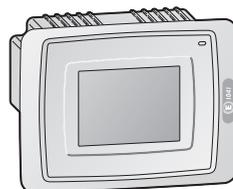
The **E1041** and **E1043** terminals have a 3.5" TFT touch screen (65,536 colours or 16 grayscales). Recipes, text and editing changes are entered via keys.

Password levels protect the system against unauthorised access, while sixteen separate alarm groups keep you informed on all-important developments.
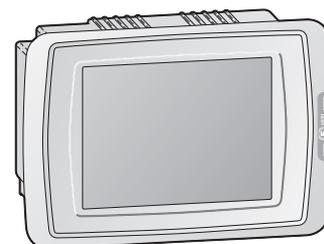
The operator terminals **E1061** and **E1063** posess the same features as the models E1041 and E1043, but with a 5,7" STN display (65,536 colours or 16 grayscales) they offers a bigger display unit.

All E1000 operator panels on this page have two PLC ports, a USB host port to connect mouse, keyboard, printer and USB memory sticks as well as an integrated Ethernet interface. The connection to Profibus/DP is available via a separate extension module.

Specifications		E1032	E1060	E1041 / E1043	E1061 / E1063
Display unit	type	TFT monochrome	STN colour	TFT colour / TFT grayscale	STN colour / STN monochrome
	dimensions (mm)	135 x 36	120 x 91 (5.7")	75 x 54 (3.5")	145 x 110 (5.7")
	text (lines x characters)	User definable	User definable	User definable	User definable
	character height (mm)	User definable, Windows fonts	User definable, Windows fonts	User definable, Windows fonts	User definable, Windows fonts
	graphical resolution (pixels)	240 x 64	320 x 240	320 x 240	320 x 240
Power supply		24 V DC (20 – 30 V)	24 V DC (20 – 30 V)	24 V DC (20 – 30 V)	24 V DC (20 – 30 V)
Internal memory capacity		12 MB	12 MB	12 MB	12 MB
Flash memory		32 MB (Intel Strata Flash)	32 MB (Intel Strata Flash)	32 MB (Intel Strata Flash)	32 MB (Intel Strata Flash)
Keyboard type		Membrane	Membrane	Touch-panel	Touch-panel
Function keys	internal	8	16	Touch keys	Touch keys
	external	—	—	—	—
LED indicators		16 (8 integrated in keys)	16 (8 integrated in keys)	1 (Power ON)	1 (Power ON)
Interfaces	serial	RS232C, RS422, RS485	RS232C, RS422, RS485	RS232C, RS422, RS485	RS232C, RS422, RS485
	parallel	—	—	—	—
	others	USB	USB	USB	USB
Interface slot for optional cards		1	1	1	1
Real-time clock		Integrated	Integrated	Integrated	Integrated
Network communication possibilities		Ethernet TCP/IP, Modbus TCP, MPI (all integrated); Profibus/DP (optional)	Ethernet TCP/IP, Modbus TCP, MPI (all integrated); Profibus/DP (optional)	Ethernet TCP/IP, Modbus TCP, MPI (all integrated); Profibus/DP (optional)	Ethernet TCP/IP, Modbus TCP, MPI (all integrated); Profibus/DP (optional)
IP Rating (front panel)		IP 65	IP 65	IP 65	IP 65
Dimensions WxHxD (mm)		202 x 187 x 63	275 x 168 x 63	156 x 119 x 63	201 x 152 x 63
Weight (kg)		0.9	1.1	0.56	0.87
Order information	Art. no.	169297	169300	169298 / 169299	169301 / 169302
Accessories		Programming software E-Designer (refer to page 44), cables and interface adapters (refer to page 21), Profibus/DP module (refer to page 24)			

⧖ **MITSUBISHI ELECTRIC**

E1070 (Pro+)

E1071 (Pro+)

E1100 (Pro+)

E1101/E1151 (Pro+), DT1151

3
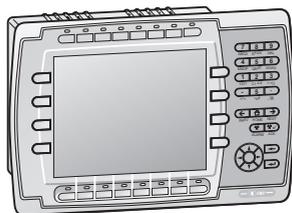
The operator terminal **E1070** offers a 6.5" TFT display with 65,536 colours and a resolution of 640 x 480 pixels. 16 freely programmable function keys facilitate the inputs directly at the terminal.

The 6.5" TFT colour display of the **E1071** with 65,536 colours provides a user-friendly touch screen operation. Recipes, text and editing changesare entered via touch keys.
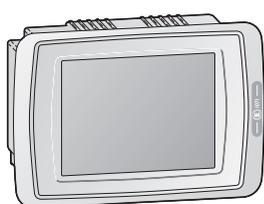
The operator terminal **E1100** offers a 10.4" TFT display with 65,536 colours and a resolution of 800 x 600 pixels. Freely programmable function keys facilitate the inputs directly at the terminal.

The operator terminals **E1101** and **E1151** provide a user-friendly TFT colour touchscreen. The E1101 offers a resolution of 800 x 600 pixels on a 10" screen, the E1151 provides a 15" screen with 1024 x 768 pixels.
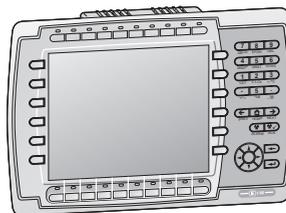
All E1000 operator terminals on this page provide two PLC ports, a USB host port to connect mouse, keyboard, printer and USB memory as well as an integrated Ethernet interface. Profibus/DP is available via a separate extension module.

The internal memory of 12 MB can be expanded.

The integrated password protection protect the system against unauthorised access, and sixteen separate alarm groups keep you informed on all-important developments.
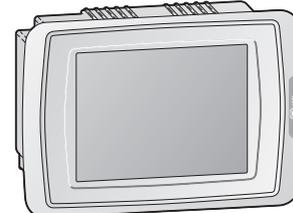
Using a **E1000 Pro+** operator terminal gives the user all the functionality of the standard E1000 family and also makes it possible to view external files such as PDF files, HTML pages and PowerPoint presentations directly on the screen of the operator terminal.

The **DT1151** is an industrial monitor with a 15" TFT-LCD touch screen, designed to be mounted in a cabinet and connected to an industrial PC. The monitor is optimized for a maximum resolution of 1024 x 768 pixels.

Specifications		E1070 / E1070 Pro+	E1071 / E1071 Pro+	E1100 / E1100 Pro+	E1101 / E1101 Pro+, E1151 / E1151 Pro+, DT1151
Display unit	type	TFT	TFT	TFT	TFT
	dimensions (mm)	134 x 100 (6.5")	134 x 100 (6.5")	211 x 158 (10.4")	211 x 158 (10") , 304 x 228 (15")
	text (lines x characters)	User definable	User definable	User definable	User definable
	character height (mm)	User definable, Windows fonts	User definable, Windows fonts	User definable, Windows fonts	User definable, Windows fonts
	graphical resolution (pixels)	640 x 480	640 x 480	800 x 600	800 x 600 , 1024 x 768
Power supply		24 V DC (20 – 30 V)	24 V DC (20 – 30 V)	24 V DC (20 – 30 V)	24 V DC (20 – 30 V)
Internal memory capacity		12 MB (expandable)	12 MB (expandable)	12 MB (expandable)	12 MB (expandable)
Memory card (intern./extern.)		2 (compact flash 4 – 1024 MB)	2 (compact flash 4 – 1024 MB)	2 (compact flash 4 – 1024 MB)	2 (compact flash 4 – 1024 MB)
Keyboard type		Membrane	Touch-panel	Membrane	Touch-panel
Function keys	internal	16 (8 with integrated LEDs)	Touch keys	20 (10 with integrated LEDs)	Touch keys
	external	Max. 64 (optional with MAC-E-Key16)	Max. 64 (optional with MAC-E-Key16)	Max. 64 (optional with MAC-E-Key16)	Max. 64 (optional with MAC-E-Key16)
LED indicators		18	1 (Power ON)	20	1 (Power ON)
Interfaces	serial	RS232C, RS422, RS485	RS232C, RS422, 485	RS232C, RS422, RS485	RS232C, RS422, 485
	parallel	—	—	—	—
	others	USB	USB	USB	USB
Interface slot for optional cards		1	1	1	1
Real-time clock		Integrated	Integrated	Integrated	Integrated
Network communication possibilities		Ethernet TCP/IP, Modbus TCP, MPI (all integrated); Profibus/DP (optional)	Ethernet TCP/IP, Modbus TCP, MPI (all integrated); Profibus/DP (optional)	Ethernet TCP/IP, Modbus TCP, MPI (all integrated); Profibus/DP (optional)	Ethernet TCP/IP, Modbus TCP, MPI (all integrated); Profibus/DP (optional)
IP Rating (front panel)		IP65	IP65	IP65	IP65
Dimensions WxHxD (mm)		285 x 177 x 62	219 x 154 x 61	382 x 252 x 64	302 x 228 x 64 , 398 x 304 x 60
Weight (kg)		1.3	1.1	2.3	2.0 / 3.7
Order information	Art. no.	156096 / 203301	156097 / 203302	156098 / 203303	156099 / 203334 , 156100 / 203225, DT1151: 203326
Accessories		Programming software E-Designer (refer to page 44), cables and interface adapters (refer to page 21), Profibus/DP module (refer to page 24)			

■ Industrial Panel PCs

IPC-MC1121 **IPC-MC1151** **IPC-VP1151** **IPC-VP1171**

Personal computers are a part of everyday life as Industrial PCs are a part of automation and process control.

The new IPC1000 line based on ETX technology offers supreme computing performance with processors based on Intel's Celeron/Pentium® M technology at extreme low power consumption.

The ETX technology permits scalable CPU performances for a wide range of industrial applications. Ruggedly designed for heavy-duty industrial applications and environments, these PCs feature high quality, fast performance, attractive design and brilliantly legible displays.

A wide operating and storage temperature range, tough vibration resistance and high IP ratings mean these IPCs can be used in locations users could never consider before.

The integrated innovative cooling concept realizes passive and fanless cooling for the highest processor performance up to Pentium® M, reducing one of the major moving parts that could fail.

The CANopen, DeviceNet or Profibus field buses can optionally be integrated directly on board of the V panel.

Specifications		IPC-MC1121	IPC-MC1151	IPC-VP1151	IPC-VP1171
Display unit	type	TFT	TFT	TFT	TFT
	dimensions (mm)	12.1"	15"	15"	17"
	graphical resolution (pixels)	800 x 600	1024 x 768	1024 x 768	1280 x 1024
Power supply		24 V DC	24 V DC	24 V DC	24 V DC
Processor type		Intel Celereon 800 MHz	Intel Celereon 800 MHz	Intel Pentium M370 1.5 GHz	Intel Pentium M370 1.5 GHz
Operating system		Windows XP Professional	Windows XP Professional	Windows XP Professional	Windows XP Professional
Internal memory capacity		512 MB RAM	512 MB RAM	512 MB RAM	512 MB RAM
Screen type		Resistive analog touch-panel	Resistive analog touch-panel	Resistive analog touch-panel	Resistive analog touch-panel
Integrated harddisk		40 GB	40 GB	40 GB	40 GB
LED indicators		1 (Power ON)	1 (Power ON)	1 (Power ON)	1 (Power ON)
Interfaces	serial	1 x RS232C	1 x RS232C	2 x RS232C	2 x RS232C
	others	2 x USB (2 x rear side)	2 x USB (2 x rear side)	5 x USB (1 x front; 4 x rear side)	5 x USB (1 x front; 4 x rear side)
LAN network interface		1 x 10/100	1 x 10/100	1 x 10/100, 1 x 100/1000	1 x 10/100, 1 x 100/1000
Free card slots		—	—	2 x PCI, PCMCIA slot optional	2 x PCI, PCMCIA slot optional
Cooling		Fanless	Fanless	Fanless	Fanless
Field busses		CANopen or DeviceNet or Profi bus	CANopen or DeviceNet or Profi bus	CANopen or DeviceNet or Profi bus	CANopen or DeviceNet or Profi bus
Internal Drives		CompactFlash, HDD optional	CompactFlash, HDD optional	CompactFlash, HDD optional	CompactFlash, HDD optional
IP Rating		IP65 (front)	IP65 (front)	IP65 (front)	IP65 (front)
Operating temperature range		0 – 50 ℃	0 – 50 ℃	0 – 50 ℃	0 – 50 ℃
Storage temperature range		-20 – +60 ℃	-20 – +60 ℃	-20 – +60 ℃	-20 – +60 ℃
Operating humidity range		20 – 85 % (no condensation)	20 – 85 % (no condensation)	20 – 85 % (no condensation)	20 – 85 % (no condensation)
Vibration resistance		1 G: resistant to vibrations from 10 – 500 Hz along all 3 axes (acc. to EN 60068-2-6)			
Dimensions WxHxD (mm)		325 x 252 x 53	380 x 300 x 53	450 x 354 x 163	461 x 399 x 168
Order information	Art. no.	204305	204306	204307	204308

⯅ MITSUBISHI ELECTRIC

■ Special Interface Adapter and Cables for Operator Terminals GT15

Several communications and interface adapters are available for the GT15 operator teminals. They support the controlling of PLCs directly or within different networks.

Further details on request.
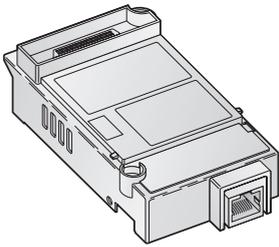
e.g.:
Ethernet adapter **GT15-J71E71-100**

Adapter type (use)	Interface name	Application	Order number
MELSEC A-Bus interface	GT15-75ABUSSL	GT15 (1 channel), slim model	166243
	GT15-ABUS	GT15 (1 channel), standard model	169467
	GT15-75ABUS2SL	GT15 (2 channels), slim model	166304
	GT15-ABUS2	GT15 (2 channels), standard model	169468
MELSEC Q-Bus interface	GT15-75QBUSSL	GT15 (1 channel), slim model	166305
	GT15-QBUS	GT15 (1 channel), standard model	169465
	GT15-75QBUS2SL	GT15 (2 channels), slim model	166306
	GT15-QBUS2	GT15 (2 channels), standard model	169466
Ethernet RJ45	GT15-J71E71-100	GT15	166309
Serial interface	GT15-RS2-9P	GT15 (serial interface RS232, 9-pin D-Sub)	169469
	GT15-RS2T4-9P	GT15 (converter RS232 -> RS422; 9-pin D-Sub)	166307
	GT15-RS4-9S	GT15 (serial interface RS422/485, 9-pin D-Sub)	169470
	GT15-RS4-TS	GT15 (serial interface RS422/485, screw terminals)	169471
	GT15-RS2T4-25P	GT15 (converter RS232 -> RS422; 25-pin D-Sub)	166308
CC-Link interface	GT15-J61BT13	GT15	203494
MELSECNET/10	GT15-75J71 BR13-Z	GT15 (for coaxial connection)	166311
	GT15-75J71 LP23-Z	GT15 (for optical SI cable)	166312
USB	GT15-PRN	GT15 (for USB connection to pictbridge compatible printers)	170169

■ Option Cards for GT15

The operator terminals of the GT15 series are able to use several special functions built into the terminal. To use multi-channel communication, document display, System Q ladder monitor and MES functionality an option board is required. They are fitted in the expansion slot on the rear side of the terminal and are recognized automatically by the GT15.

Further details on request.

Option card	Application	Order number
GT15-FNB	Option card for the use of special functions (without System Q support)	166313
GT15-QFNB	Option card for the use of special functions (with System Q support)	166314
GT15-QFNB16M	Option card for the use of special functions (with System Q support and 16 MB expansion memory for project data)	166315
GT15-QFNB32M	Option card for the use of special functions (with System Q support and 32 MB expansion memory for project data)	166316
GT15-QFNB48M	Option card for the use of special functions (with System Q support and 48 MB expansion memory for project data)	166317
GT15-MESB48M	Option card for the use of additional MES functionality (with System Q support and 48 MB expansion memory for project data)	203473

■ Video Interfaces for GT15

Video interfaces can be used with the GT15 video panels to support video functions. With the help of these interfaces, images from PC's, cameras and vision sensors can be monitored on the GOT.

Further details on request.

Video unit	Application	Order number
GT15V-75V4	Video input unit for GT15 video compatible models, 4 x NTSC/PAL inputs	203497
GT15V-75R1	Video input unit for GT15 video compatible models, 1 x RGB composite input	203498
GT15V-75V4R1	Video input unit for GT15 video compatible models, 4 x NTSC/PAL inputs, 1 x RGB composite input	203499
GT15V-75ROUT	Video input unit for GT15 video compatible models, 1 x RGB composite output	203500

5

ACCESSORIES

■ Cables

For all GOT and E series operator terminals is a wide variety of different cables available.

All cables have to be ordered separately due to the specific application.

The length for all cables is 3.0 m, if not differently indicated.

Operator terminal	Interface	Connector	Cable	Connector	Periphery	Order number
F900GOT	RS232	D-SUB male connector 9 pin	FX-232-CAB1	D-SUB male connector 9 pin	Personal Computer	124972
F900GOT	RS232	D-SUB male connector 9 pin	QC30R2	MINI-DIN male connector 6 pin	MELSEC System Q	128424
F900GOT	RS422	D-SUB male connector 9 pin	FX-40DU-CAB/EN	D-SUB male connector 25 pin	MELSEC AnS/QnAS and AnU/QnA	62503
F900GOT	RS422	D-SUB male connector 9 pin	FX-50DU-CAB0/EN	MINI-DIN male connector 8 pin	MELSEC FX	70451
GOT1000-Serie	Frontside USB	MINI-B USB	GT09-C20USB-5P	USB-A	Personal Computer	166373 (2 m length)
GOT1000-Serie	integrated RS232	D-SUB male connector 9 pin	GT01-C30R2-6P	MINI-DIN male connector 6 pin	MELSEC System Q	163959
GOT1000-Serie	integrated RS232 +GT15-RS2T4-9P	D-SUB male connector 9 pin	GT01-C30R4-8P	MINI-DIN male connector 8 pin	MELSEC FX	163948 further lengths on request
GOT1000-Serie	integrated RS232 +GT15-RS2T4-9P	D-SUB male connector 9 pin	GT01-C30R4-25P	25 pin	MELSEC AnS/QnAS and AnU/QnA	163953 further lengths on request
GT10	RS232	Mini-DIN male connector 6-pin	GT01-C30R2-6P	D-SUB male connector 9 pin	PC	163959
GT10	RS422	open terminals	GT10-C30R4-8P	MINI-DIN male connector 8 pin	MELSEC FX	200494 further lengths on request
GT10	RS232	open terminals	GT10-C30R2-6P	MINI-DIN male connector 6 pin	MELSEC System Q	200498
GT10	RS232	Mini-DIN male connector 6-pin	GT10-RS2TUSB-5S	MINI-B USB	PC + GT09-C20USB-5P	200500 + 166373
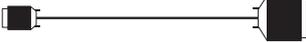
Programming cable

Converter

5

ACCESSORIES

◆ MITSUBISHI ELECTRIC

■ Cables

Operator terminal	Interface	Connector	Cable	Connector	Periphery	Order number
GT15		A-BUS	**GT15-A1SC30B**	A-BUS	MELSEC AnS/QnAS	166358 further lengths on request
GT15		A-BUS	**GT15-AC30B**	A-BUS	MELSEC AnS/QnAS and AnU/QnA	166380 further lengths on request
GT15		Q-BUS	**GT15-QC30B**	Q-BUS	MELSEC System Q	166348 further lengths on request
E1000	RS232	D-SUB female connector 9 pin	**CAB30**	D-SUB female connector 9 pin	Personal Computer	163002
MAC E-Serie	RS232	D-SUB female connector 9 pin	**CAB5 (MAC-PC-CAB-R2)**	D-SUB female connector 9 pin	Personal Computer	124265
MAC E/E1000	RS422	D-SUB male connector 25 pin	**CAB19**	MINI-DIN male connector 8 pin	MELSEC FX	146861
MAC E/E1000	RS422	D-SUB male connector 25 pin	**CAB18 (MAC40-CPU-CAB-R4)**	D-SUB male connector 25 pin	MELSEC AnS/QnAS and AnU/QnA	146855 further lengths on request
MAC E/E1000	RS422	D-SUB male connector 25 pin	**CAB17**	MINI-DIN male connector 6 pin	MELSEC System Q	140472
MAC E-Serie	RS232	D-SUB male connector 9-pin	**CAB16**	MINI-DIN male connector 6 pin	MELSEC System Q	140461
E1000	RS232	D-SUB male connector 9-pin	**CAB34/3**	MINI-DIN male connector 6 pin	MELSEC System Q	163006 further lengths on request
E1000	RS422	D-SUB male connector 25 pin	**CAB36**	D-SUB male connector 9 pin	Siemens S7/MPI direct	205178
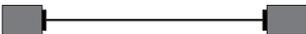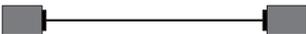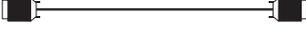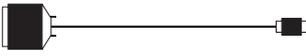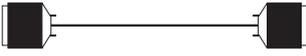
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ACCESSORIES
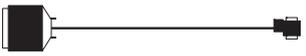
■ Special Connection Cables for the Graphic Handy Operator Terminals

Connection of the Handy Operator Terminals to the PLC CPU

The cable is connected to the plug on the back side of the F940GOT, which provides a larger operating range than fixed mounted terminals. The cable is lead into the cabinet or panel and enables the mobile connection of the Handy GOT using the interface in a cabinet or control panel. The GT11 handy terminals carry a bayonet-joint at the lower end of the unit.

From there it is easy to connect the line to the PLC.

Operator terminal	Interface	Cable	Switch cabinet	Cable	Connector	Periphery
F940GOT Handy	RS422, internal connector on the rear side of the Handy GOT	F9GT-HCAB-☐M		F9GT-HCAB2-150	MINI-DIN male connector 8 pin	MELSEC FX
F940GOT Handy	RS422, internal connector on the rear side of the Handy GOT	F9GT-HCAB-☐M		F9GT-HCAB3-150	D-SUB male connector 25 pin	MELSEC FX, AnS/QnAS, AnU/QnA
F943GOT Handy	RS232C, internal connector on the rear side of the Handy GOT	F9GT-HCAB-3M		F9GT-HCAB5-150	MINI-DIN male connector 6 pin	MELSEC System Q
GT11 Handy	External cable	GT11H-C30-37P / GT11H-C60-37P / GT11H-C100-37P		GT11H-C15R4-8P	MINI-DIN male connector 8 pin	MELSEC FX
GT11 Handy	External cable	GT11H-C30-37P / GT11H-C60-37P / GT11H-C100-37P		GT11H-C15R4-25P	D-SUB male connector 25 pin	MELSEC FX, AnS/QnAS, AnU/QnA
GT11 Handy	External cable	GT11H-C30-37P / GT11H-C60-37P / GT11H-C100-37P		GT11H-C15R2-6P	MINI-DIN male connector 6 pin	MELSEC System Q

Specifications	F9GT-HCAB-3M	F9GT-HCAB2-150	F9GT-HCAB3-150	F9GT-HCAB5-150
Cable type	External cable for F940GOT/F943GOT (F943 only 3M)	Extension cable between cabinet/panel and PLC CPU		
Connector 1	Internal F940GOT plug	D-SUB female connector 25 pin	D-SUB female connector 25 pin	D-SUB female connector 25 pin
Connector 2	D-SUB male connector 25 pin	MINI-DIN male connector 8 pin	D-SUB male connector 25 pin	MINI-DIN male connector 6 pin
Further connections	—	For power supply and external signals	For power supply and external signals	For power supply and external signals
Applicable CPU type	—[1]	MELSEC FX family	MELSEC AnS/QnAS and AnU/QnA	MELSEC System Q
Length m	3.0	1.5	1.5	1.5
Order information Art. no.	130213	130299	130212	142538

[1] For the connection of the PLC CPU a further cable is required (F9GT-HCAB2-150 for MELSEC FX CPU or F9GT-HCAB3-150 for MELSEC AnS/QnAS CPU or F9GT-HCAB5-150 for MELSEC System Q CPU)

Specifications	GT11H-C30-37P / GT11H-C60-37P / GT11H-C100-37P	GT11H-C15R4-8P	GT11H-C15R4-25P	GT11H-C15R2-6P
Cable type	External cable for GT11 handy	Relay cable	Relay cable	Relay cable
Connector 1	Round female connector 32 pin	D-SUB female connector 37 pin	D-SUB female connector 37 pin	D-SUB female connector 37 pin
Connector 2	D-SUB male connector 37 pin	MINI-DIN male connector 8 pin	D-SUB male connector 25 pin	MINI-DIN male connector 6 pin
Further connections	—	For power supply and external signals	For power supply and external signals	For power supply and external signals
Applicable CPU type	—[1]	MELSEC FX family	MELSEC AnS/QnAS and AnU/QnA	MELSEC System Q
Length m	3.0 / 6.0 / 10	1.5	1.5	1.5
Order information Art. no.	191013 / 191014 / 191015	191019	191020	191021

[1] For the connection of the PLC CPU a further cable is required (GT11H-C15R4-8P for MELSEC FX CPU or GT11H-C15R4-25P for MELSEC AnS/QnAS CPU or GT11H-C15R2-6P for MELSEC System Q CPU)

5

ACCESSORIES

◆ MITSUBISHI ELECTRIC

■ Cables for Third Party Manufacturers

These cables can only be used for the connection of an E series operater terminal to a Third Party Manufacturer PLC.
They all have the name CAB with a specific number.

CAB5 connects the Siemens HMI adapter for MPI with the **MAC E series** terminal RS232 port (same as programming cable MAC-PC-CAB-R2, art. no. 62894).

CAB30 is a connection cable for **E1000 series** terminals, it connects the Siemens HMI adapter for MPI with the RS232 port.

CAB8 is a communications adapter for RS485 networks by using the RS422 port.

CAB11 is an HMI adapter cable for the connection of a Siemens SIMATIC S7/MPI with **CAB5** (for MAC E series) or **CAB30** (for E1000 series). **CAB11** can also be used for GOT1000 series (with selfmade GT11+GT15 cable).

Below an example is shown.

Operator terminal	Interface	Connector	Cable	Connector	Periphery	Order number
MAC E series E1000 series	RS232 / RS422	D-SUB male connector	CAB5 / CAB8 / CAB11 CAB30 / CAB8 / CAB11	Depends on the PLC of the third party manufacturer	Third party PLC	Refer to the table below

Specifications		CAB5	CAB30	CAB8	CAB11	CAB36
Application for		Siemens HMI adapter for MPI	Siemens HMI adapter for MPI	RS485 networks	Siemens S7/MPI	Siemens S7/MPI
Interfaces	HMI	RS232 (MAC E series)	RS232 (E1000)	RS422 (E series)	RS232 (all GOT1000 / E series)	RS422
	PLC	RS232	RS232	RS485	RS232	MPI (9-pin D sub)
Length	m	3.0	3.0	—	3.0	3.0
Order information	Art. no.	124265	163002	124268	132351	205178

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ACCESSORIES

■ Interface Converter CR01-R2/R4 SET and CR01-R4/R4
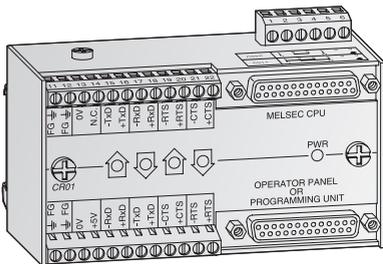
CR01-R2/R4 SET and CR01-R4/R4

These modules aresignal repeater with electrical isolation for RS422 signals.
The regular maximum distance between two CR01 modules is 1200 m.

If only one interface converter is in use, the maximum distance is 500 m.
The modules include a DIN rail adapter and LEDs indicating the flow of data.

Specifications		CR01-R2/R4 SET	CR01-R4/R4
Conversion		RS232↔RS422	RS422↔RS422
RS422 interface		Terminal strip + 25 pin D-SUB male connector for both units	
RS232 interface		9 pin D-SUB male connector	—
Nominal voltage	V AC	115 / 230	115 / 230
Voltage range	V AC	90 – 130 / 150 – 255	90 – 130 / 150 – 255
Supply frequency range	Hz	48 – 62	48 – 62
Power consumption	VA	6	6
Protection rating		IP20	IP20
Weight	kg	0.55	0.55
Order information	Art no.	56172	56173

■ General Accessories
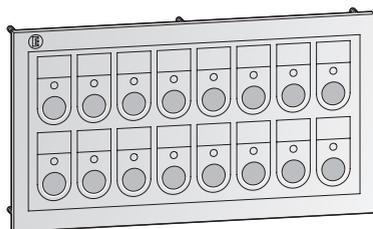
Screen surface protection

Protective film sheets protect the sensitive screen of the unit from scratches and reflections.

Stands

For the GT155x terminals stands for table-top installation are available. The stands are useful for debugging the GOT screen data, as they can set the GOT at a proper angle on the table.

Keyboard extension MAC E-Key-16

For all E series graphical operator terminals (E 300 and higher) the keyboard extension E-Key-16 is available.

Up to 4 keyboard extensions can be connected to one operator terminal.

The keyboard extension provides 16 function keys and LEDs, which can be used and programmed as the standard integrated keyboard.

Specifications	GT11-50PSCB	GT15-50PSCB	GT15-60PSCB	GT15-70PSCB	GT15-80PSCB	GT15-90PSCB	F9GT-40PSC
Type of accessory	Protective film sheets for the display surface of the GOT1000 series operator terminals						Protective film sheets for the display surface
Use for operator terminal	GT11	GT155x with 5.7" display	GT15 with 8.4" display	GT15 with 10.4" display	GT15 with 12.1" display	GT15 with 15" display	F940GOT-LWD/SWD-E
Set of	5	5	5	5	5	5	5
Type or details	Clear	Clear	Clear	Clear	Clear	Clear	Anti-reflection
Order information Art. no.	163645	203501	166329	166333	166337	169476	126743

Specifications	GT05-50STAND	GT15-70STAND	GT15-80STAND	GT15-BAT	MAC E-Key-16
Type of accessory	Stand for table-top installation			Buffer battery for realtime clock and historical data backup	External keyboard extension for E series
Use for operator terminal	GT11 and GT15 with 5.7" display	GT15 with 10.4" display	GT15 with 12.1" display	GT15	E300/E600/E610/ E615/ E1000 series
Set of	1	1	1	1	1
Type or details	—	—	—	Lithium battery	Connection via RS232C/RS422
Order information Art. no.	203502	166341	166342	166345	148995

■ Communications Adapter
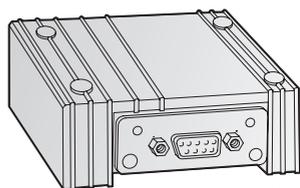
Communications adapter

For the E1000 series a Profibus/DP Slave adapter **E1000-EM-Profibus/DP** is available. This is attached at the extension port at the rear side of the control terminal. The parametrization and setting of the network address are made in the software E-Designer.
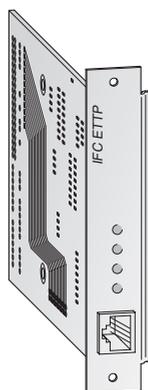
The optional **MAC-IFC-ETTP** interface card is used for Ethernet connection with twisted pair cable.

The **MAC-IFC-PBDP/E** PROFIBUS/DP interface board supports the connection of the control units of the MAC E series to a PROFIBUS/DP network.

Specifications	E1000-EM-Profibus/DP	MAC-IFC-ETTP	MAC-IFC-PBDP/E
Use for operator terminal	E1000 series	E300/E600/E610/E615 (can be used with E700/E710/E900T/E900VT/E910T, too)	
Type	Adapter	Plug-in board	Plug-in board
Application	Profibus/DP Slave	Interface for Ethernet (Twisted Pair)	Profibus/DP Slave
Order information Art. no.	169488	104727	56166

◆ MITSUBISHI ELECTRIC

5

ACCESSORIES

■ **F920GOT-BBD5-K-E**

COM0 RS-422   COM1 RS-232C

134

90

106

118

35,5

5

F1 F2 F3 F4 F5 F6

7 8 9
4 5 6
1 2 3
0 +/- .

SET ESC
DEV ENT

119

Switchboard
cutout

92
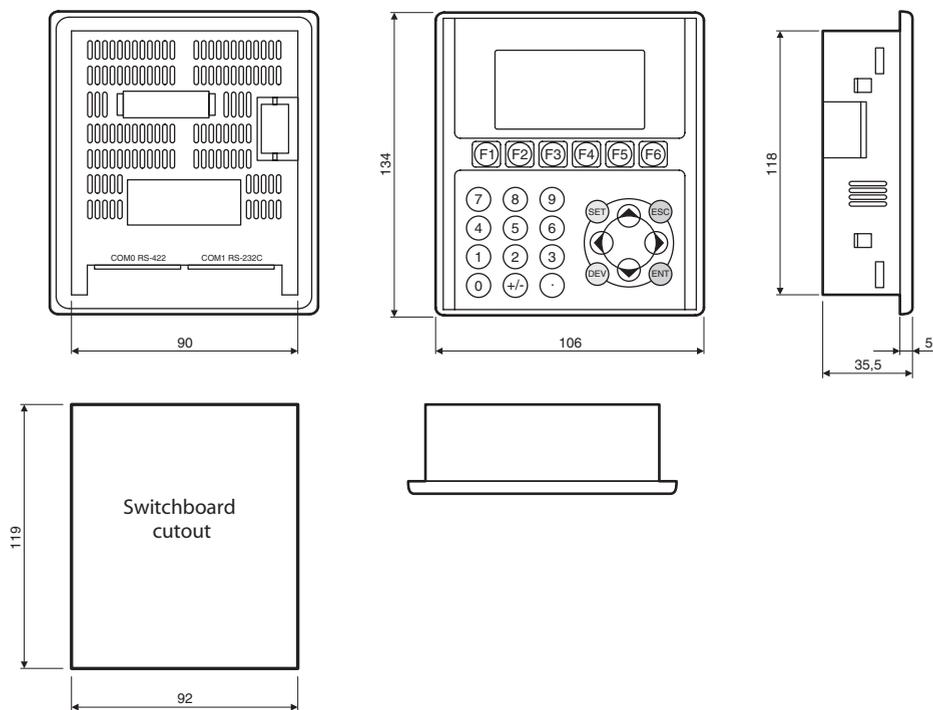
All dimensions in mm

■ **F930GOT-BBD-K-E**

183

154

168

169

37,5

6

7 8 9
4 5 6
1 2 3
0 - .

SET ESC
DEV ENT

170

Switchboard
cutout

155

All dimensions in mm

6

DIMENSIONS

MITSUBISHI ELECTRIC

25

■ F930GOT-BWD-E

136

146

49

45

RS422   RS232C

MITSUBISHI   PROGRAMMABLE CONTROLLER
MODEL   F930GOT-BWD
GRAPHIC OPERATION TERMINAL
SERIAL NO.
MITSUBISHI ELECTRIC CORPORATION

CAUTION

75

65

Switchboard cutout

137^{+1}_{0} x 66^{+1}_{0}
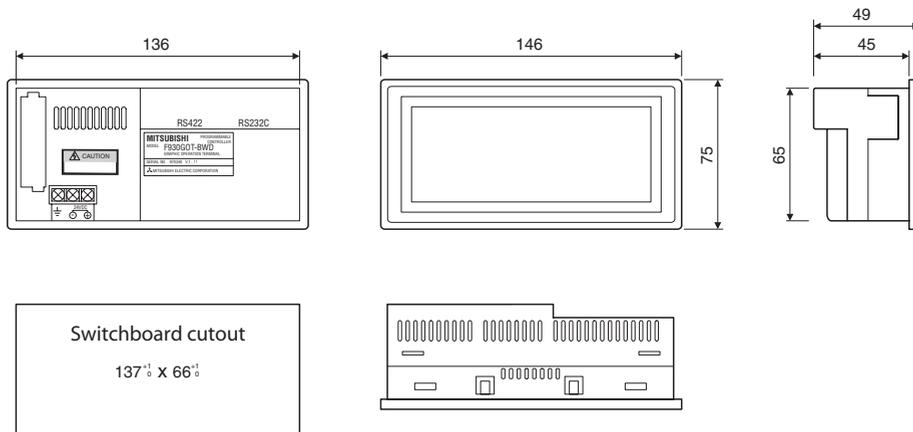
All dimensions in mm

■ F940GOT-SWD-E / F940GOT-LWD-E

5

57

MITSUBISHI   PROGRAMMABLE CONTROLLER
MODEL   F940GOT-SWD
GRAPHIC OPERATION TERMINAL
SERIAL NO.
MITSUBISHI ELECTRIC CORPORATION

CAUTION

24VDC

120

130

152

162

POWER

Switchboard cutout
153±1 x 121±1 mm

All dimensions in mm

■ F940WGOT

215

133

123

70,6

5

205

Switchboard cutout
206 x 124 (+1,0; -0)
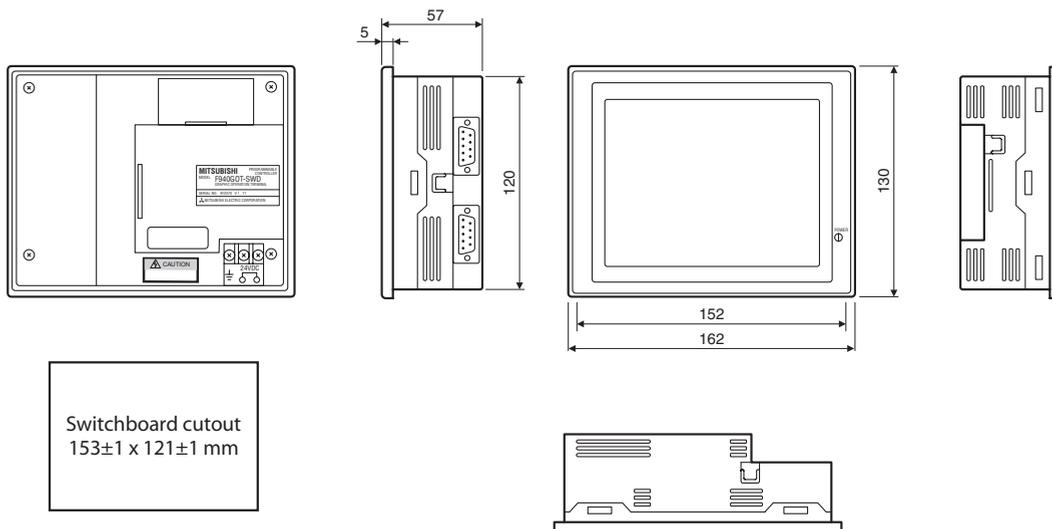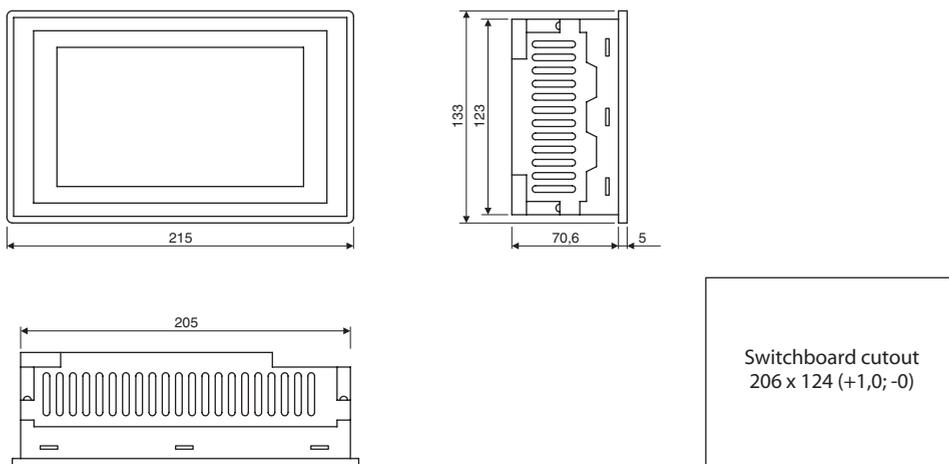
■ **F940GOT-LBD-H-E / F940GOT-SBD-H-E / F940GOT-LBD-RH-E / F940GOT-SBD-RH-E**
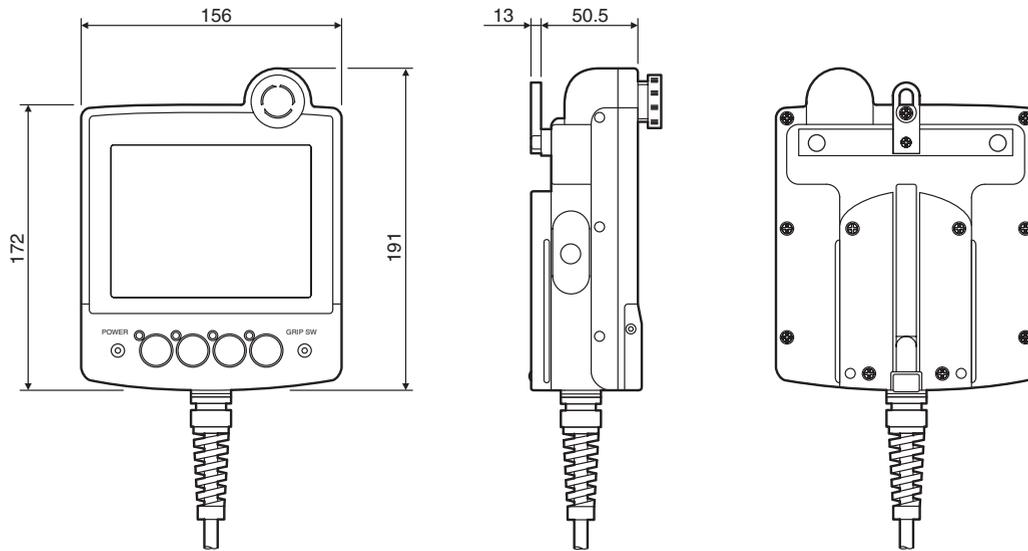
All dimensions in mm

■ **GT1150HS-QLBD / GT1155HS-QSBD**

6
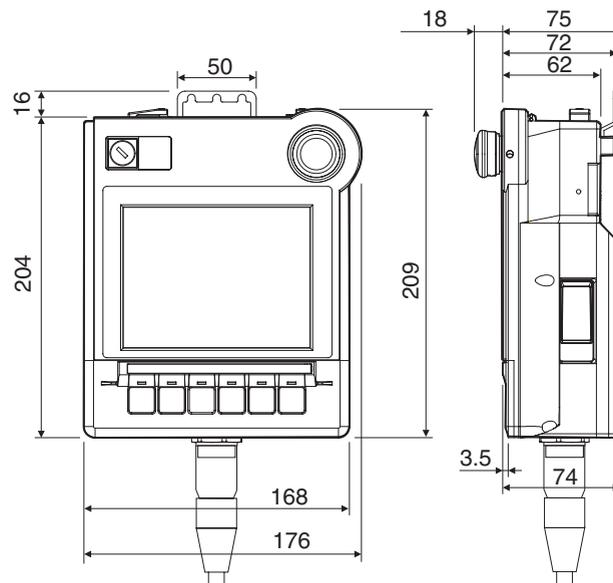
All dimensions in mm

■ **GT1020-LBL, GT1020-LBD, GT1020-LBD2**
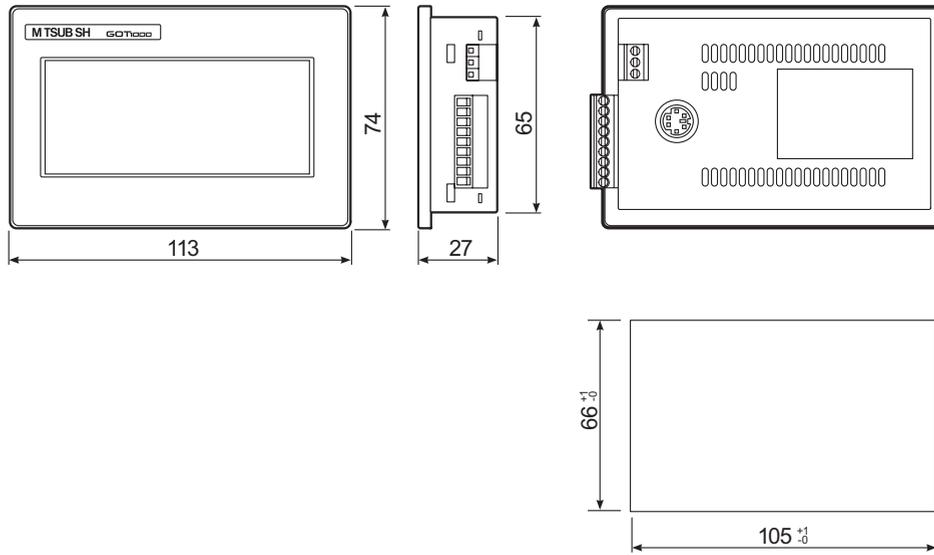
All dimensions in mm

■ **GT1150-QLBD, GT1155-QSBD**

6

DIMENSIONS

Switchboard cutout
153 x 121

All dimensions in mm

◆ **MITSUBISHI ELECTRIC**

■ GT1562-VNBA, GT1565-VTBA
GT1562-VNBD, GT1565-VTBD

241

175.5

10

175

190

10

175.5

Switchboard cutout
227$^{+2}_{-0}$ x 165$^{+2}_{-0}$

5

56

6

52

226
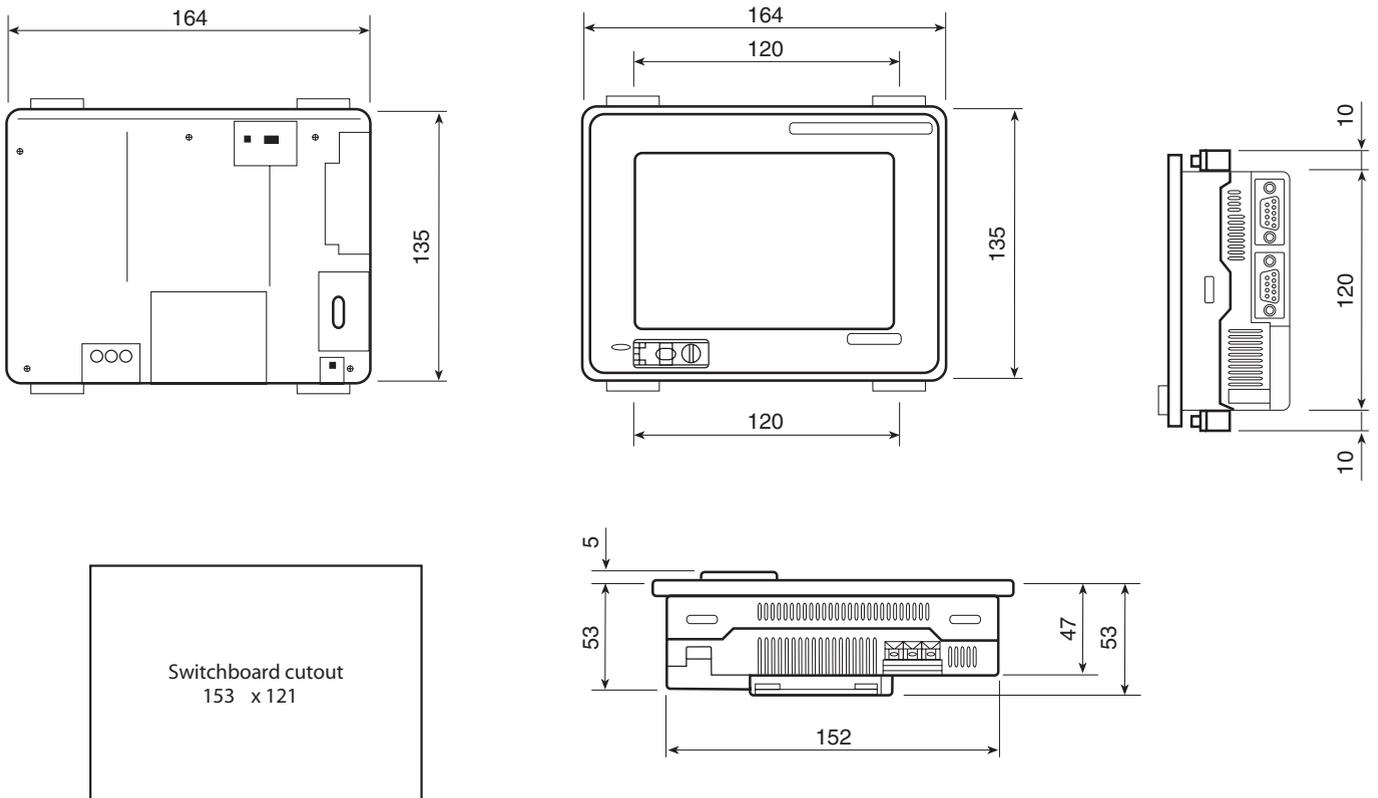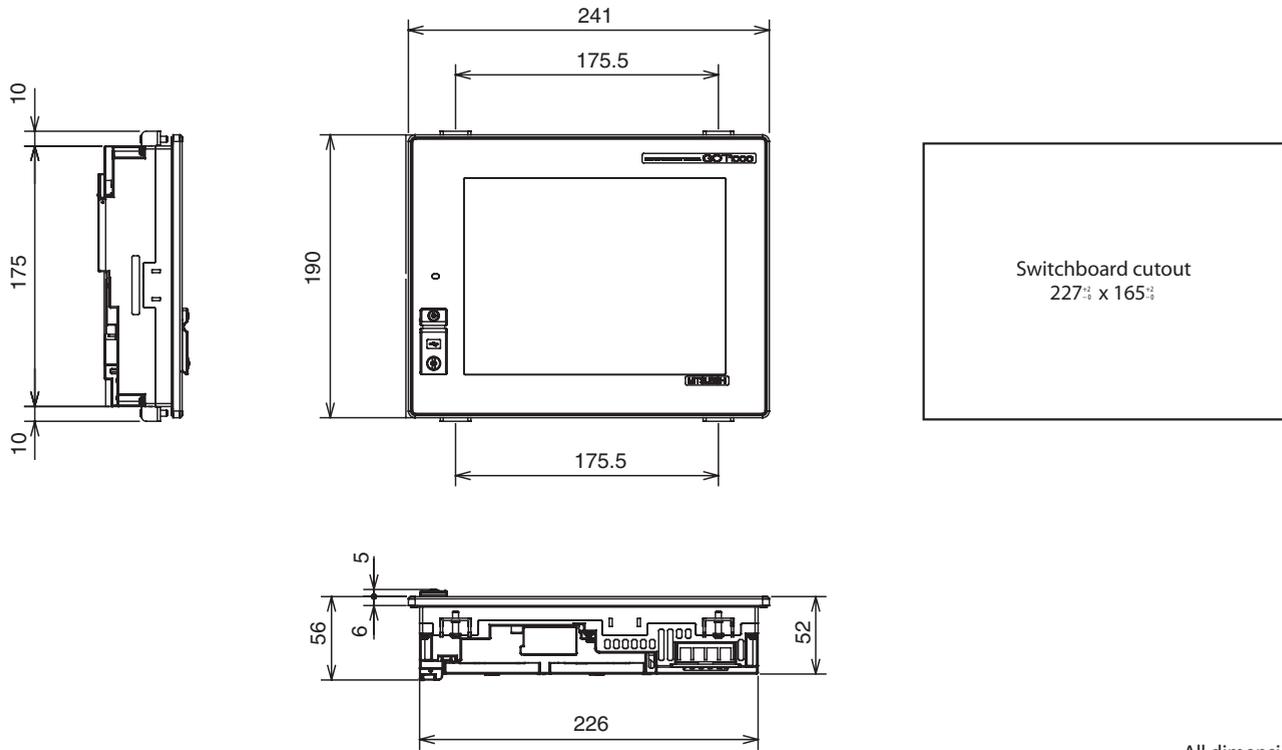
All dimensions in mm

■ GT1572-VNBA, GT1575-VNBA, GT1575-VTBA, GT1575-STBA
GT1572-VNBD, GT1575-VNBD, GT1575-VTBD, GT1575-STBD
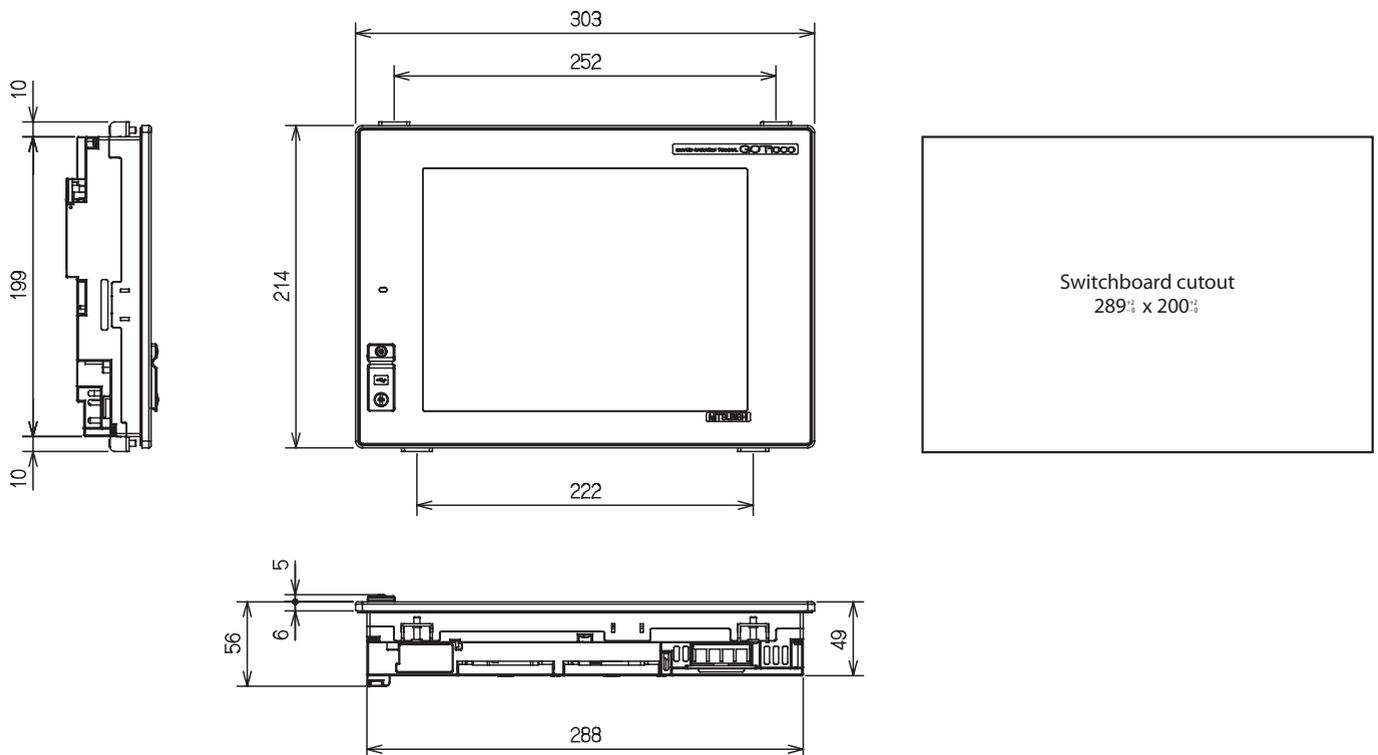
303

252

10

199

214

10

222

Switchboard cutout
289$^{+2}_{-0}$ x 200$^{+2}_{-0}$

5

56

6

49

288

All dimensions in mm

6

DIMENSIONS

■ **GT1585-STBA**
  GT1585-STBD
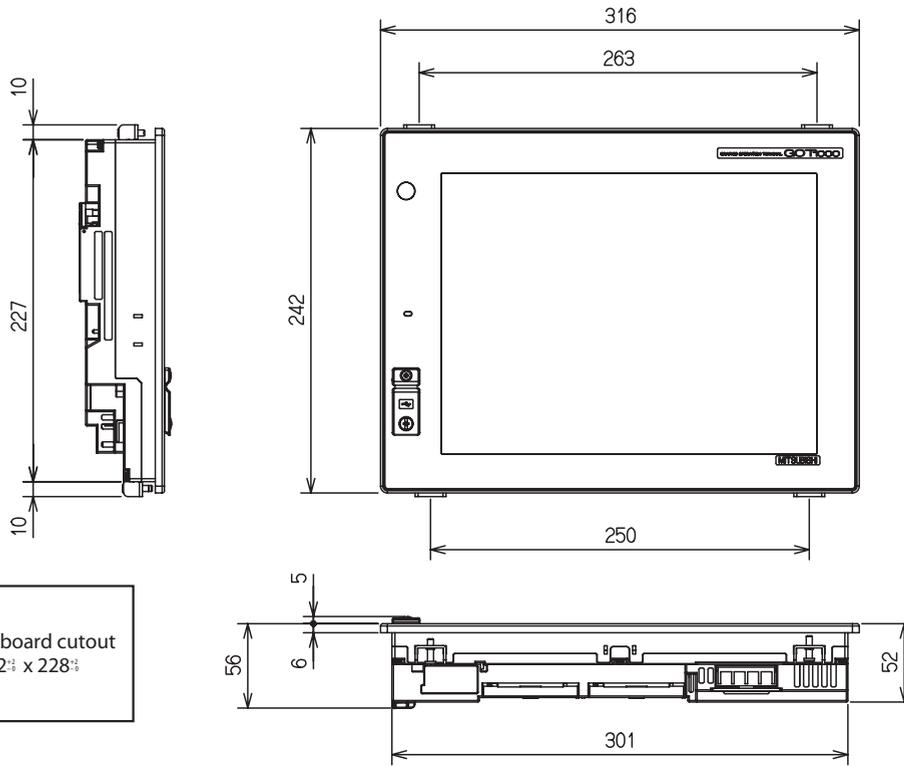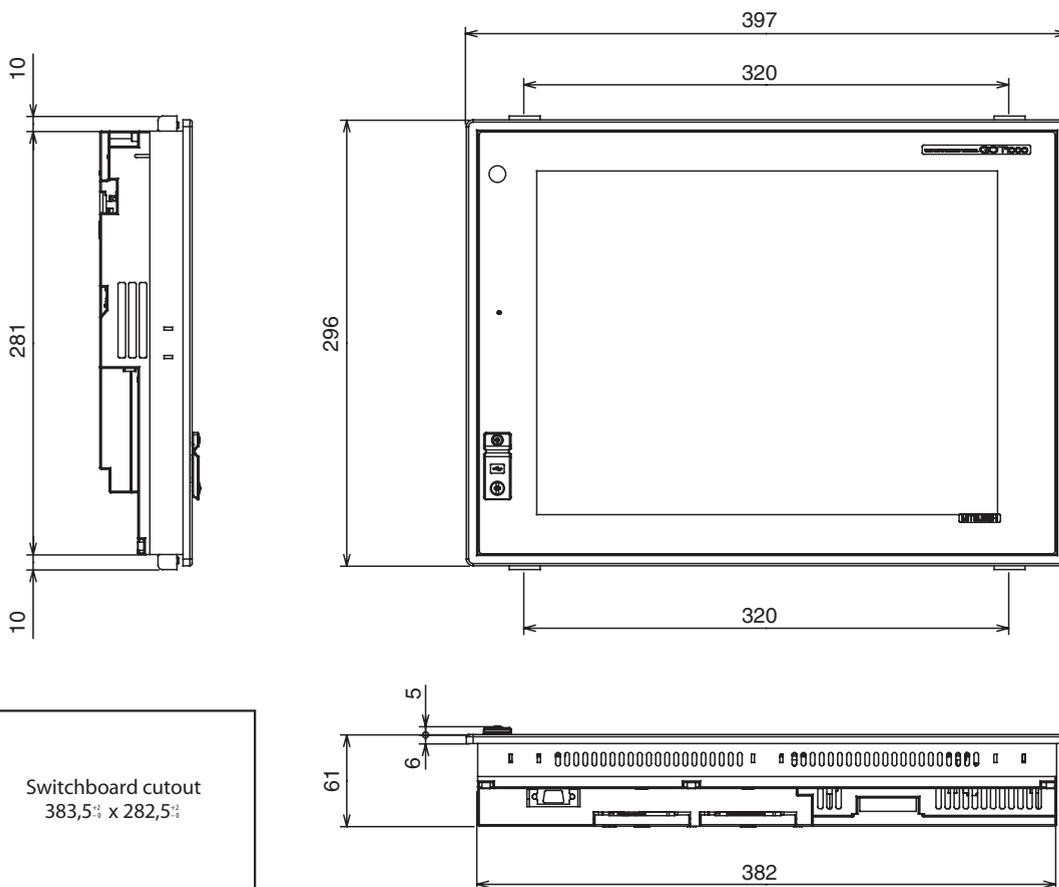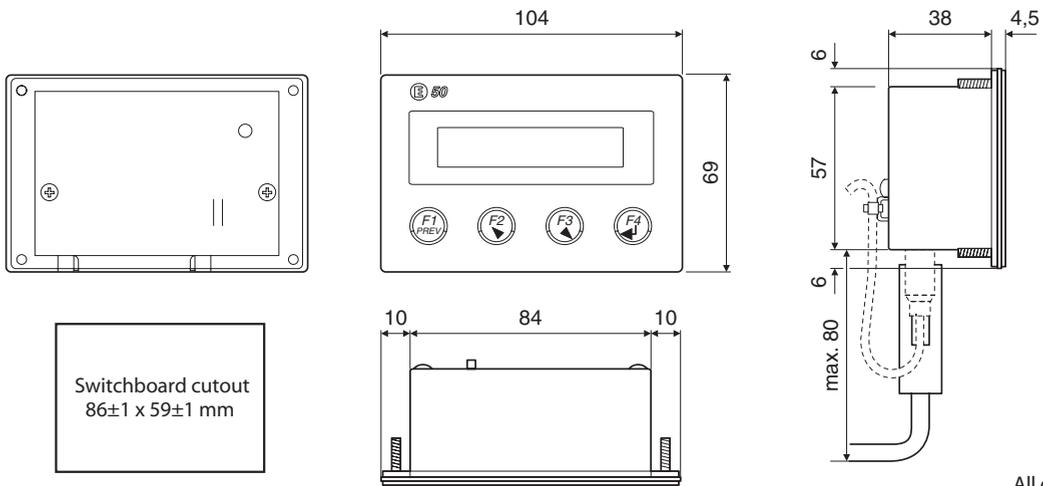
316

263

10

227

242

10

250

5

56

6

52

Switchboard cutout
302⁺²₋₀ x 228⁺²₋₀

301

All dimensions in mm

6

DIMENSIONS

■ **GT1595-XTBA**

397

320

10

281

296

10

320

5

61

6

Switchboard cutout
383,5⁺²₋₀ x 282,5⁺²₋₀

382

All dimensions in mm

MITSUBISHI ELECTRIC

■ **E50**

Switchboard cutout
86±1 x 59±1 mm

All dimensions in mm

■ **E100**

Switchboard cutout
80±1 x 121±1 mm

All dimensions in mm

■ **E150**

Switchboard cutout
80±1 x 121±1 mm

All dimensions in mm

6

DIMENSIONS

■ **E200**

Switchboard cutout
123±1 x 150±1 mm

All dimensions in mm

■ **E300**

Switchboard cutout
190±2 x 153±2 mm

All dimensions in mm

MITSUBISHI ELECTRIC
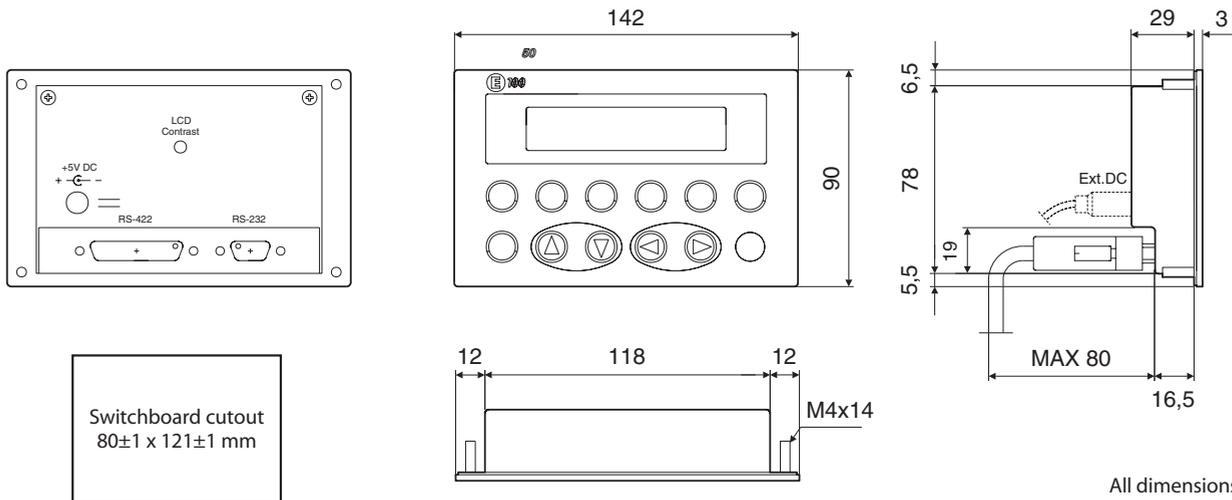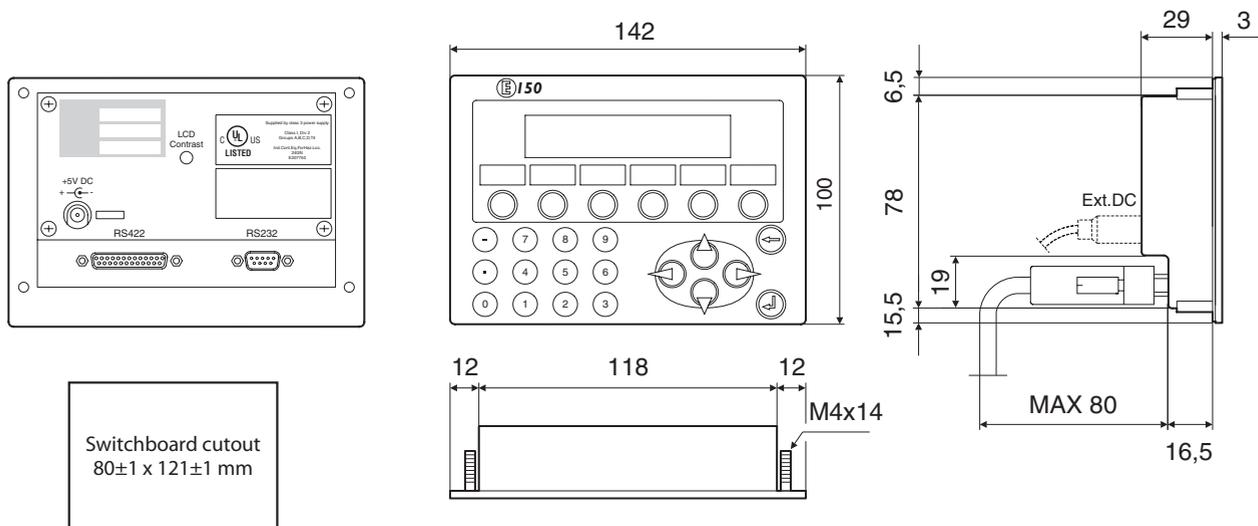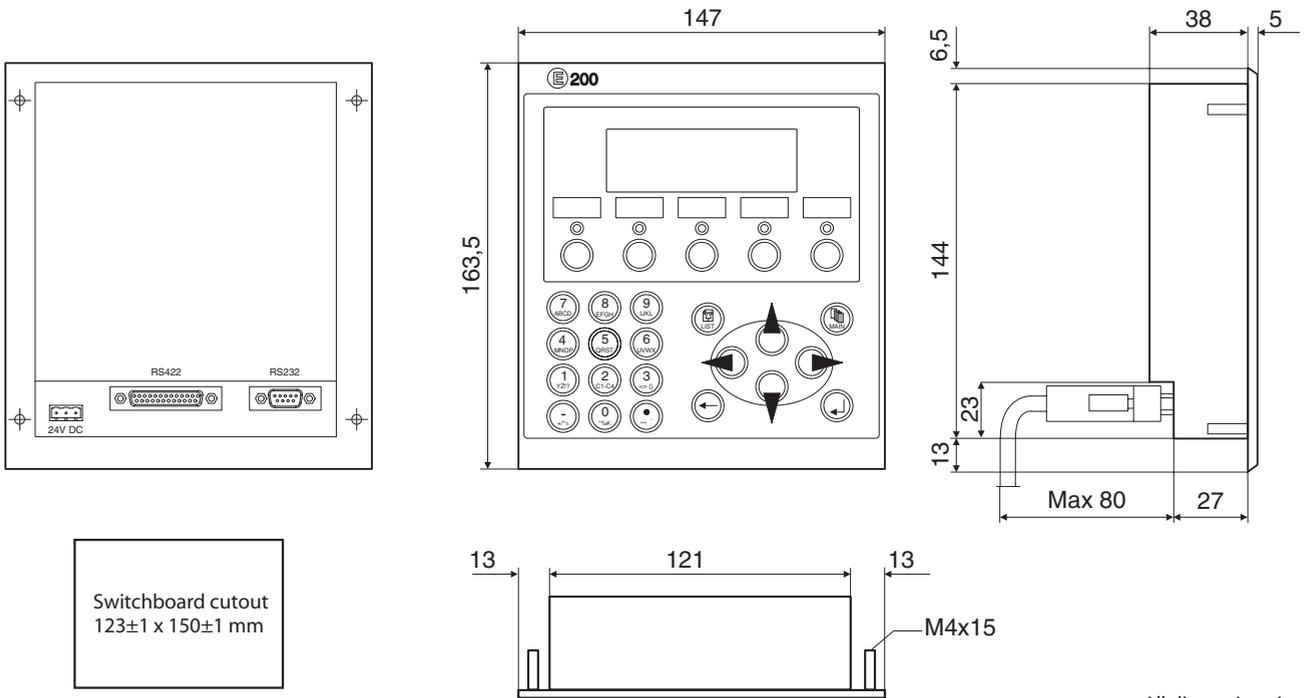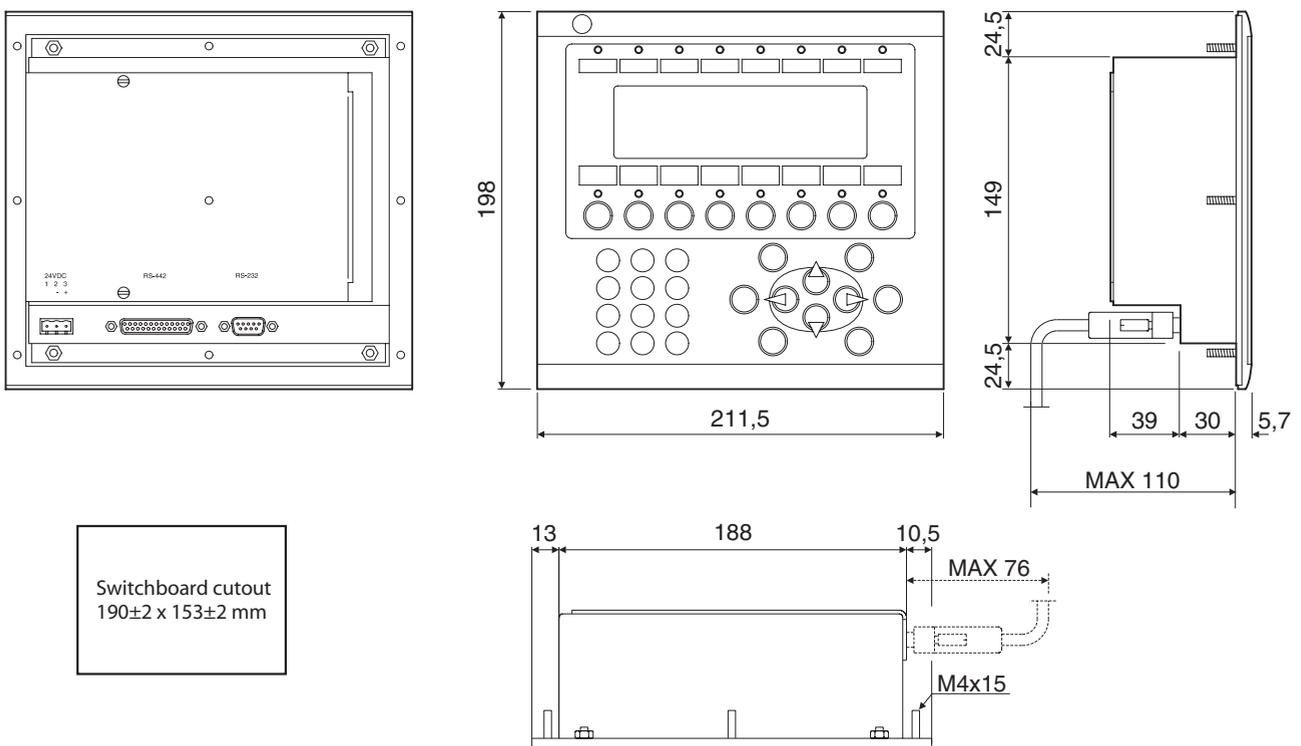
■ **E600**

Switchboard cutout
190±2 x 190±2 mm

232

214

22,5

149

60,5

39   30

5

MAX 110

14   188   12

MAX 76

M4x15
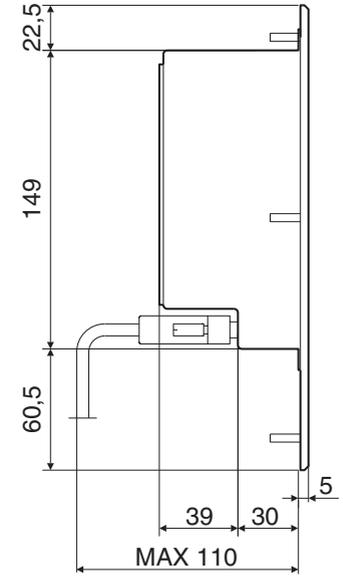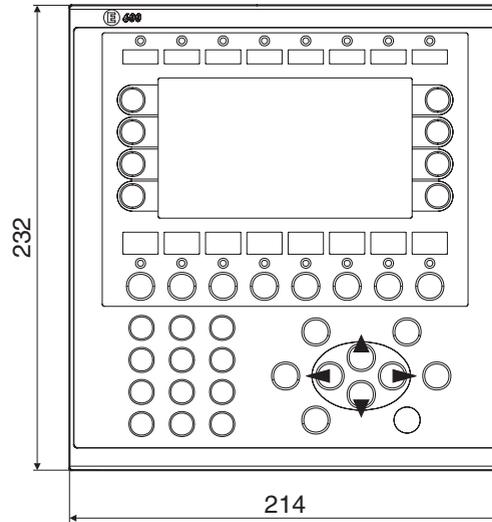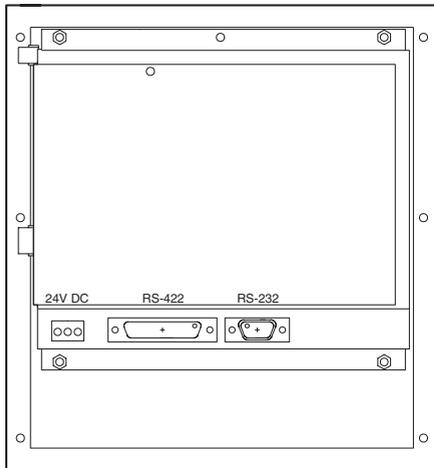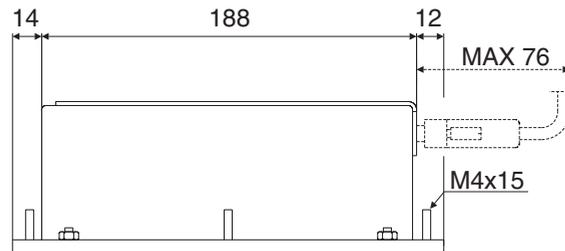
All dimensions in mm

■ **E610 / E615**

24VDC   RS-422   RS-232   RS-485
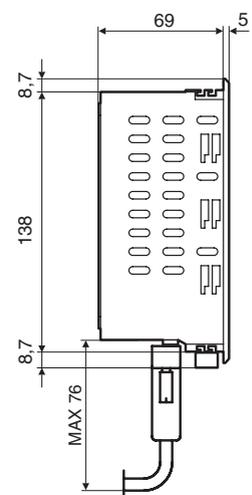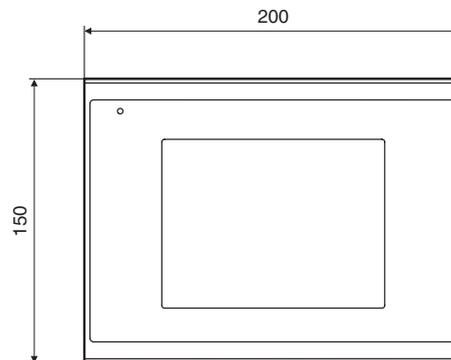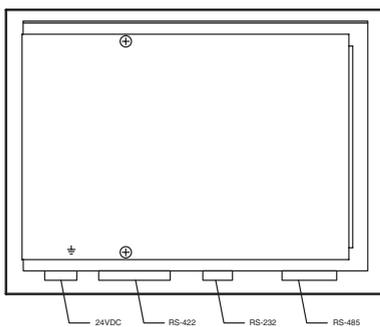
Switchboard cutout
188 x 139 mm

200

150

69   5

8,7

138

8,7

MAX 76

9   183   8

MAX 76

All dimensions in mm

6

DIMENSIONS

■ **E1032**

Switchboard cutout
166 × 149 mm

COM2
RS232

COM1
RS422/485

19,3   163,4

9,8

147,4

A

24V DC

Dip switches

USB

Ethernet

max. 7,5

56,9

62,9

202

187
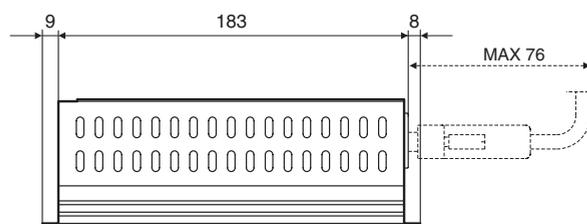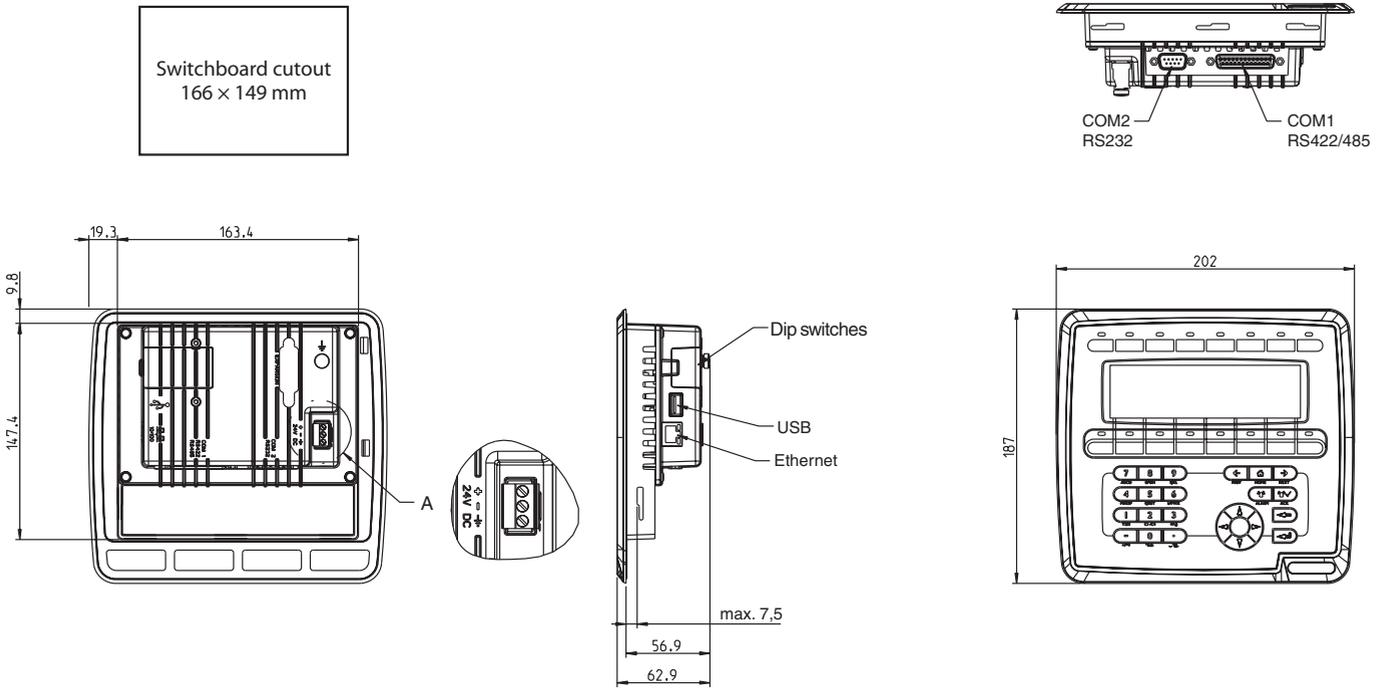
All dimensions in mm

■ **E1041/E1043**

Switchboard cutout
139 × 105 mm

COM2
RS232

COM1
RS422/485

9,7   137,4

9

102,7

A

A

24V DC

max. 7,2

56,8

62,8

155,8

119

All dimensions in mm

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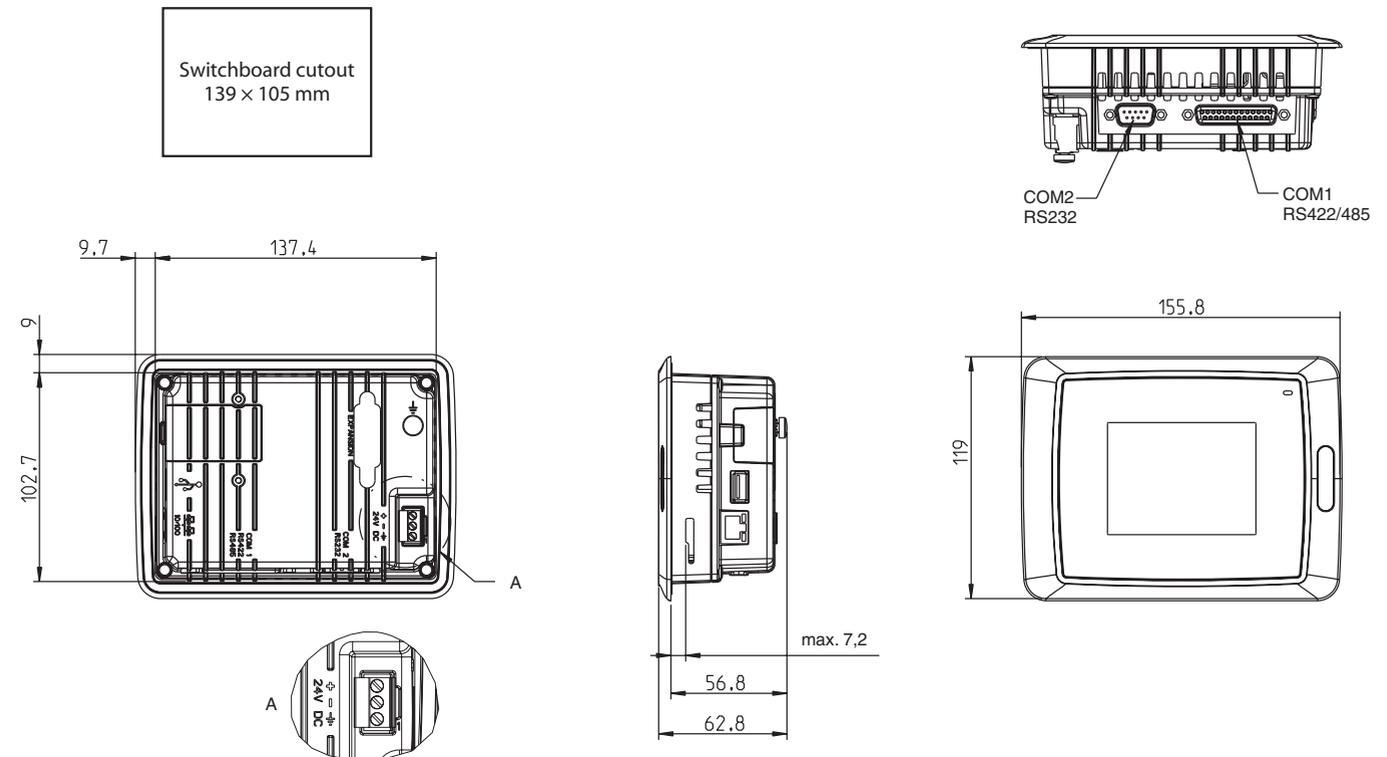
■ **E1060**

Switchboard cutout
240 × 130 mm

COM2
RS232

COM1
RS422/485

18.8 237.4

17.7

128.5

63.3
57.3
max. 7.5

275

168
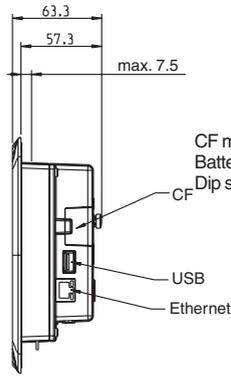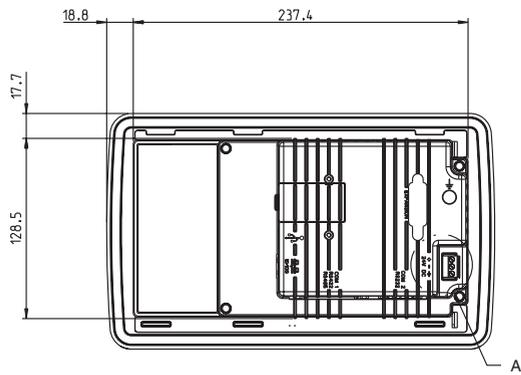
CF memory card
Battery
Dip switches

CF

USB

Ethernet

A

24V DC

A

All dimensions in mm

6
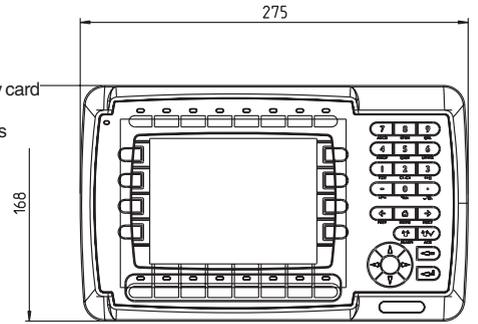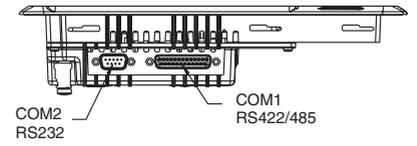
DIMENSIONS

■ **E1061 / E1063**

Switchboard cutout
180 × 130 mm

COM2
RS232

COM1
RS422/485

12,4 178,6

10,9

128,7

62,8
56,8
max. 7,5

201

152

CF memory
card
Battery
Dip switches

USB

Ethernet

A

24V DC

A

All dimensions in mm

■ **E1070**

246±1

139±1

Switchboard
cutout

244

27

20

134

A

24V DC

A

max 9. mm

56

62

285

177

All dimensions in mm

■ **E1100**

343±1

208±1

Switchboard
cutout

342

22

23

207

A

24V DC

A

max. 9 mm

58

64

382

252

All dimensions in mm

■ **E1071**

188,5±1

137,5±1

Switchboard cutout

187

21

6

136

219

154

max. 9 mm

55

61

All dimensions in mm

6

DIMENSIONS

■ **E1101**

264,5±1

206±1

Switchboard cutout

25

13

263

204

302

228

max. 9 mm

58

64

All dimensions in mm

■ **E1151**

354

22

14

277

398

304

max. 9 mm

60

66

Switchboard cutout
278.5±1 x 355.5±1 mm

All dimensions in mm

■ **DT1151**

22

354

14

277

56

50

398

304

USB +12V DC DVI VGA AUDIO

All dimensions in mm

6

DIMENSIONS

⬥ **MITSUBISHI ELECTRIC**

■ **Keyboard Extension MAC E-Key-16**

Switchboard cutout
186±1 x 88±4 mm

6 x ø3,5

All dimensions in mm

6

DIMENSIONS

■ **Industrial PCs**

■ **IPC-MC1151**

380
343
300
273
255
325
46.75
6
14.75
116.5
127.5
83.5
127.5
9.5
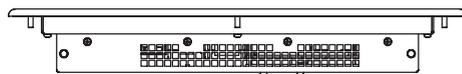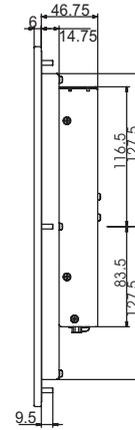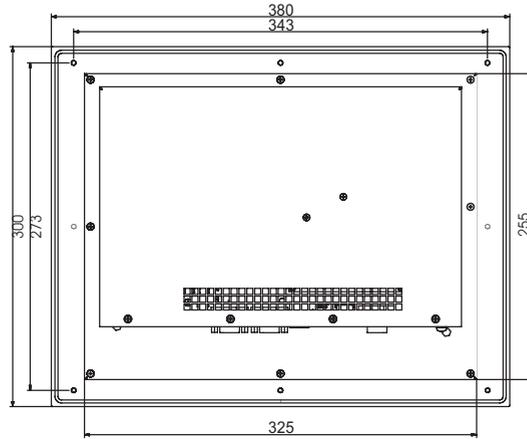
Switchboard cutout
325 x 255

All dimensions in mm

■ **IPC-MC1171**

452
415
362
335
322.5
400
51.25
6
19.25
128.75
161.25
71.25
161.25
9.5
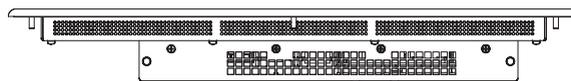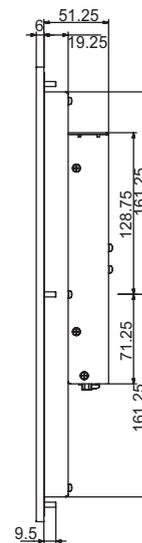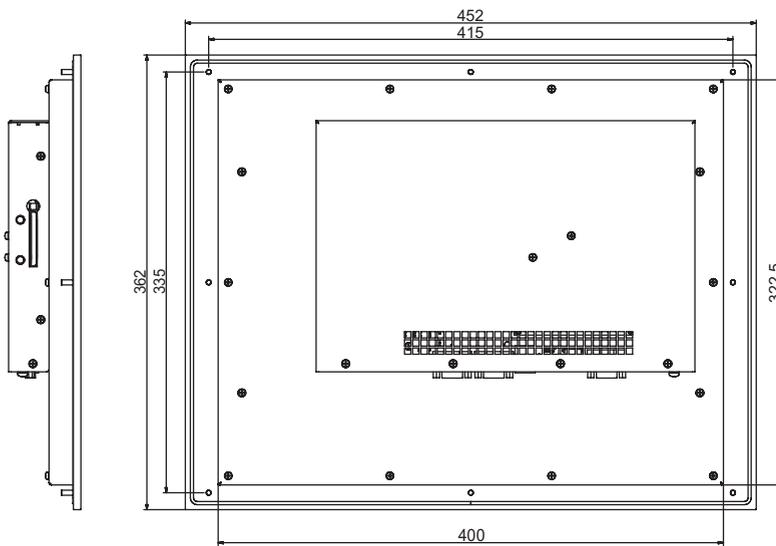
Switchboard cutout
400 x 322.5

All dimensions in mm

⬥ **MITSUBISHI ELECTRIC**

■ **IPC-VP1151**

449.4
422.4
372.4
152.75
34.25
6
354
327
277
311
406.4

Switchboard cutout
406.4 × 311
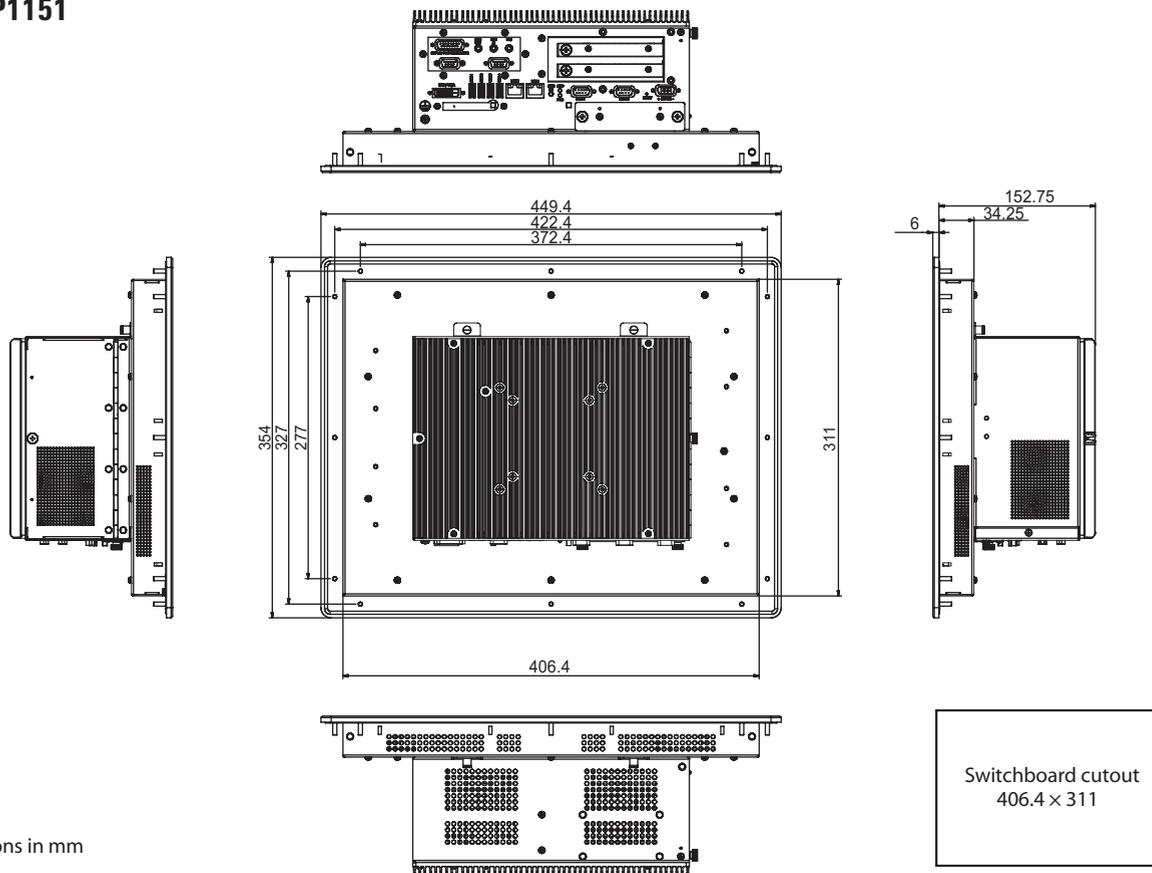
All dimensions in mm

■ **IPC-VP1171**

461
434
361
160
41.5
6
399
372
299
356
418

Switchboard cutout
418 × 356
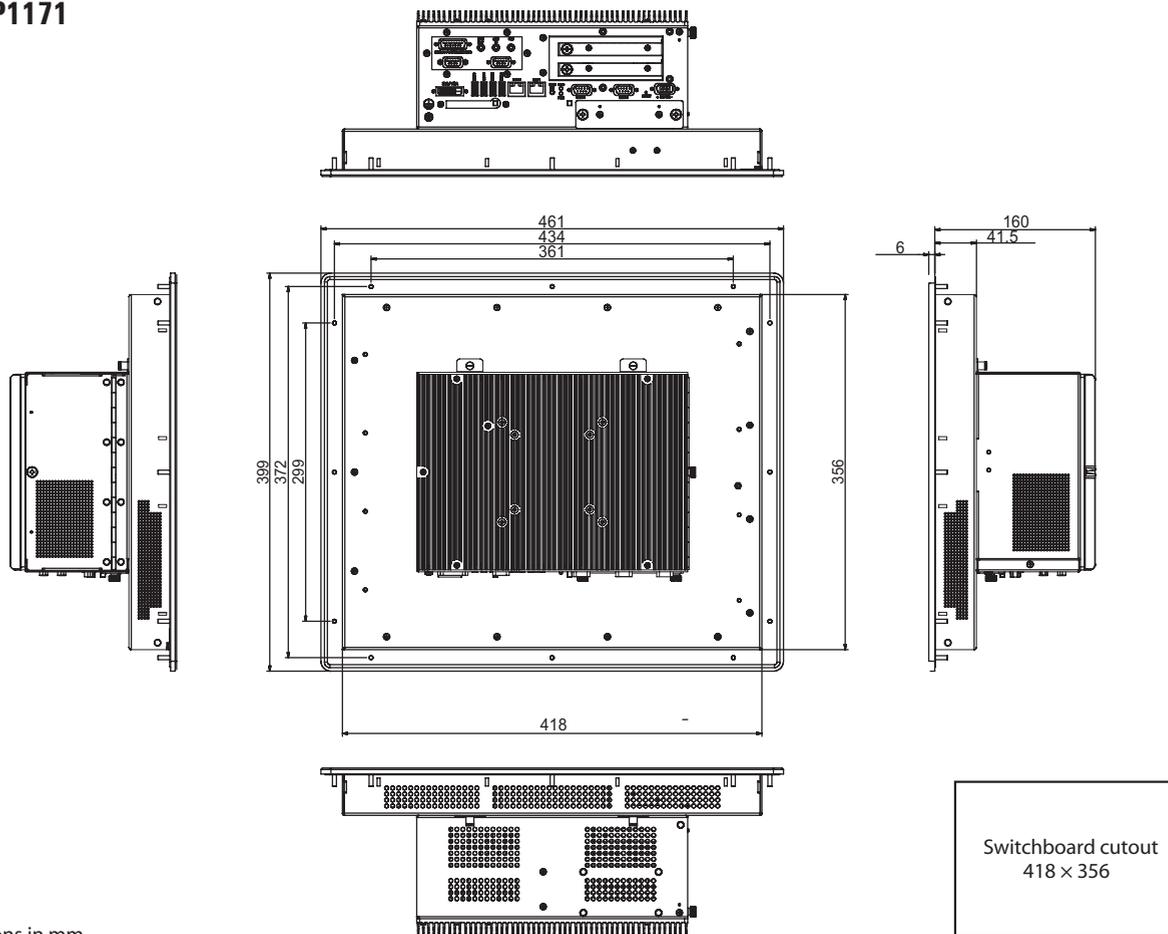
All dimensions in mm

MELSOFT – Programming and Documentation Software for Standard Personal Computers

With the MELSOFT software family Mitsubishi Electric offers efficient software packages helping to reduce programming and setup times to a high degree.

The MELSOFT software family provides instant access, direct communications, compatibility, and open exchange of variables.

The MELSOFT family comprises:
- Programming packages like GX Developer and GX IEC Developer
- Software for a dynamic data exchange like MX Change
- Visualization software like for example MX4 HMI
- Programming software for GOT operator terminals GT-Works
- Programming software for E series operator series E-Designer
- PC-based HMI systems for GOT operator terminals GT SoftGOT1000

For detailed information please order our separate MELSOFT brochure.

■ Visualization Software MX4 HMI

MX4 HMI

MX4 HMI is a reduced version of MX4 SCADA. It includes many of the functions of MX4 SCADA, but has been designed for standalone HMI applications.

The main features are:

- A large number of I/O points ranging from 100 to a maximum of 600, with the ability to connect to three different types of drivers.
- It is a scalable solution that can be upgraded from a HMI to a SCADA solution and then have additional upward connectivity to business systems.
- Basic functions like alarms, trend analysis and reports have been set-up and are ready-to-use, saving you time and the expertise needed to program them.
- The use of super genies enables you to save repetitive machinery processes, and replicate the process by a click of a button. This saves time and the cost of skilled labour, allowing a complex task to be performed much more simply.

Specifications		Development version/ Demo version Run-Time version
System requirements	computer	Pentium based 266 MHz or compatible PC with MS Windows NT®, MS Windows 2000® or MS Windows XP®
	memory	Min. 96 MB (MS Windows NT®)
Free harddisk space		200 MB
Networks		TCP/IP (using ETHERNET), UDP
Operating system		MS Windows NT/2000® or MS Windows XP®
Driver		FastLinx (included with MX4)

Order information	Art. no.	153421	On request

■ **GT Works2 (GT SoftGOT1000 and GT Designer2)**

GT Works2

GTWorks2 is a wide-ranging programming and visualization control tool from Mitsubishi. Included are the two main program parts GT SoftGOT1000 and GT Designer2 as well as a HMI simulator and a converter for former projects. The software language is English, a German version is also available. Please remark when ordering.

GT SoftGOT1000

A major benefit of GT Works2 is that visualisation screens can be created independently of their final target platform, i. e. a hardware platform such as GOT900 or GOT1000 or a PC based platform such as GT SoftGOT1000. This is a PC based HMI module within GTWorks2. A further benefit of GT SoftGOT1000 is that it inherits the advanced simulation features of GTWorks2. It can be simulated in a stand-alone configuration or in conjunction with GX Simulator, linking both PLC and HMI simulation code for a true integrated approach.

● Platform independent, screens created can be used for SoftHMI or hardware based GOT HMIs.
● Remote monitoring and operation by intranet LAN is possible.
● E-mail support for alarms
● Recording of historical Data in user-friendly formats
● Communication with MELSEC PLCs via serial communication, USB (to System Q port) or Ethernet possible
● Windows and Microsoft programs can be accessed from within Soft GOT1000
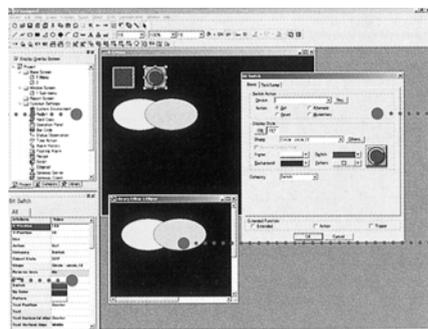
GT Designer2

As part of GTWorks2, GT Designer2 is a drawing program designed to create HMI screens for GOT900 and GOT1000 series. A user-friendly Windows environment provides the user with a simple and recognisable interface, reducing the time of their learning curve and the training costs associated with it. The package consists of:

● An extensive picture and graphics library editor that enables you to modify the graphics to meet your exact specifications.
● A tree format of the project gives you an overview of the structure of the project. This gives you the opportunity to navigate through your project and add, delete or move any programs or functions, creating a more logical flow to your menu structure.
● The combination of GT Simulator and GX Simulator allows you to test both the HMI and PLC coding offline, on your PC without the need to connect to physical hardware.
● Configuration of up to ten languages in the application, easy to edit by using the open Excel format

Specifications	GTWorks2 (GT SoftGOT1000 & GT Designer2)
Application for	All GOT operator terminals
Software language	English, German
Operating system	MS Windows 98®, MS Windows ME®, MS Windows NT 4.0®, MS Windows 2000®, MS Windows® XP
System requirements	Pentium II PC with at least 300 MHz, 128 MB RAM and 400 MB free harddisk space
Required computer interface	RS232C, USB, Ethernet

Order information	Art. no.	Full version: English: 203267	2 licences and more: 203268
		Full version: German: 193465	2 licences and more: 193466

Programming HMI

■ E-Designer
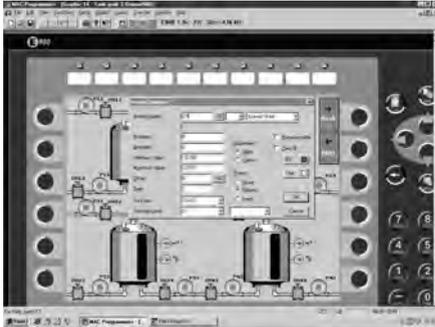
Programming Software for all E Series Operator Terminals

The programming software E-Designer provides easy creation of projects for all control units in the MAC E series.

The block manager displays the application graphically and clearly and saves time for the creation.

E-Designer supports the following languages on the desktop:
english, german, spanish, italian, french, swedish

- ● Full support of the Windows editing functions (e.g. cut, copy, paste etc.)
- ● Extensive documentation and storage functions
- ● Different projects can be edited simultaneously.
- ● Multi-language support for up to 10 languages in the application
- ● The name list is compatible to GX IEC Developer.
- ● E-Designer is supported by MX-Change.
- ● Simulation mode for E1000 projects

Specifications	E-Designer V0730-1L0C-M	E-Designer V0730-1L0C-M-UP	E-Designer V0730-1L0C-M-UPD
Application	All E series control units		
Software language	English, german, spanish, italian, french, swedish		
Storage media	CD-ROM		
Operating system	MS Windows 98®, MS Windows ME®, MS Windows NT 4.0®, MS Windows 2000®, MS Windows® XP		
System requirements	PC with at least 32 MB RAM and 55 MB free harddisk space		
Required computer interface	RS232C, Ethernet		
Version	Full version 7.30	Upgrade version (from version 6.x to 7.x)	Update version (minor version change in version 7.x)

Order information	Art. no.	204628	204629	204630

◆ **MITSUBISHI ELECTRIC**

A world of automation solutions

Robots

Motion control and servos

LV circuit protection

Inverters

Laser machines

CNC controllers

HMI and GOTs

EDM machines

Micro PLCs

Modular PLCs
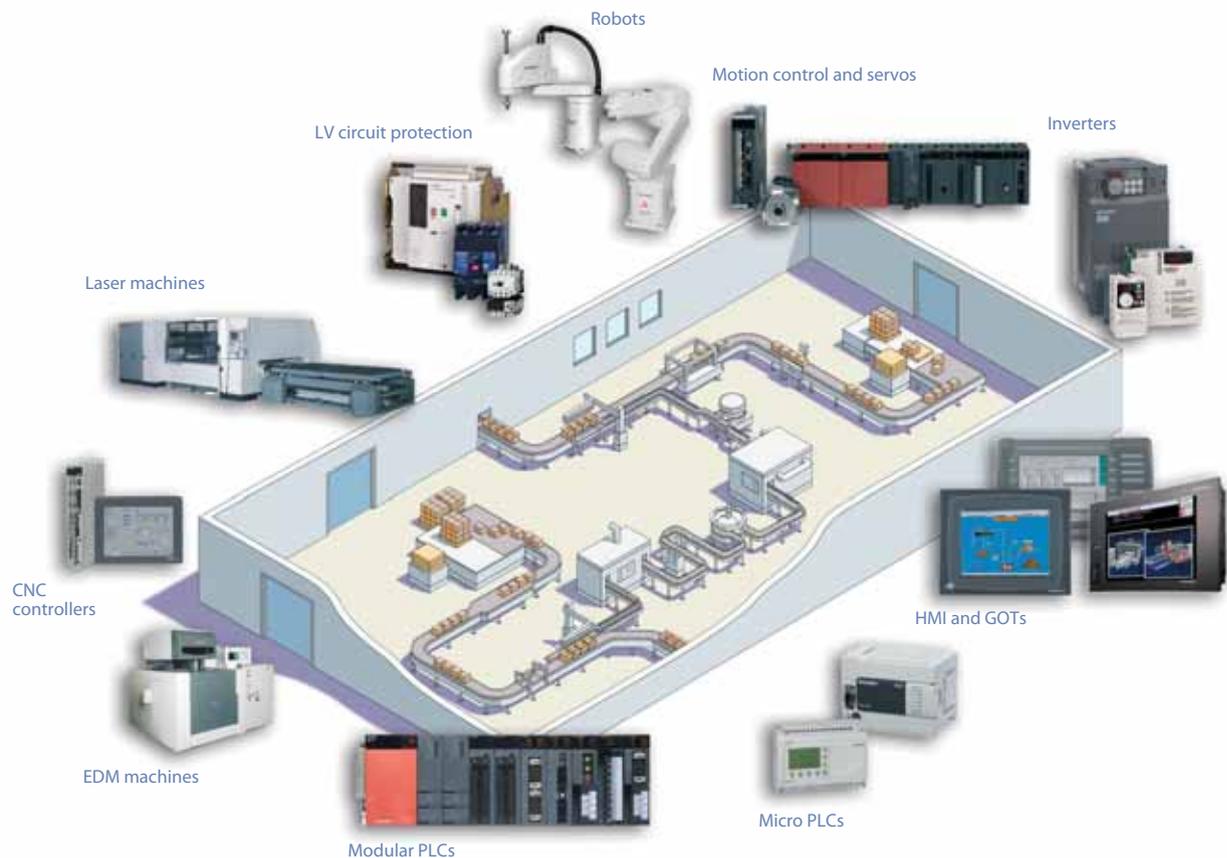
Mitsubishi offer a wide range of automation equipment from PLCs and HMIs to CNC and EDM machines

A name to trust

Since its beginnings in 1870, some 45 companies use the Mitsubishi name, covering a spectrum of finance, commerce and industry.

The Mitsubishi brand name is recognized around the world as a symbol of premium quality.

Mitsubishi Electric Corporation represents space development, transportation, semiconductors, energy systems, communications and information processing, audio visual equipment, home electronics, building and energy management and automation systems, and has 237 factories and laboratories worldwide in over 121 countries.

This is why you can rely on a Mitsubishi automation solution – because we know first hand about the need for reliable, efficient, easy-to-use automation and control.

As one of the world's leading companies with a global turnover of 3.4 trillion Yen (approximately $30.8 billion), employing over 100,000 people, Mitsubishi Electric has the resource and the commitment to deliver the ultimate in service and support as well as the best products.

Global partner. Local friend.

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FACTORY AUTOMATION