IDEC

Think Automation and beyond...

Operator Interface
HG4G/3G/2G

Bright and true-to-life color displays

NEW

| HG4G | 12.1 inch | HG3G | 10.4 inch | HG3G | 8.4 inch | HG2G | 5.7 inch | HG2G | 5.7 inch |

(High Performance) (Basic)

IDEC CORPORATION

HG Series Operation Panel

Operation Status

Production Status

Product Selection

Parts Supply

HG4G
12.1 inch

Vertical
OK

Connect & Communicate

"Human Machine Interface (HMI) Solutions"

IDEC principle for human-machine interfaces: Fast, easy, and simple.
The sharp and vivid display with high luminance connects to PLCs,
micro computer boards, temperature controllers and cameras, ensuring excellent
connectivity and communication in a wide range of industries.
Our new range of operator interfaces provide the optimum environment for your application.

HG3G
10.4 inch

Vertical OK

HG3G
8.4 inch

Vertical OK

HG2G
5.7 inch

Vertical OK

Designed to perform

LED Backlight

True-to-life color. Brightest in its class.

A bright LED backlight provides a vivid display in well-lit surroundings. The brightness of the backlight can be adjusted.

HG4G (12.1 inch)	HG3G (10.4 inch)	HG2G (5.7 inch) (High Performance)	HG2G (5.7 inch) (Basic / Color)
550 cd/m²	700 cd/m² (8.4 inch) 600 cd/m²	800 cd/m²	500 cd/m² (Basic / Monochrome) 1100 cd/m²

48-level Brightness Adjustment — LED backlight dimming control

The brightness of the backlight can be adjusted according to surrounding conditions (day/night).
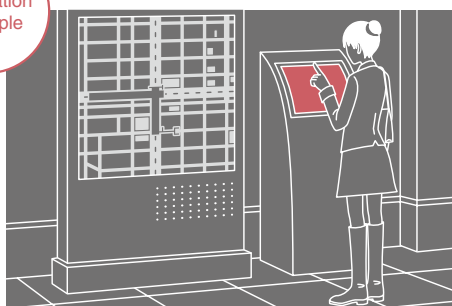
Application Example

Graphics — More than 7,000 graphic images

1,000 graphic images have been added. Realistic images of switches, pilot lights, and other parts allow you to easily create your own custom screens.
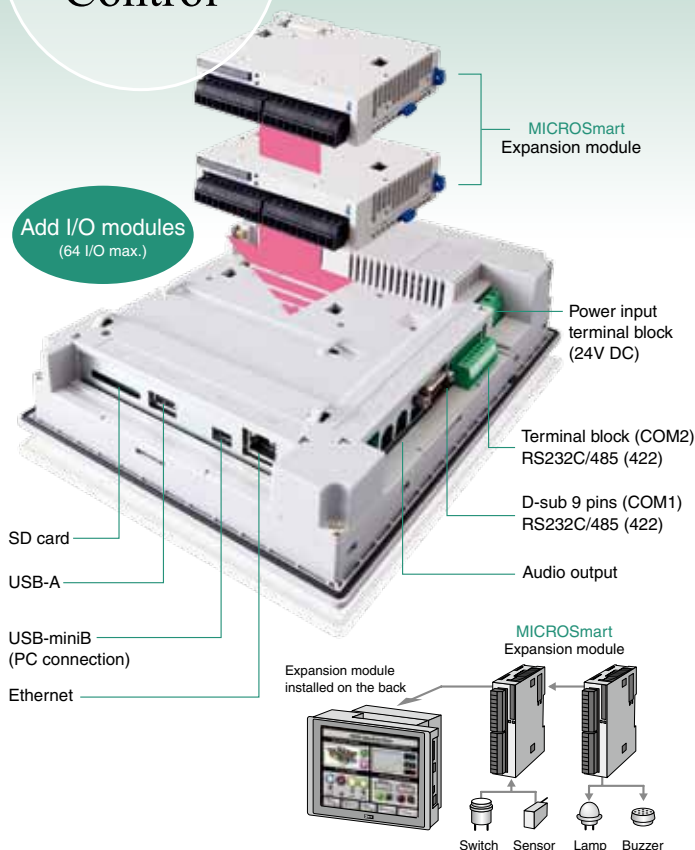
Control

Simple I/O Control

Simple control

Add I/O modules (64 I/O max.)

MICROSmart Expansion module

Power input terminal block (24V DC)

Terminal block (COM2) RS232C/485 (422)

D-sub 9 pins (COM1) RS232C/485 (422)

Audio output

SD card

USB-A

USB-miniB (PC connection)

Ethernet

Expansion module installed on the back

MICROSmart Expansion module

Switch Sensor Lamp Buzzer

Ethernet — Remote data maintenance

Project data can be downloaded and uploaded remotely via Ethernet. One Users can check and operate screens using a PC or smartphone in a remote location.

Ethernet

Smart Phone

PLC PLC
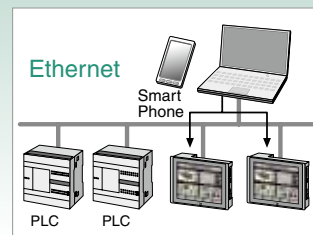
O/I Link — IDEC high-speed 115.2 kbps O/I Link communication

A maximum of 16 HGs can be connected to a PLC using RS485 (2-wire), easily creating a high-speed network reducing cost.

Master Slave 1 Slave 2

Host O/I Link Slave 15 max.
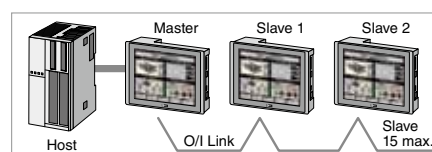
I/O Module — Display and I/O control in one package

A maximum of four MicroSmart expansion modules can be connected, allowing equipment control using a small number of I/O points. (Input, output, I/O modules can be used.)

* HG4G/3G can connect up to 4, HG2G (high performance model only) can connect up to 2 expansion modules.
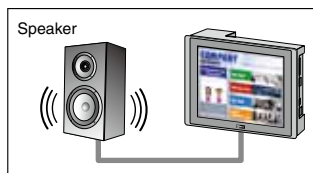* For compatible expansion modules, see "Expansion Modules" on page 23.

Audio Output — Sound file (30 sec max.)

Audio error messages can be sent to an operator, providing faster system recovery. Audio ouput can also be used as a voice guidance system.

Speaker

Cyclic Script — Cyclic I/O control

Cyclic script enables parallel processing of I/O control. Real time I/O processing for high performance.

Conventional model	Display		I/O	Display	I/O	Display		I/O
HG Series	I/O	Display		I/O	Display	I/O	Display	I/O

10 to 1000 ms   10 to 1000 ms   10 to 1000 ms

Fast & Easy

Stress-Free
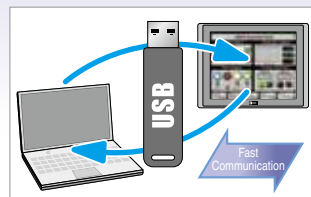
3-sec startup

3 sec

High Speed CPU — Fast start-up

High-speed 400 MHz CPU and unique software technology shorten startup time. Fast start-up allows for easy debugging.

High Speed Data — Fast USB2.0 communication

USB 2.0, high-speed 480 Mbps. Project data can be downloaded and uploaded easily using a PC and USB flash drive.

Easy Maintenance

Simple operation

USB Flash Drive — USB flash drive enables easy data transfer.

Inserting a USB flash drive into the HG will automatically bring up the USB transfer menu. Operator can work on errors without the use of a PC.

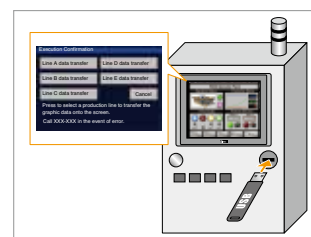**SD Card** — Convenient SD card slot

Data can be saved or transferred by using an SD card (32 GB max.) By saving user data on an SD card, user memory can be reduced.

Front Panel Maintenance — Easy data maintenance, without opening the control cabinet.

Using a USB panel-mount cable, data can be transferred without opening the panel. The pass-through function enables debugging of ladder programs in the PLC, connected to the HG, inside the cabinet.

∗See the users's manual for compatible PLCs.

USB Memory or PC
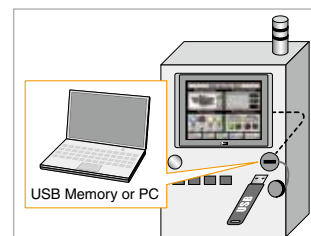
Application Example
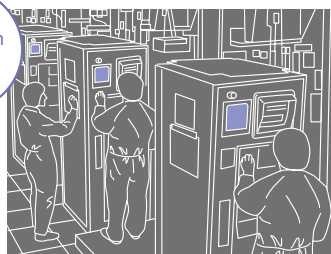
Pict Bridge — USB printer compatible

HG screen information and alarm history can be printed out from Pict Bridge compatible printers.

USB cable

Printer

6

Wind0/I-NV2 Wind0/I-NV4 OI Touchscreen Programming Software

Automation Organizer | Automation Organizer
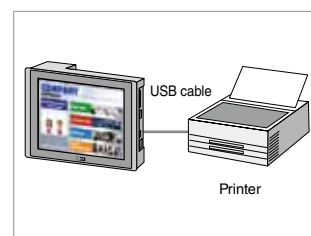(HG2G basic model only)

Flexible and easy to use workspace. Easy programming enables efficiency.

Dynamic and flexible screen designs

The ribbon organizes commands in groups and tabs, making it possible to find commands easily and quickly.

Easy-to-view work space

Project structure can be listed for easy viewing, and switched to the editing screen in one click.

Graphic library with extensive collection of images

7000 graphic images can be selected from the library tool.
Graphics that are used frequently as part images can be quickly selected from the parts list.

Design screens using the object list

Device, operating conditions, and type of command can be read from the object list.
During debugging, data stored in the device is shown in popups, and perating conditions can be distinguished via color.

Easy programming

Operating conditions for buttons and lamps can be programmed in the property settings.

Create language screens easily

Switch to any of the supported languages by using the text manager within the same project.
Translation is easy as Unicode format files can be imported/exported.

Tag editor shows available devices at a glance

Device addresses used in the project can be easily identified by using the tag editor and cross-references.

System Requirements

- Windows 8 (32-bit/64-bit), Windows 7 (32-bit/64-bit), Windows Vista (32 bit/64 bit), Windows XP (32-bit, Service Pack 3 or later)
  (Ensure that your operating system has the latest update from the Microsoft Windows Update website)
- 1.0 GHz or faster CPU
- Microsoft.NET Framework 4.0

- WindO/I-NV4 can only be used on HG2G basic models.
- 512 MB RAM (1 GB recommended)
- 800 MB hard disk space
- Screen resolution of 1024 x 768 or more
- Mouse, DVD-ROM drive, administrator account

*Windows is a registered trademark of Microsoft Corporation, USA and other countries.
*WindO/I-NV2 and WindO/I-NV4 are included in IDEC's package software "Automation Organizer".

Environment

Excellent environmental resistance

Withstands Harsh Environments

NEW

Wide Temp. Range — Operates in a wide temperature range from -20 to +60°C*

Suitable for use in a wide temperature range from cold to hot environment.
(*HG2G basic model only)

+60°C

-20°C

Long Life — Long-life LED back light

Long 100,000-hour service reduces maintenance work.

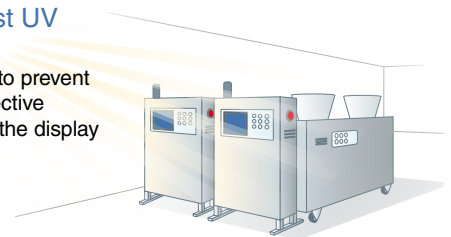**Water proof** — IP66 rating (protection against poweful jets) suitable for washdown applications

Touchscreens can be used on machines washed down by water such as food machines.

UV Resistant — Protected against UV

An UV resistant case is used to prevent degradation. An optional protective sheet can be used to prevent the display from becoming cloudy.

Oil Resistant — IP66f rating prevents ingress of oil.*

Suitable for use on food machines subject to oil spills.
(*HG2G basic model only. Operation is not guaranteed when used with certain types of oils.)

Damage Resistant — Strong Coating

Strong coating protects the touchscreen from scratches.

Degree of Protection

I P 6 6 F
① ② ③

① [First characteristic numeral] Degree of protection against excess to hazardous parts and protection against external solid objects.
6 Dust-tight

② [Second characteristic numeral]
Degree of protection against water penetration
5 Protected against water jets
6 Protected against powerful water jets
Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.
7 Protected against the effects of temporary immersion in water Ingress of water shall not be possible when the enclosure is immersed in water up to 1 m for 30 minutes.

**③ [Additional letter]**
F Oil resistant*

Multimedia

Records and plays back high quality images

Multimedia models with video and audio input terminals.
The screen records images on an SD card through a connected video camera and images recorded on an SD card can be played back on the screen or PC.

∗ HG4G-CJT22MF, HG3G-AJT22MF, HG3G-8JTMF models only.

Display Displays images on the screen from the camera.
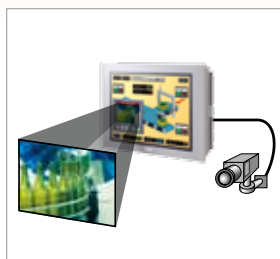
Save Image Records and plays back images on the screen from the camera and saves the data on the SD card.
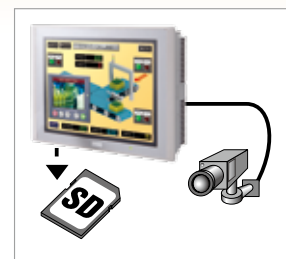
Video Play Replays video images and audio from an SD card.

MPEG4 video files can be played back on the screen. Work procedures can be shown on the screen, and when trouble occurs, it can be used as a video manual for troubleshooting on-site.

Video and audio

Video Recording Records video images of an error

When an alarm is set off, video images before and after the start of the alarm can be recorded on an SD card. This enables on-site analysis of the trouble.
Smooth and refined images can be recorded.

Record   Error   Record
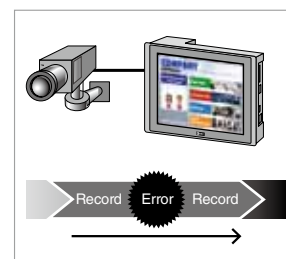
Application Examples

Find out the cause of an error

Error

Confirm images of an error afterwards

Video playback

Menu Stop Play

The images make it easy to clear the error

Error

Video images recorded before and after an error are displayed.
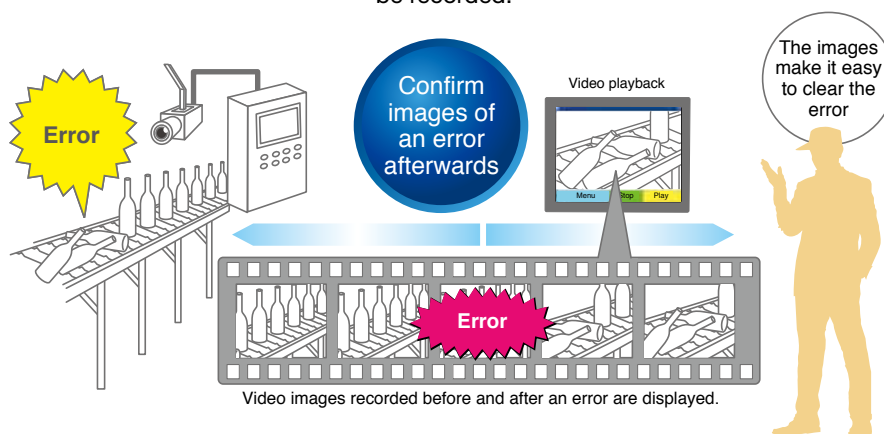
Human-machine interface expands IDEC

Easy troubleshooting using video images

Complicated maintenance can be carried out

Video camera — VIDEO IN

Microphone — AUDIO IN

Speaker — AUDIO OUT

SD card / SDHC card — SD

PC / Printer — USB-miniB

Barcode reader / USB — USB-A

HG Series Op...
Operation Status
Parts Supply

Lineup

HG series Operator Interface

High Performance

HG4G	HG3G	HG2G-5F
12.1 inch	10.4 inch / 8.4 inch	5.7 inch

HG4G

314 × 240 × 54.1 mm
SVGA (800 × 600)
TFT65,536 colors

- Bright 550 cd/m²
- LED 100,000 Hours
- 48-level Brightness Adjustment
- Graphics
- Stroke Fonts
- Serial Interface
- Ethernet
- USB mini-B
- USB A
- 4 Expansion Modules
- Audio Output
- O/I Link
- Cyclic Script
- SD Card
- USB Flash Drive
- High Speed CPU
- High Speed Data
- User Memory 12MB
- Pict Bridge
- Front Panel Maintenance
- Audio Input
- Video Input
- Video Play
- Video Recording
- Voltage 24V DC
- Vertical OK
- Bezel Color: Dark gray

HG3G
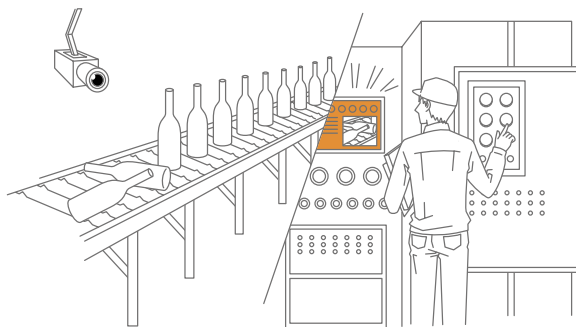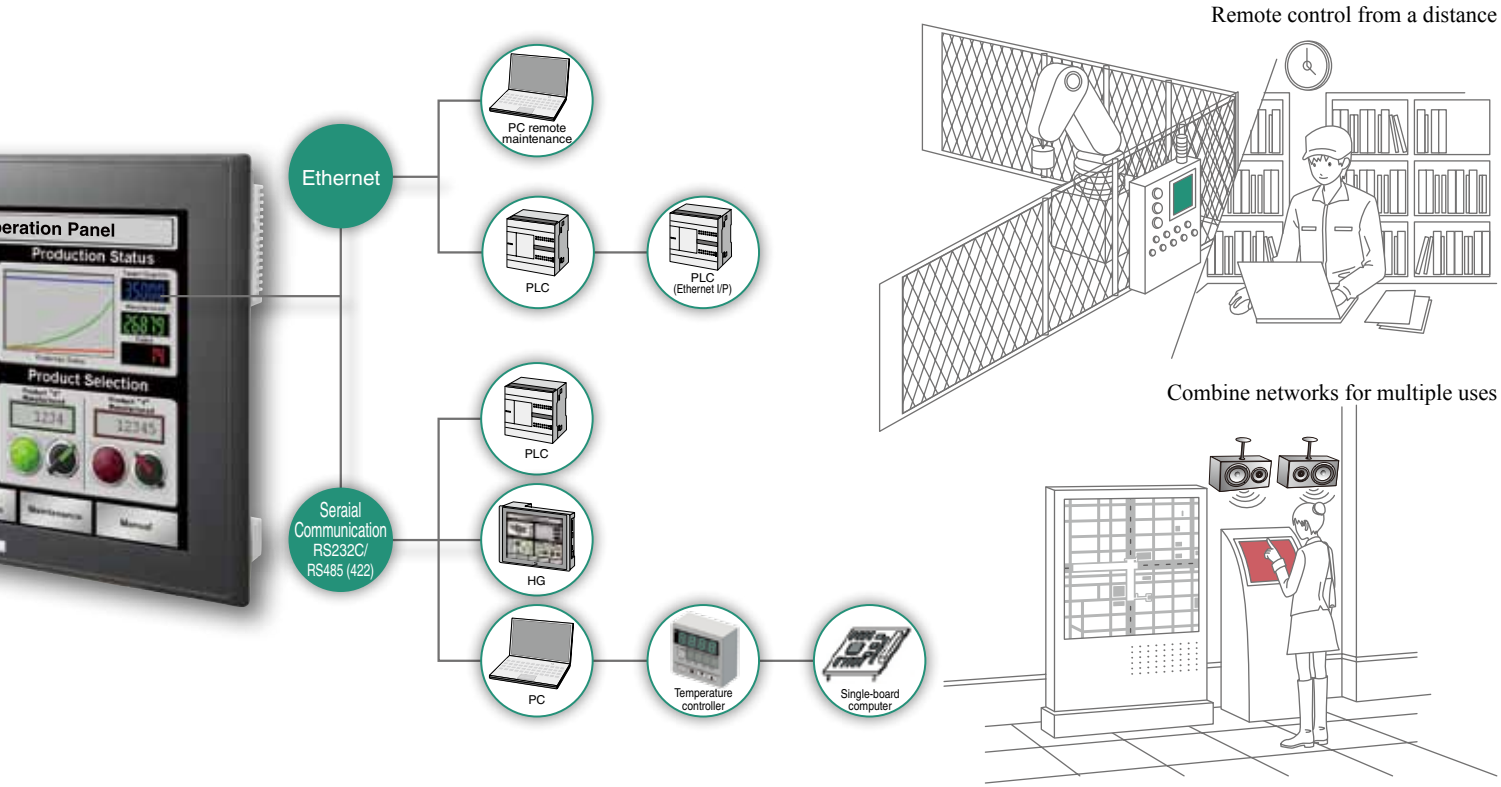
270 × 212 × 52.7 mm (Bright 700 cd/m²)
SVGA (800 × 600)
TFT65,536 colors

231 × 176 × 54.4 mm (Bright 600 cd/m²)
SVGA (800 × 600)
TFT65,536 colors

- LED 100,000 Hours
- 48-level Brightness Adjustment
- Graphics
- Stroke Fonts
- Serial Interface
- Ethernet
- USB mini-B
- USB A
- 4 Expansion Modules
- Audio Output
- O/I Link
- Cyclic Script
- SD Card
- USB Flash Drive
- High Speed CPU
- High Speed Data
- User Memory 12MB
- Pict Bridge
- Front Panel Maintenance
- Audio Input
- Video Input
- Video Play
- Video Recording
- Voltage 24V DC
- Vertical OK
- Bezel Color: Light gray / Dark gray

HG2G-5F

167.2 × 134.7 × 54.4 mm
VGA (640 × 480)
TFT65,536 colors

- Bright 800 cd/m²
- LED 100,000 Hours
- 48-level Brightness Adjustment
- Graphics
- Stroke Fonts
- Serial Interface
- Ethernet
- USB mini-B
- USB A
- 2 Expansion Modules
- O/I Link
- Cyclic Script
- SD Card
- USB Flash Drive
- High Speed CPU
- High Speed Data
- User Memory 12MB
- Pict Bridge
- Front Panel Maintenance
- Voltage 24V DC
- Vertical OK
- Bezel Color: Light gray / Dark gray / Silver

network control

Remote control from a distance

Ethernet

PC remote maintenance

PLC

PLC (Ethernet I/P)

Seraial Communication RS232C/ RS485 (422)

PLC

HG

PC

Temperature controller

Single-board computer

Operation Panel
Production Status
Product Selection

Combine networks for multiple uses

Basic		Compact
HG2G-5TT	**HG2G-5TN**	**HG1F**

HG2G-5TT

5.7 inch

NEW

167.2 × 134.7 × 40.9 mm
QVGA (320 × 240)
TFT 65,536 colors

Bright 500 cd/m²	LED 100,000 Hours	32-level Brightness Adjustment	Graphics	Stroke Fonts
Serial Interface	Ethernet	USB mini-B	USB A	USB Flash Drive
User Memory 5MB	Front Panel Maintenance	Voltage 12/24V DC	Temp. -20 to + 60°C	Vertical OK

Bezel Color: Light gray, Dark gray, Silver

HG2G-5TN

5.7 inch

NEW

167.2 × 134.7 × 40.9 mm
QVGA (320 × 240)
TFT monochrome (16 shades)

Bright 1100 cd/m²	LED 100,000 Hours	32-level Brightness Adjustment	Stroke Fonts	Serial Interface
Ethernet	USB mini-B	USB A	USB Flash Drive	User Memory 5MB
Front Panel Maintenance	Voltage 12/24V DC	Temp. -20 to + 60°C	Vertical OK	

Bezel Color: Light gray, Dark gray, Silver

HG1F

4.6 inch

147 × 76 × 39.3 mm
(300 × 1000)
STN Monochrome (16 shades)

Bright 500 cd/m²	Serial Interface	User Memory 1MB	Voltage 24V DC
Vertical OK			

Bezel Color: Light gray, Dark gray, Silver

∗ See catalog no. EP1128 for details.

Sharp & Vivid: Bright, LED, Brightness Adjustment, Graphics, Stroke Fonts ≫ Page 4

Fast & Easy: SD Card, USB Flash Drive, High Speed CPU, High Speed Data, User Memory, Pict Bridge, Front Panel Maintenance ≫ Page 6

OI Touchscreen Programming Software ≫ Page 7

Simple Control: Serial Interface, Ethernet, USB mini-B, USB A, Expansion Module, Audio Output, O/I Link, Cyclic Script ≫ Page 5
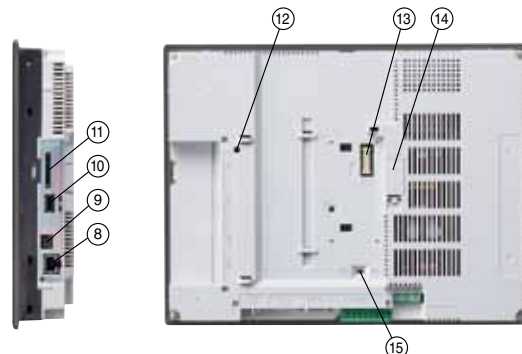
Environmental: Wide Temp. Range, Long Life, Water proof, UV Resistant, Oil Resistant, Damage Resistant ≫ Page 8

Multimedia: Audio Input, Video Input, Video Play, Video Recording ≫ Page 9

HG4G Operator Interface

Compact housing with a versatile interface.
High performance operator interface with multimedia functions.

Bright 550 cd/m² | TFT 65,536 Colors | LED 100,000 Hours | SVGA 800×600
48-level Brightness Adjustment | Graphics | Stroke Fonts | Serial Interface
Ethernet | USB mini-B | USB A | 4 Expansion Modules
Audio Output | O/I Link | Cyclic Script | SD Card
USB Flash Drive | High Speed CPU | High Speed Data | User Memory 12MB
Pict Bridge | Front Panel Maintenance | Audio Input | Video Input
Video Play | Video Recording (Note) | Voltage 24V DC | Vertical OK

Bezel Color — Dark gray

c(UL)us LISTED CE

(Approval for HG4G operator interface only, excluding options or expansion modules.)

No.	Name
①	Power LED
②	Display
③	Touchscreen
④	Power Supply Terminal
⑤	Serial Interface (COM2)
⑥	Serial Interface (COM1)
⑦	Audio Interface (AUDIO OUT)
⑧	Ethernet Interface (LAN)
⑨	USB Interface (USB1)

No.	Name
⑩	USB Interface (USB2)
⑪	Memory Card Interface (SD)
⑫	SD Memory Access LED
⑬	Expansion Module Interface (EXT)
⑭	Battery Cover
⑮	Terminal Resistor Switch
⑯	Audio Interface (AUDIO IN)
⑰	Video Interface (VIDEO IN)

HG4G Operator Interface

Display Screen	Operation Style	Communication/Memory Interface	Video/Audio Interface	Housing/Bezel Color	Part No. (Ordering No.)	Approvals
12.1-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM1 COM2 LAN USB1 USB2 SD Memory Card	VIDEO IN AUDIO IN AUDIO OUT	Dark gray	HG4G-CJT22MF-B	Safety Standards: UL508 CSA C22.2 No.142 CSA C22.2 No.213 ANSI/ISA-12.12.01 Ship Classification Standards: ABS, LR, NK, DNV
			AUDIO OUT	Dark gray	HG4G-CJT22TF-B	

Dimensions
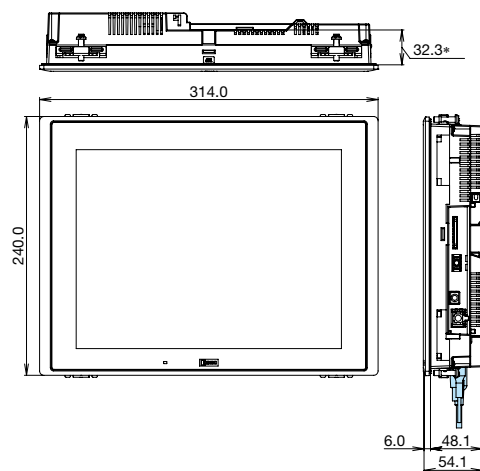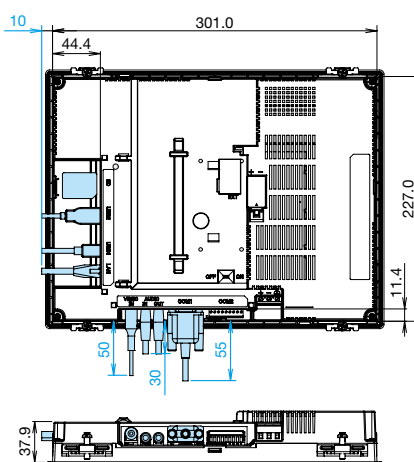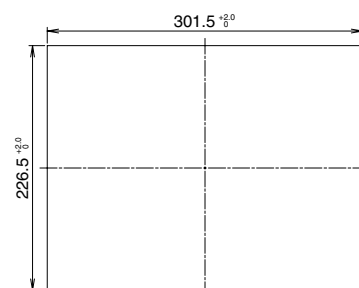
32.3*
314.0
240.0
6.0
48.1
54.1

* Depth from the expansion module mounting surface.

10
44.4
301.0
227.0
11.4
50
30
55
37.9

Panel Cut-out

301.5 +2.0/0
226.5 +2.0/0

Panel Thickness: 2.0 to 5.0 mm

All dimensions in mm.

Note 1: Dimensions in blue show the mounting dimensions of the cable.
Note 2: Dimensions in the figure may vary depending on the type of cable connected.
Note 3: Install the HG4G into a panel cut-out by tightening the four mounting clips (supplied with the HG4G) to a torque of 0.5 to 0.6 N·m.
Do not tighten with excessive force, otherwise the HG4G and screen may become distorted. Also waterproof characteristics may be lost.

General Specifications

Rated Power Voltage	24V DC
Power Voltage Range	20.4 to 28.8V DC
Power Consumption	27W maximum 18W maximum when not using USB interface (USB2) or expansion module interface (EXT)
Allowable Momentary Power Interruption	10 ms maximum
Inrush Current	30A maximum
Dielectric Strength	1,000V AC, 10 mA, 1 minute between power and FG terminals
Operating Temperature	0 to +50°C (no freezing)
Operating Humidity	10 to 90% RH (no condensation)
Storage Temperature	–20 to +60°C (no freezing)
Storage Humidity	10 to 90% RH (no condensation)
Pollution Degree	2
Vibration Resistance	5 to 8.4 Hz amplitude 3.5 mm, 8.4 to 150 Hz, acceleration 9.8 m/s² 10 cycles (100 minutes) on each of three mutually perpendicular axes
Shock Resistance	147 m/s², 11 ms 5 shocks on each of three mutually perpendicular axes
Noise Immunity	Fast transient/burst test, Power terminals: ±2 kV, Communication line: ±1 kV (IEC/EN61131-2: 2007)
Electrostatic Discharge	Contact ±6 kV, air ±8 kV (IEC/EN61131-2: 2007)
Corrosion Immunity	Free from corrosive gases
Mounting	Panel mounting (Panel Thickness: 2.0 to 5.0 mm)
Degree of Protection	IP66 (IEC 60529) (front part when mounted) *1 TYPE 4X TYPE 13 *2
Dimensions	314.0W × 240.0H × 54.1D mm
Weight (approx.)	2.1 kg

- Do not use the HG4G in an environment subject to strong ultraviolet rays, otherwise the LCD quality will deteriorate.
*1 Protection degree of the front surface after mounting. Operation not guaranteed under certain environments.
*2 Operation not guaranteed when used with certain types of oils.

Display Specifications

Display		TFT Color LCD
Color/Shade		65,536 colors
Effective Display Area		246.0W × 184.5H mm
Display Resolution		800W × 600H pixels
View Angle		Right and left 80°, up 80°, down 60°
Backlight		LED
Backlight Life		100,000 hours minimum *1
Brightness		550 cd/m² *2
Brightness Adjustment		48 levels
Backlight Replacement		Not possible
Display Character Size	1/4 size	8 × 8 pixels (Western European language: ISO 8859-1, Central European language: ANSI 1250, Baltic: ANSI 1257, Cyrillic: ANSI1251, Japanese katakana and symbols: JIS 8-bit code)
	1/2 size	8 × 16 pixels (Western European language ISO 8859-1, Central European language: ANSI 1250, Baltic: ANSI 1257, Cyrillic: ANSI1251, Japanese katakana and symbols: JIS 8-bit code) 16 × 32 pixels, 24 × 48 pixels, 32 × 64 pixels (Western European language: ISO 8859-1)
	Full size	16 × 16 pixels (Japanese JIS first and second level characters, simplified Chinese, traditional Chinese, Korean)
	Double size	32 × 32 pixels (Japanese JIS first level characters, Mincho font)
	Scalable	Width 8 to 128 dots (1/2 size fixed) (ISO 8859-1 western language, 7-segment)
Quantity of Characters	1/4 size	100 characters × 75 lines
	1/2 size	100 characters × 37 lines
	Full size	50 characters × 37 lines
	Double size	25 characters × 18 lines (Mincho font)
Character Magnification		0.5, 1 to 8 vertically and horizontally (except for scalable fonts)
Character Attribute		Blink (1 or 0.5 sec period), reverse, bold, shadowed
Graphics		Straight line, polyline, rectangle, circle, ellipse, arc, pie, equilateral polygons (3, 4, 5, 6, 8), paint, bitmap image
Window Display		3 popup screens + 1 system screen

*1 The backlight life refers to the time until the brightness reduces by half after use at 25°C.
*2 Brightness of the LCD only.

Operation Specifications

Switching Element	Analog resistive membrane
Operating Force	3N maximum
Mechanical Life	1,000,000 operations
Acknowledgement Sound	Electronic buzzer or speaker output

Function Specifications

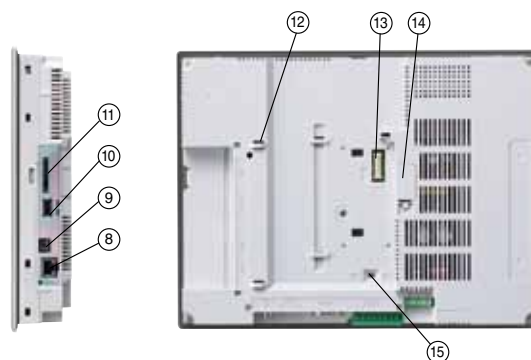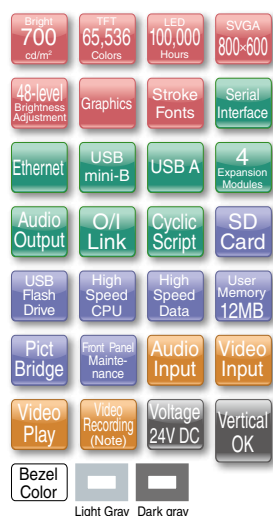|	
Screen Types	Base screen, popup screen, system screen
No. of Screens	Base screen: 3,000 max. Popup screen: 3,015 max.
User Memory	12 MB (including expansion fonts)
Parts	Bit Button, Word Button, Goto Screen, Print Button, Key Button, Multi Button, Keypad, Selector Switch, Potentiometer, Numerical Input, Character Input, Pilot Lamp, Multi-State Lamp, Picture Display, Message Display, Message Switching Display, Alarm List Display, Alarm Log Display, Numerical Display, Bar Graph, Trend Chart, Pie Chart, Meter, Calendar, Bit Write Command, Word Write Command, Goto Screen Command, Print Command, Timer, Screen Script Command, Multi Command, Video Display
Calendar	Year, Month, Day, Hour, Min., Sec., Day of Week ±60 sec per month (at 25°C)
Power Failure Backup Data	Calendar, log data, keep internal relay, keep internal register
Battery	Recommended replacement span: every 4 years (at 25°C)

Interface Specifications

Serial Interface (COM1)	Electrical Characteristics	EIA RS232C, RS422/485 compliant
	Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps (Note)
	Synchronization	Asynchronous
	Communication Method	Half or full duplex
	Control System	Hardware control or none
	Connector	D-sub 9-pin connector
Serial Interface (COM2)	Electrical Characteristics	EIA RS232C, RS422/485 compliant
	Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps (Note)
	Synchronization	Asynchronous
	Communication Method	Half or full duplex
	Control System	Hardware control or none
	Connector	Detachable 9-pin terminal block
Ethernet Interface (LAN)	Interface	IEEE802.3u (10/100BASE-T) compliant
	Connector	Modular connector (RJ-45)
Video Interface (VIDEO IN)	Interface	NTSC/PAL
	Connector	Pin jack
Audio Interface (AUDIO IN)	Interface	LINE IN (stereo)
	Connector	Mini jack connector (ø3.5 mm)
Audio Interface (AUDIO OUT)	Interface	LINE OUT (stereo)
	Connector	Mini jack connector (ø3.5 mm)
USB Interface (USB2)	Interface	USB 2.0 high speed (480 Mbps)
	Connector	USB Type A connector
USB Interface (USB1)	Interface	USB 2.0 high speed (480 Mbps)
	Connector	USB Type Mini-B connector
Memory Card Interface (SD)	Interface	SD memory card, SDHC memory card
	Connector	SD memory card socket
Expansion Module Interface (EXT)	Interface	MicroSmart I/O module interface
	Ouput current	5V 130 mA 24V 150 mA
	Max. no. of units	4 units

Note: 187,500 bps is available only with SIEMENS SIMATIC S7-300/400 series (MPI port direct connection).

HG3G Operator Interface

Excellent visibility by super-bright LED backlight.
700 cd/m² (10.4-inch)

Feature icons			
Bright **700** cd/m²	TFT **65,536** Colors	LED **100,000** Hours	SVGA **800×600**
48-level Brightness Adjustment	Graphics	Stroke Fonts	Serial Interface
Ethernet	USB mini-B	USB A	**4** Expansion Modules
Audio Output	O/I Link	Cyclic Script	SD Card
USB Flash Drive	High Speed CPU	High Speed Data	User Memory **12MB**
Pict Bridge	Front Panel Maintenance	Audio Input	Video Input
Video Play	Video Recording (Note)	Voltage 24V DC	Vertical OK

Bezel Color — Light Gray / Dark gray

(Approval for HG3G operator interface only, excluding options or expansion modules.)

c(UL)us LISTED CE

No.	Name
①	Power LED
②	Display
③	Touchscreen
④	Power Supply Terminal
⑤	Serial Interface (COM2)
⑥	Serial Interface (COM1)
⑦	Audio Interface (AUDIO OUT)
⑧	Ethernet Interface (LAN)
⑨	USB Interface (USB1)

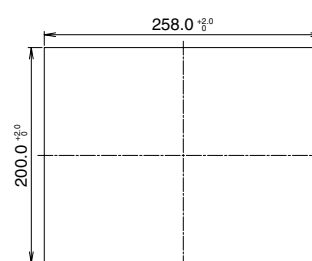| No.	Name
⑩	USB Interface (USB2)
⑪	Memory Card Interface (SD)
⑫	SD Memory Access LED
⑬	Expansion Module Interface (EXT)
⑭	Battery Cover
⑮	Terminal Resistor Switch
⑯	Audio Interface (AUDIO IN)
⑰	Video Interface (VIDEO IN)

HG3G Operator Interface

Display Screen	Operation Style	Communication/Memory Interface	Video/Audio Interface	Housing/Bezel Color	Part No. (Ordering No.)	Approvals
10.4-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM1 COM2 LAN USB1 USB2 SD Memory Card	VIDEO IN AUDIO IN AUDIO OUT	Light gray	**HG3G-AJT22MF-W**	Safety Standards: UL508 CSA C22.2 No.142 CSA C22.2 No.213 ANSI/ISA-12.12.01 Ship Classification Standards: ABS, LR, NK, DNV
				Dark gray	**HG3G-AJT22MF-B**	
			AUDIO OUT	Light gray	**HG3G-AJT22TF-W**	
				Dark gray	**HG3G-AJT22TF-B**	

Dimensions

270.0
212.0
30.9*
10
44.4
257.5
199.5
11.4
6.0
46.7
52.7
36.5
50
30
55

∗ Depth from the expansion module mounting surface.

Panel Cut-out

258.0 +2.0/0
200.0 +2.0/0

Panel Thickness: 2.0 to 5.0 mm

All dimensions in mm.

Note 1: Dimensions in blue show the mounting dimensions of the cable.
Note 2: Dimensions in the figure vary depending on the type of cable connected.
Note 3: Install the HG3G into a panel cut-out by tightening the four mounting clips (supplied) to a torque of 0.5 to 0.6 N·m.
Do not tighten with excessive force, otherwise the HG3G and screen may be distorted. Also waterproof characteristics may be lost.

General Specifications

Model	HG3G-A (10.4 inch)
Rated Power Voltage	24V DC
Power Voltage Range	20.4 to 28.8V DC
Power Consumption	25W maximum 15W maximum when not using USB interface (USB2) or expansion module interface (EXT)
Allowable Momentary Power Interruption	10 ms maximum
Inrush Current	30A maximum
Dielectric Strength	1,000V AC, 10 mA, 1 minute between power and FG terminals
Operating Temperature	0 to +50°C (no freezing)
Operating Humidity	10 to 90% RH (no condensation)
Storage Temperature	−20 to +60°C (no freezing)
Storage Humidity	10 to 90% RH (no condensation)
Pollution Degree	2
Vibration Resistance	5 to 8.4 Hz amplitude 3.5 mm, 8.4 to 150 Hz, acceleration 9.8 m/s^2 10 cycles (100 minutes) on each of three mutually perpendicular axes
Shock Resistance	147 m/s^2, 11 ms 5 shocks on each of three mutually perpendicular axes
Noise Immunity	Fast transient/burst test, Power terminals: ±2 kV, Communication line: ±1 kV (IEC/EN 61131-2: 2007)
Electrostatic Discharge	Contact ±6 kV, air ±8 kV (IEC/EN 61131-2: 2007)
Corrosion Immunity	Free from corrosive gases
Mounting	Panel mounting (Panel Thickness: 2.0 to 5.0 mm)
Degree of Protection	IP66 (IEC 60529) (front part when mounted) ∗1 TYPE 4X TYPE 13 ∗2
Dimensions	270.0W × 212.0H × 52.7D mm
Weight (approx.)	1.65 kg

● Do not use the HG3G in an environment subject to strong ultraviolet rays, otherwise the LCD quality will deteriorate.
∗1 Protection degree of the front surface after mounting. Operation not guaranteed under certain environments.
∗2 Operation not guaranteed when used with certain types of oils.

Display Specifications

Model		HG3G-A (10.4 inch)
Display Color		TFT Color LCD
Color/Shade		65,536 colors
Effective Display Area		211.2 W ×158.4 H mm
Display Resolution		800 W × 600 H pixels
View Angle		Right and left 80°, up 80°, down 60°
Backlight		LED
Backlight Life		100,000 hours minimum ∗1
Brightness		700 cd/m² ∗2
Brightness Adjustment		48 levels
Backlight Replacement		Not possible
Display Character Size	1/4 size	8 × 8 pixels (Western European language: ISO 8859-1, Central European language: ANSI 1250, Baltic: ANSI 1257, Cyrillic: ANSI1251, Japanese katakana and symbols: JIS 8-bit code)
	1/2 size	8 × 16 pixels (Western European language ISO 8859-1, Central European language: ANSI 1250, Baltic: ANSI 1257, Cyrillic: ANSI1251, Japanese katakana and symbols: JIS 8-bit code)
		16 × 32 pixels, 24 × 48 pixels, 32 × 64 pixels (Western European language: ISO 8859-1)
	Full size	16 × 16 pixels (Japanese JIS first and second level characters, simplified Chinese, traditional Chinese, Korean)
	Double size	32 × 32 pixels (Japanese JIS first level characters, Mincho font)
	Scalable	Width 8 to 128 dots (1/2 size fixed) (ISO 8859-1 western language, 7-segment)
Quantity of Characters	1/4 size	100 characters × 75 lines
	1/2 size	100 characters × 37 lines
	Full size	50 characters × 37 lines
	Double size	25 characters × 18 lines (Mincho font)
Character Magnification		0.5, 1 to 8 vertically and horizontally (except for scalable fonts)
Character Attribute		Blink (1 or 0.5 sec period), reverse, bold, shadowed
Graphics		Straight line, polyline, rectangle, circle, ellipse, arc, pie, equilateral polygons (3, 4, 5, 6, 8), paint, bitmap image
Window Display		3 popup screens + 1 system screen

∗1 The backlight life refers to the time until the brightness reduces by half after use at 25°C.
∗2 Brightness of the LCD only.

Operation Specifications

Switching Element	Analog resistive membrane
Operating Force	0.55 to 2.3N
Mechanical Life	1,000,000 operations
Acknowledgement Sound	Electronic buzzer or speaker output

Function Specifications

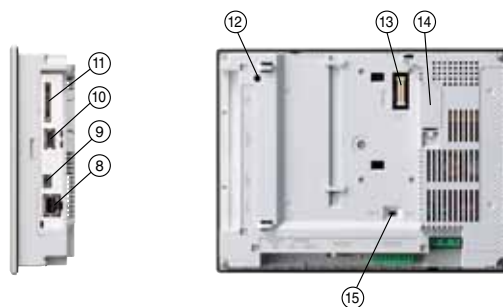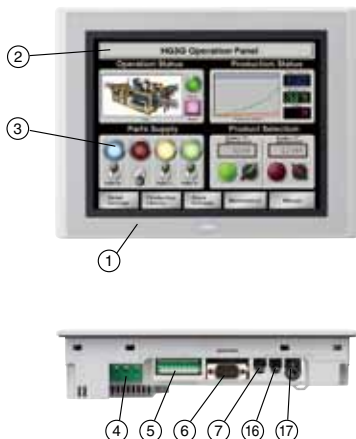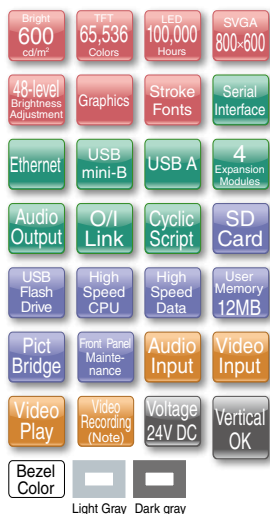| Screen Types	Base screen, popup screen, system screen
No. of Screens	Base screen: 3,000 max. Popup screen: 3,015 max.
User Memory	12 MB (including expansion fonts)
Parts	Bit Button, Word Button, Goto Screen, Print Button, Key Button, Multi Button, Keypad, Selector Switch, Potentiometer, Numerical Input, Character Input, Pilot Lamp, Multi-State Lamp, Picture Display, Message Display, Message Switching Display, Alarm List Display, Alarm Log Display, Numerical Display, Bar Graph, Trend Chart, Pie Chart, Meter, Calendar, Bit Write Command, Word Write Command, Goto Screen Command, Print Command, Timer, Screen Script Command, Multi Command, Video Display
Calendar	Year, Month, Day, Hour, Min., Sec., Day of Week ±60 sec per month (at 25°C)
Power Failure Backup Data	Calendar, log data, keep internal relay, keep internal register
Battery	Recommended replacement span: every 4 years (at 25°C)

Interface Specifications

Serial Interface (COM1)	Electrical Characteristics	EIA RS232C, RS422/485 compliant
	Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps (Note)
	Synchronization	Asynchronous
	Communication Method	Half or full duplex
	Control System	Hardware control or none
	Connector	D-sub 9-pin connector
Serial Interface (COM2)	Electrical Characteristics	EIA RS232C, RS422/485 compliant
	Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps (Note)
	Synchronization	Asynchronous
	Communication Method	Half or full duplex
	Control System	Hardware control or none
	Connector	Detachable 9-pin terminal block
Ethernet Interface (LAN)	Interface	IEEE802.3 (10/100BASE-T) compliant
	Connector	Modular connector (RJ-45)
Video Interface (VIDEO IN)	Interface	NTSC/PAL
	Connector	Pin jack
Audio Interface (AUDIO IN)	Interface	LINE IN (stereo)
	Connector	Mini jack connector (ø3.5 mm)
Audio Interface (AUDIO OUT)	Interface	LINE OUT (stereo)
	Connector	Mini jack connector (ø3.5 mm)
USB Interface (USB2)	Interface	USB 2.0 high speed (480 Mbps)
	Connector	USB Type A connector
USB Interface (USB1)	Interface	USB 2.0 high speed (480 Mbps)
	Connector	USB Type Mini-B connector
Memory Card Interface (SD)	Interface	SD memory card, SDHC memory card
	Connector	SD memory card socket
Expansion Module Interface (EXT)	Interface	MicroSmart I/O module interface
	Ouput current	5V 130 mA 24V 150 mA
	Max. no. of units	4 units

Note: 187,500 bps is available only with SIEMENS SIMATIC S7-300/400 series (MPI port direct connection).

HG3G Operator Interface

Excellent visibility by super-bright LED backlight.
600 cd/m² (8.4-inch)

Feature icons:
- Bright 600 cd/m²
- TFT 65,536 Colors
- LED 100,000 Hours
- SVGA 800×600
- 48-level Brightness Adjustment
- Graphics
- Stroke Fonts
- Serial Interface
- Ethernet
- USB mini-B
- USB A
- 4 Expansion Modules
- Audio Output
- O/I Link
- Cyclic Script
- SD Card
- USB Flash Drive
- High Speed CPU
- High Speed Data
- User Memory 12MB
- Pict Bridge
- Front Panel Maintenance
- Audio Input
- Video Input
- Video Play
- Video Recording (Note)
- Voltage 24V DC
- Vertical OK

Bezel Color: Light Gray / Dark gray

cULus LISTED CE (Approval for HG3G operator interface only, excluding options or expansion modules.)

No.	Name
①	Power LED
②	Display
③	Touchscreen
④	Power Supply Terminal
⑤	Serial Interface (COM2)
⑥	Serial Interface (COM1)
⑦	Audio Interface (AUDIO OUT)
⑧	Ethernet Interface (LAN)
⑨	USB Interface (USB1)

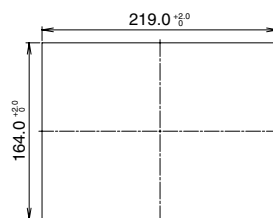| No.	Name
⑩	USB Interface (USB2)
⑪	Memory Card Interface (SD)
⑫	SD Memory Access LED
⑬	Expansion Module Interface (EXT)
⑭	Battery Cover
⑮	Terminal Resistor Switch
⑯	Audio Interface (AUDIO IN)
⑰	Video Interface (VIDEO IN)

HG3G Operator Interface

Display Screen	Operation Style	Communication/Memory Interface	Video/Audio Interface	Housing/Bezel Color	Part No. (Ordering No.)	Approvals
8.4-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM1 COM2 LAN USB1 USB2 SD Memory Card	VIDEO IN AUDIO IN AUDIO OUT	Light gray	HG3G-8JT22MF-W	Safety Standards: UL508 CSA C22.2 No.142 CSA C22.2 No.213 ANSI/ISA-12.12.01-2007 Ship Classification Standards: ABS, LR, NR, DNV
				Dark gray	HG3G-8JT22MF-B	
			AUDIO OUT	Light gray	HG3G-8JT22TF-W	
				Dark gray	HG3G-8JT22TF-B	

Dimensions

32.6*
231.0
176.0
218.5
15.2
20
40
30
35
163.5
11.4
50
30
55
6.0
48.4
54.4
38.2

*Depth from the expansion module mounting surface.

Panel Cut-out

219.0 $^{+2.0}_{0}$
164.0 $^{+2.0}_{0}$

Panel Thickness: 2.0 to 5.0 mm

All dimensions in mm.

Note 1: Dimensions in blue show the mounting dimensions of the cable.
Note 2: Dimensions in the figure vary depending on the type of cable connected.
Note 3: Install the HG3G into a panel cut-out by tightening the four mounting clips (supplied) to a torque of 0.5 to 0.6 N·m.
Do not tighten with excessive force, otherwise the HG3G and screen may be distorted. Also waterproof characteristics may be lost.

General Specifications

Model	HG3G-8 (8.4 inch)
Rated Power Voltage	24V DC
Power Voltage Range	20.4 to 28.8V DC
Power Consumption	25W maximum 15W maximum when not using USB interface (USB2) or expansion module interface (EXT)
Allowable Momentary Power Interruption	10 ms maximum
Inrush Current	30A maximum
Dielectric Strength	1,000V AC, 10 mA, 1 minute between power and FG terminals
Operating Temperature	0 to +50°C (no freezing)
Operating Humidity	10 to 90% RH (no condensation)
Storage Temperature	–20 to +60°C (no freezing)
Storage Humidity	10 to 90% RH (no condensation)
Pollution Degree	2
Vibration Resistance	5 to 8.4 Hz amplitude 3.5 mm, 8.4 to 150 Hz, acceleration 9.8 m/s² 10 cycles (100 minutes) on each of three mutually perpendicular axes
Shock Resistance	147 m/s², 11 ms 5 shocks on each of three mutually perpendicular axes
Noise Immunity	Fast transient/burst test, Power terminals: ±2 kV, Communication line: ±1 kV (IEC/EN 61131-2: 2007)
Electrostatic Discharge	Contact ±6 kV, air ±8 kV (IEC/EN 61131-2: 2007)
Corrosion Immunity	Free from corrosive gases
Mounting	Panel mounting (Panel Thickness: 2.0 to 5.0 mm)
Degree of Protection	IP66 (IEC 60529) (front part when mounted) *1 TYPE 4X TYPE 13 *2
Dimensions	231.0W × 176.0H × 54.4D mm
Weight (approx.)	1.25 kg

• Do not use the HG3G in an environment subject to strong ultraviolet rays, otherwise the LCD quality will deteriorate.
*1 Protection degree of the front surface after mounting. Operation not guaranteed under certain environments.
*2 Operation not guaranteed when used with certain types of oils.

Display Specifications

Model	HG3G-8 (8.4 inch)	
Display	TFT Color LCD	
Color/Shade	65,536 colors	
Effective Display Area	170.4W × 127.8H mm	
Display Resolution	800W × 600H pixels	
View Angle	Right and left 80°, up 80°, down 60°	
Backlight	LED	
Backlight Life	100,000 hours minimum *1	
Brightness	600 cd/m² *2	
Brightness Adjustment	48 levels	
Backlight Replacement	Not possible	
Display Character Size	1/4 size	8 × 8 pixels (Western European language: ISO 8859-1, Central European language: ANSI 1250, Baltic: ANSI 1257, Cyrillic: ANSI1251, Japanese katakana and symbols: JIS 8-bit code)
	1/2 size	8 × 16 pixels (Western Ezuropean language ISO 8859-1, Central European language: ANSI 1250, Baltic: ANSI 1257, Cyrillic: ANSI1251, Japanese katakana and symbols: JIS 8-bit code)
		16 × 32 pixels, 24 × 48 pixels, 32 × 64 pixels (Western European language: ISO 8859-1)
	Full size	16 × 16 pixels (Japanese JIS first and second level characters, simplified Chinese, traditional Chinese, Korean)
	Double size	32 × 32 pixels (Japanese JIS first level characters, Mincho font)
	Scalable	Width 8 to 128 dots (1/2 size fixed) (ISO 8859-1 western language, 7-segment)
Quantity of Characters	1/4 size	100 characters × 75 lines
	1/2 size	100 characters × 37 lines
	Full size	50 characters × 37 lines
	Double size	25 characters × 18 lines (Mincho font)
Character Magnification	0.5, 1 to 8 vertically and horizontally (except for scalable fonts)	
Character Attribute	Blink (1 or 0.5 sec period), reverse, bold, shadowed	
Graphics	Straight line, polyline, rectangle, circle, ellipse, arc, pie, equilateral polygons (3, 4, 5, 6, 8), paint, bitmap image	
Window Display	3 popup screens + 1 system screen	

*1 The backlight life refers to the time until the brightness reduces by half after use at 25°C.
*2 Brightness of the LCD only.

Operation Specifications

Switching Element	Analog resistive membrane
Operating Force	0.55 to 2.3N
Mechanical Life	1,000,000 operations
Acknowledgement Sound	Electronic buzzer or speaker output

Function Specifications

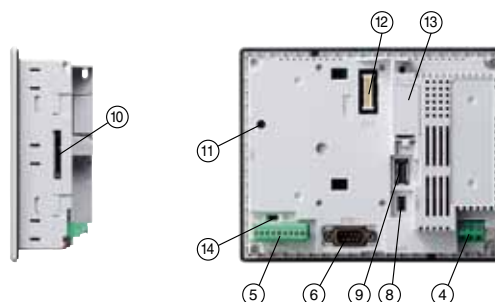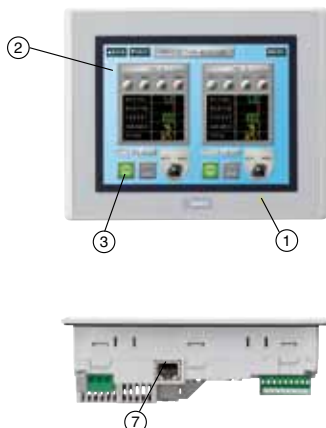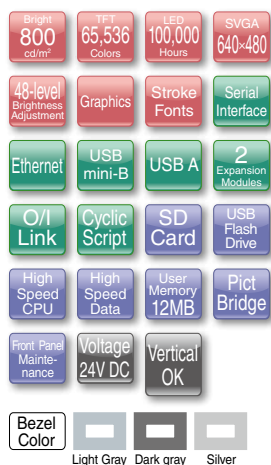| Screen Types	Base screen, popup screen, system screen
No. of Screens	Base screen: 3,000 max. Popup screen: 3,015 max.
User Memory	12 MB (including expansion fonts)
Parts	Bit Button, Word Button, Goto Screen, Print Button, Key Button, Multi Button, Keypad, Selector Switch, Potentiometer, Numerical Input, Character Input, Pilot Lamp, Multi-State Lamp, Picture Display, Message Display, Message Switching Display, Alarm List Display, Alarm Log Display, Numerical Display, Bar Graph, Trend Chart, Pie Chart, Meter, Calendar, Bit Write Command, Word Write Command, Goto Screen Command, Print Command, Timer, Screen Script Command, Multi Command, Video Display
Calendar	Year, Month, Day, Hour, Min., Sec., Day of Week ±60 sec per month (at 25°C)
Power Failure Backup Data	Calendar, log data, keep internal relay, keep internal register
Battery	Recommended replacement span: every 4 years (at 25°C)

Interface Specifications

Serial Interface (COM1)	Electrical Characteristics	EIA RS232C, RS422/485 compliant
	Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps (Note)
	Synchronization	Asynchronous
	Communication Method	Half or full duplex
	Control System	Hardware control or none
	Connector	D-sub 9-pin connector
Serial Interface (COM2)	Electrical Characteristics	EIA RS232C, RS422/485 compliant
	Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps (Note)
	Synchronization	Asynchronous
	Communication Method	Half or full duplex
	Control System	Hardware control or none
	Connector	Detachable 9-pin terminal block
Ethernet Interface (LAN)	Interface	IEEE802.3u (10/100BASE-T) compliant
	Connector	Modular connector (RJ-45)
Video Interface (VIDEO IN)	Interface	NTSC/PAL
	Connector	Pin jack
Audio Interface (AUDIO IN)	Interface	LINE IN (stereo)
	Connector	Mini jack connector (ø3.5 mm)
Audio Interface (AUDIO OUT)	Interface	LINE OUT (stereo)
	Connector	Mini jack connector (ø3.5 mm)
USB Interface (USB2)	Interface	USB 2.0 high speed (480 Mbps)
	Connector	USB Type A connector
USB Interface (USB1)	Interface	USB 2.0 high speed (480 Mbps)
	Connector	USB Type Mini-B connector
Memory Card Interface (SD)	Interface	SD memory card, SDHC memory card
	Connector	SD memory card socket
Expansion Module Interface (EXT)	Interface	MicroSmart I/O module interface
	Ouput current	5V 130 mA 24V 150 mA
	Max. no. of units	4 units

Note: 187,500 bps is available only with SIEMENS SIMATIC S7-300/400 series (MPI port direct connection).

HG2G Operator Interface (High Performance)

Excellent visibility by super-bright LED backlight.
800 cd/m² (5.7-inch)

Bright 800 cd/m² | TFT 65,536 Colors | LED 100,000 Hours | SVGA 640×480

48-level Brightness Adjustment | Graphics | Stroke Fonts | Serial Interface

Ethernet | USB mini-B | USB A | 2 Expansion Modules

O/I Link | Cyclic Script | SD Card | USB Flash Drive

High Speed CPU | High Speed Data | User Memory 12MB | Pict Bridge

Front Panel Mainte-nance | Voltage 24V DC | Vertical OK

Bezel Color: Light Gray | Dark gray | Silver

(Approval for HG2G operator interface only, excluding options or expansion modules.)

No.	Name	No.	Name
①	Power LED	⑧	USB Interface (USB1)
②	Display	⑨	USB Interface (USB2)
③	Touchscreen	⑩	Memory Card Interface (SD)
④	Power Supply Terminal	⑪	SD Memory Access LED
⑤	Serial Interface (COM2)	⑫	Expansion Module Interface (EXT)
⑥	Serial Interface (COM1)	⑬	Battery Cover
⑦	Ethernet Interface (LAN)	⑭	Terminal Resistor Switch

HG2G Operator Interface

Display Screen	Operation Style	Communication/Memory Interface	Housing/Bezel Color	Part No. (Ordering No.)	Approvals
5.7-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM1 COM2 LAN USB 1 USB 2 SD Memory Card	Light gray	HG2G-5FT22TF-W	Safety Standards: UL508 CSA C22.2 No.142 CSA C22.2 No.213 ANSI/ISA-12.12.01 Ship Classification Standards: ABS, LR, NK, DNV
			Dark gray	HG2G-5FT22TF-B	
			Silver	HG2G-5FT22TF-S	

Dimensions

*Depth from the expansion module mounting surface.

Panel Cut-out

153.0 $^{+2.0}_{0}$

121.0 $^{+2.0}_{0}$

Panel Thickness: 1.0 to 5.0 mm

All dimensions in mm.

Note 1: Dimensions in blue show the mounting dimensions of the cable.
Note 2: Dimensions in the figure vary depending on the type of cable connected.
Note 3: Install the HG2G into a panel cut-out by tightening the four mounting clips (supplied) to a torque of 0.2 to 0.3 N·m.
Do not tighten with excessive force, otherwise the HG2G and screen may be distorted. Also waterproof characteristics may be lost.

General Specifications

Rated Power Voltage	24V DC
Power Voltage Range	20.4 to 28.8V DC
Power Consumption	19W maximum 10W maximum when not using USB interface (USB2) or expansion module interface (EXT)
Allowable Momentary Power Interruption	10 ms maximum
Inrush Current	30A maximum
Dielectric Strength	1,000V AC, 10 mA, 1 minute between power and FG terminals
Operating Temperature	0 to +50°C (no freezing)
Operating Humidity	10 to 90% RH (no condensation)
Storage Temperature	−20 to +60°C (no freezing)
Storage Humidity	10 to 90% RH (no condensation)
Pollution Degree	2
Vibration Resistance	5 to 8.4 Hz amplitude 3.5 mm, 8.4 to 150 Hz, acceleration 9.8 m/s² 10 cycles (100 minutes) on each of three mutually perpendicular axes
Shock Resistance	147 m/s², 11 ms 5 shocks on each of three mutually perpendicular axes
Noise Immunity	Fast transient/burst test, Power terminals: ±1 kV, Communication line: ±0.5 kV (IEC/EN 61131-2: 2007)
Electrostatic Discharge	Contact ±6 kV, air ±8 kV (IEC/EN 61131-2: 2007)
Corrosion Immunity	Free from corrosive gases
Mounting	Panel mounting (Panel Thickness: 1.0 to 5.0 mm)
Degree of Protection	IP66 (IEC 60529) (front part when mounted) *1 TYPE 4X TYPE 13 *2
Dimensions	167.2W × 134.7H × 54.4D mm
Weight (approx.)	0.65 kg

• Do not use the HG2G in an environment subject to strong ultraviolet rays, otherwise the LCD quality will deteriorate.
*1 Protection degree of the front surface after mounting. Operation not guaranteed under certain environments.
*2 Operation not guaranteed when used with certain types of oils.

Display Specifications

Display		TFT Color LCD
Color/Shade		65,536 colors
Effective Display Area		115.2W × 86.4H mm
Display Resolution		640W × 480H pixels
View Angle		Right and left 80°, up 80°, down 80°
Backlight		LED
Backlight Life		100,000 hours *1
Brightness		800 cd/m² *2
Brightness Adjustment		48 levels
Backlight Replacement		Not possible
Display Character Size	1/4 size	8 × 8 pixels (Western European language: ISO 8859-1, Central European language: ANSI 1250, Japanese katakana and symbols: JIS 8-bit code)
	1/2 size	8 × 16 pixels (Western European language ISO 8859-1, Central European language: ANSI 1250, Japanese katakana and symbols: JIS 8-bit code)
		16 × 32 pixels, 24 × 48 pixels, 32 × 64 pixels (Western European language: ISO 8859-1)
	Full size	16 × 16 pixels (Japanese JIS first and second level characters, simplified Chinese, traditional Chinese, Korean)
	Double size	32 × 32 pixels (Japanese JIS first level characters, Mincho font)
	Scalable	Width 8 to 128 dots (1/2 size fixed) (ISO 8859-1 western language, 7-segment)
Quantity of Characters	1/4 size	80 characters × 60 lines
	1/2 size	80 characters × 30 lines
	Full size	40 characters × 30 lines
	Double size	20 characters × 15 lines (Mincho font)
Character Magnification		0.5, 1 to 8 vertically and horizontally (except for scalable fonts)
Character Attribute		Blink (1 or 0.5 sec period), reverse, bold, shadowed
Graphics		Straight line, polyline, rectangle, circle, ellipse, arc, pie, equilateral polygons (3, 4, 5, 6, 8), paint, bitmap image
Window Display		3 popup screens + 1 system screen

*1 The backlight life refers to the time until the brightness reduces by half after use at 25°C.
*2 Brightness of the LCD only.

Operation Specifications

Switching Element	Analog resistive membrane
Operating Force	3N maximum
Mechanical Life	1,000,000 operations
Acknowledgement Sound	Electronic buzzer

Function Specifications

Screen Types	Base screen, popup screen, system screen
No. of Screens	Base screen: 3,000 max. Popup screen: 3,015 max.
User Memory	12 MB (including expansion fonts)
Parts	Bit Button, Word Button, Goto Screen, Print Button, Key Button, Multi Button, Keypad, Selector Switch, Potentiometer, Numerical Input, Character Input, Pilot Lamp, Multi-State Lamp, Picture Display, Message Display, Message Switching Display, Alarm List Display, Alarm Log Display, Numerical Display, Bar Graph, Trend Chart, Pie Chart, Meter, Calendar, Bit Write Command, Word Write Command, Goto Screen Command, Print Command, Timer, Screen Script Command, Multi Command
Calendar	Year, Month, Day, Hour, Min., Sec., Day of Week ±60 sec per month (at 25°C)
Power Failure Backup Data	Calendar, log data, keep internal relay, keep internal register
Battery	Recommended replacement span: every 4 years (at 25°C)

Interface Specifications

Serial Interface (COM1)	Electrical Characteristics	EIA RS232C, RS422/485 compliant
	Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps (Note)
	Synchronization	Asynchronous
	Communication Method	Half or full duplex
	Control System	Hardware control or none
	Connector	D-sub 9-pin connector
Serial Interface (COM2)	Electrical Characteristics	EIA RS232C, RS422/485 compliant
	Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps (Note)
	Synchronization	Asynchronous
	Communication Method	Half or full duplex
	Control System	Hardware control or none
	Connector	Detachable 9-pin terminal block
Ethernet Interface (LAN)	Interface	IEEE802.3u (10/100BASE-T) compliant
	Connector	Modular connector (RJ-45)
USB Interface (USB2)	Interface	USB 2.0 high speed (480 Mbps)
	Connector	USB Type A connector
USB Interface (USB1)	Interface	USB 2.0 high speed (480 Mbps)
	Connector	USB Type Mini-B connector
Memory Card Interface (SD)	Interface	SD memory card, SDHC memory card
	Connector	SD memory card socket
Expansion Module Interface (EXT)	Interface	MicroSmart I/O module interface
	Ouput current	5V 130 mA 24V 150 mA
	Max. no. of units	2 units

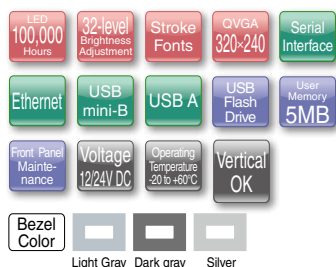Note: 187,500 bps is available only with SIEMENS SIMATIC S7-300/400 series (MPI port direct connection).

HG2G Operator Interface (Basic)

Enhanced visibility and user-friendliness
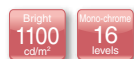## Supports a wide range of operating temperatures achieving high environmental resistance.

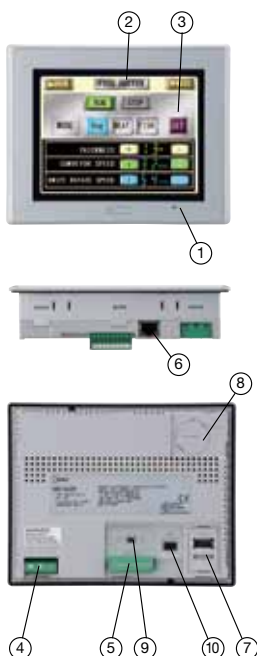**HG2G-5TT (Color) / HG2G-5TN (Monochrome)**

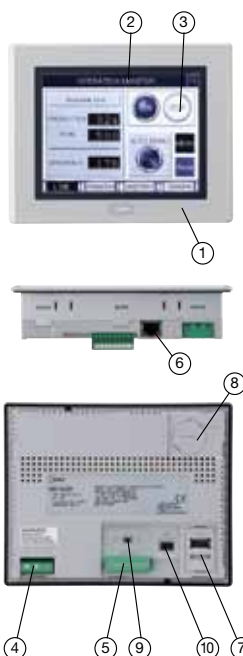| LED 100,000 Hours | 32-level Brightness Adjustment | Stroke Fonts | QVGA 320×240 | Serial Interface |
| Ethernet | USB mini-B | USB A | USB Flash Drive | User Memory 5MB |
| Front Panel Maintenance | Voltage 12/24V DC | Operating Temperature -20 to +60°C | Vertical OK | |

Bezel Color

Light Gray   Dark gray   Silver

HG2G-5TT (Color)

| Bright 500 cd/m² | TFT 65,536 Colors | Graphics |

HG2G-5TN (Monochrome)

| Bright 1100 cd/m² | Mono-chrome 16 levels |

HG2G-5TT (Color)

HG2G-5TN (Monochrome)

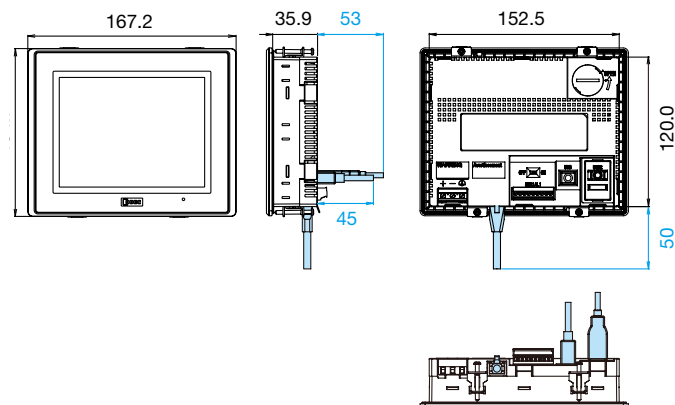| No.	Name
①	Power LED
②	Display
③	Touchscreen
④	Power Supply Terminal
⑤	Serial Interface 1 (COM1)
⑥	Ethernet Interface (LAN)
⑦	USB Interface (USB2)
⑧	Battery Cover
⑨	Terminal Resistor Switch
⑩	USB Interface (USB1)

(Approval for HG2G operator interface only, excluding options or expansion modules.)
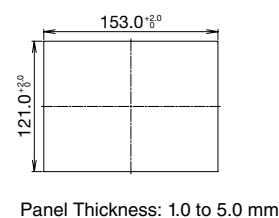
HG2G Operator Interface

Display Screen	Operation Style	Communication/Memory Interface	Housing/Bezel Color	Part No. (Ordering No.)	Approvals
5.7-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM1 LAN USB 1 USB 2	Light gray	HG2G-5TT22TF-W	UL508 CSA C22.2 No.142 CSA C22.2 No.213 ANSI/ISA-12.12.01
			Dark gray	HG2G-5TT22TF-B	
			Silver	HG2G-5TT22TF-S	
5.7-inch TFT Monochrome LCD 16 shades			Light gray	HG2G-5TN22TF-W	
			Dark gray	HG2G-5TN22TF-B	
			Silver	HG2G-5TN22TF-S	

• Models with a coated board that can be used even in harsh environments and bright color (1000 cd/m²) models are also available.

Dimensions

167.2   35.9   53   152.5   45   120.0   50

Panel Cut-out

153.0 +2.0 / 0   121.0 +2.0 / 0

Panel Thickness: 1.0 to 5.0 mm

All dimensions in mm.

Note 1: Dimensions in blue show the mounting dimensions of the cable.
Note 2: Dimensions in the figure vary depending on the type of cable connected.
Note 3: Install the HG2G into a panel cut-out by tightening the four mounting clips (supplied) to a torque of 0.2 to 0.3 N·m.
　　　　Do not tighten with excessive force, otherwise the HG2G and screen may be distorted. Also waterproof characteristics may be lost.

General Specifications

Model	HG2G-5TT (Color) / HG2G-5TN (Monochrome)
Rated Power Voltage	12V DC/24 V DC
Power Voltage Range	10.2 to 28.8V DC
Power Consumption	8W maximum 4W maximum when not using USB interface (USB2)
Allowable Momentary Power Interruption	10ms maximum (Voltage 20.4 to 28.8V DC) 1ms maximum (Voltage 10.2 to 20.4V DC)
Inrush Current	40A maximum
Dielectric Strength	1000V AC, 10 mA, 1 minute between power and FG terminals
Operating Temperature	-20 to +60°C (no freezing)
Operating Humidity	10 to 90% RH (no condensation)
Storage Temperature	−20 to +70°C (no freezing)
Storage Humidity	10 to 90% RH (no condensation)
Pollution Degree	2
Vibration Resistance	5 to 8.4 Hz amplitude 3.5 mm, 8.4 to 150 Hz, acceleration 9.8 m/s² 10 cycles (100 minutes) on each of three mutually perpendicular axes
Shock Resistance	147 m/s², 11 ms 5 shocks on each of three mutually perpendicular axes
Noise Immunity	Fast transient/burst test, Power terminals: ±2 kV, Communication line: ±1 kV (IEC/EN 61131-2, IEC/EN 61000-4-4)
Electrostatic Discharge	Contact ±6 kV, air ±8 kV (IEC/EN 61131-2, IEC/EN 61000-4-2)
Corrosion Immunity	Free from corrosive gases
Mounting	Panel mounting (Panel Thickness: 1.0 to 5.0 mm)
Degree of Protection	IP66F (IEC 60529) (front part when mounted) ∗1 TYPE 4X TYPE 13 ∗2
Dimensions	167.2 W ×134.7 H × 40.9 D mm
Weight (approx.)	0.5 kg

- Do not use the HG2G in an environment subject to strong ultraviolet rays, otherwise the LCD quality will deteriorate.
∗1 Protection degree of the front surface after mounting. Operation not guaranteed
∗2 Operation not guaranteed when used with certain types of oils under certain environments.

Display Specifications

Model	HG2G-5TT	HG2G-5TN
Display	TFT color LCD	TFT Monochrome LCD
Color/Shade	65,536	16 shades
Effective Display Area	115.2W × 86.4H mm	
Display Resolution	320W × 240H pixels	
View Angle	Right and left 80°, up 80°, down 80°	Right and left 65°, up 80°, down 60°
Backlight	LED	
Backlight Life	100,000 hours minimum ∗1	
Brightness	500 cd/m² ∗2	1100 cd/m² ∗2
Brightness Adjustment	32 levels	
Backlight Replacement	Not possible	
Display Character Size	1/4 size	8 × 8 pixels (Western European language: ISO 8859-1, Central European language: ANSI 1250, Baltic: ANSI 1257, Cyrillic: ANSI1251, Japanese katakana and symbols: JIS 8-bit code)
	1/2 size	8 × 16 pixels (Western European language ISO 8859-1, Central European language: ANSI 1250, Baltic: ANSI 1257, Cyrillic: ANSI1251, Japanese katakana and symbols: JIS 8-bit code)
		16 × 32 pixels, 24 × 48 pixels, 32 × 64 pixels (Western European language: ISO 8859-1)
	Full size	16 × 16 pixels (Japanese JIS first and second level characters, simplified Chinese, traditional Chinese, Korean)
	Double size	32 × 32 pixels (Japanese JIS first level characters, Mincho font)
Quantity of Characters	1/4 size	40 characters × 30 lines
	1/2 size	40 characters × 15 lines
	Full size	20 characters × 15 lines
	Double size	10 characters × 7 liness
Character Magnification	0.5, 1 to 8 vertically and horizontally (except for scalable fonts)	
Character Attribute	Blink (1 or 0.5 sec period), reverse, bold, shadowed	
Graphics	Straight line, polyline, rectangle, circle, ellipse, arc, pie, equilateral polygons (3, 4, 5, 6, 8), paint, bitmap image	
Window Display	3 popup screens + 1 system screen	

∗1 The backlight life refers to the time until the brightness reduces by half after use at 25°C.
∗2 Brightness of the LCD only.

Operation Specifications

Switching Element	Analog resistive membrane
Operating Force	3N maximum
Mechanical Life	1,000,000 operations
Acknowledgement Sound	Electronic buzzer

Function Specifications

Screen Types	Base screen, popup screen, system screen
No. of Screens	Base screen: 3,000 max. Popup screen: 3,015 max.
User Memory	5 MB (including expansion fonts)
Parts	Bit Button, Word Button, Goto Screen, Print Button Key Button, Multi Button, Keypad, Selector Switch, Potentiometer, Numerical Input, Character Input, Pilot Lamp, Multi-State Lamp, Picture Display, Message Display, Message Switching Display, Alarm List Display, Alarm Log Display, Numerical Display, Bar Graph, Trend Chart, Pie Chart, Meter, Calendar, Bit Write Command, Word Write Command, Goto Screen Command, Print Command Screen Script Command, Multi Command, Timer
Calendar	Year, Month, Day, Hour, Min., Sec., Day of Week ±60 sec per month (at 25 °C)
Power Failure Backup Data	Calendar, log data, keep internal relay, keep internal register
Battery	Recommended replacement span: every 4 years (at 25°C)

Interface Specifications

		Electrical Characteristics	EIA RS232C compliant
Serial Interface 1 (COM1) ∗	RS232C	Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
		Synchronization	Asynchronous
		Communication Method	Half or full duplex
		Control System	Hardware control or none
		Connector	Detachable 9-pin terminal block
	EIA RS422/485	Electrical Characteristics	EIA RS422/485 compliant
		Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps (Note)
		Synchronization	Asynchronous
		Communication Method	Half or full duplex
		Control System	None
		Connector	Detachable 9-pin terminal block
Ethernet Interface (LAN)		Interface	IEEE802.3u (10BASE-T/100BASE-TX) compliant
		Connector	Connector (RJ-45)
USB Interface (USB2)		Interface	USB 2.0 full speed (12 Mbps)
		Connector	USB Type Mini-A connector
USB Interface (USB1)		Interface	USB 2.0 high speed (480 Mbps)
		Connector	USB Type Mini-B connector

∗RS232C and RS 422/485 can be used simultaneously.
Note: 187,500 bps is available only with SIEMENS SIMATIC S7-300/400 series (MPI port direct connection).

Options

Name	Part No. (Ordering No.)	Package Quantity	Description	Applicable Model				
				HG4G	HG3G	HG2G -5F	HG2G -5TT	HG2G -5TN
Application Software	**SW1A-W1C**	1	Automation Organizer (includes WindO/I-NV2,NV4)	√	√	√	√	√
USB Maintenance Cable (2m)	**HG9Z-XCM42**	1	USB Cable USB-miniB	√	√	√	√	√
PLC Connection Cable For IDEC MicroSmart (5m)	**HG9Z-XC295**	1	Mini DIN 8-pin (Dsub 9-pin)	√	√	√	—	—
PLC Connection Cable For Mitsubishi FX series (5m)	**HG9Z-XC305**	1	Mini DIN 8-pin (Dsub 9-pin)	√	√	√	—	—
PLC Connection Cable For Mitsubishi Q series (5m)	**HG9Z-XC315**	1	Mini DIN 6-pin (Dsub 9-pin)	√	√	√	—	—
PLC Connection Cable For IDEC MicroSmart (5m)	**HG9Z-XC275**	1	Mini DIN 8-pin (loose wire)	√	√	√	√	√
PLC Connection Cable For IDEC MicroSmart (2.4m)	**FC2A-KP1C**	1	Mini DIN 8-pin (loose wire)	√	√	√	√	√
USB panel-mount extension cable (1m)	**HG9Z-XCE11**	1	For USB-A port	√	√	√	—	—
	HG9Z-XCE21	1	For USB-mini B port	√	√	√	√	—
Connector Conversion Cable (16 cm)	**HG9Z-XCT11**	1	To convert from D-sub 25-pin to 9-pin (used when replacing from HG3F/4F to HG4G/3G/2G-F)	√	√	√	—	—
Memory Card	**HG9Z-XMS2**	1	SD Memory Card (2GB)	√	√	√	—	—
Protective Cover	**HG9Z-2E2PN03**	3	For 5.7 inch (3 pcs/pack) (used to cover the front side of the operator interface)	—	—	√	√	√
Protective Sheet *1	**HG9Z-2D5PN05**	5	For 5.7 inch (5 pcs/pack) (used to protect the LCD)	—	—	√	√	√
	HG9Z-3D8PN02	2	For 8.4-inch (2 pcs/pack)	—	√	—	—	—
	HG9Z-3DA2PN02	2	For 10.4-inch (2 pcs/pack)	—	√	—	—	—
	HG9Z-4DCPN02	2	For 12.1 inch (2 pcs/pack)	√	—	—	—	—
Expansion Module Clamp *2	**HG9Z-XJ3PN05**	5	For installing the expansion modules on the back of the operator interface (short). For total width 17.6 to 41.1 mm.	√	√	√	—	—
	HG9Z-XJ4PN05	5	For installing the expansion modules on the back of the operator interface (long). For total width 47.0 to 68.8 mm.	√	√	√	—	—
	HG9Z-XJ5PN05	5	For installing the expansion modules on the back of the operator interface (XL). For total width 70.5 to 92.3 mm.	√	√	√	—	—
L-shaped Terminal Block Connector for I/O Module *3	**HG9Z-PMT10LPN02**	2	For MicroSmart I/O Module (10-pole) (2 pcs/pack)	√	√	√	—	—
	HG9Z-PMT11LPN02	2	For MicroSmart I/O Module (11-pole) (2 pcs/pack)	√	√	√	—	—
Panel Mount Adaptor	**HG9Z-2A1**	1	Adaptor for mounting HG2G to the panel cut-out of HG2F.	—	—	√	√	√
	HG9Z-2A2	1	Adaptor for mounting HG2G to 156 x 123.5 mm panel cut-out.	—	—	√	√	√
User's Manual	**HG9Y-B1119**	1	English	√	√	√	—	—
	HG9Y-B1701			—	—	—	√	√

*1 The protective sheet is UV resistant, however, resistance against direct sunlight in outdoor usage is not guaranteed.
　 Used to protect the display screen.
*2 Use the expansion module clamp when using expansion modules.
　 Order the module clamp by referring to the width of the module shown in the dimensions of each module.
*3 See Cat No. P1373 or instruction manual (http://www.idec.com/language/) for details on MicroSmart expansion modules.

Maintenance Parts

Name	Part No. (Ordering No.)	Package Quantity	Description	Applicable Model				
				HG4G	HG3G	HG2G -5F	HG2G -5TT	HG2G -5TN
Mounting Clip	**SLD-K02PN10**	10	Four clips are supplied.	—	—	√	√	√
	HG9Z-4K2PN04	4	Four clips are supplied.	√	√	—	—	—
Serial Interface Connector (Detachable 9-pin terminal block)	**HG9Z-XT09V**	1	One plug (terminal block type) is supplied.	—	—	√	√	√
	HG9Z-XT09	1	One plug (terminal block type) is supplied.	√	√	—	—	—
Replacement Battery	**HG9Z-XR1**	1	Lithium battery CR2032 (one battery is supplied)	√	√	√	√	√
USB Cable Lock Pin	**HG9Z-XU1PN05**	5	Used to lock USB cable (for USB2).	√	√	√	√	√

MICROSmart Expansion Modules

Input Modules

Input	Part No. (Ordering No.)	Connector	Dimensions (L × W × H mm)	Consumption Current (mA)	
				5V	24V
8 points/AC Input	FC4A-N08A11	Removable Terminal Block	90.0 × 23.5 × 70.0	25	0
8 points/DC Input	FC4A-N08B1		90.0 × 23.5 × 70.0	25	0
16 points/DC Input	FC4A-N16B1		90.0 × 23.5 × 70.0	40	0
16 points/DC Input	FC4A-N16B3	MIL Connector	90.0 × 17.6 × 70.0	35	0
32 points/DC Input	FC4A-N32B3		90.0 × 29.7 × 70.0	65	0

Output Modules

Output	Part No. (Ordering No.)	Connector	Dimensions (L × W × H mm)	Consumption Current (mA)	
				5V	24V
8 points/Relay Output	FC4A-R081	Removable Terminal Block	90.0 × 23.5 × 70.0	30	40
16 points/Relay Output	FC4A-R161		90.0 × 23.5 × 70.0	45	75
8 points/Transistor Sink Output	FC4A-T08K1		90.0 × 23.5 × 70.0	10	20
8 points/Transistor Source Output	FC4A-T08S1		90.0 × 23.5 × 70.0	10	20
16 points/Transistor Sink Output	FC4A-T16K3	MIL Connector	90.0 × 17.6 × 70.0	10	40
16 points/Transistor Source Output	FC4A-T16S3		90.0 × 17.6 × 70.0	10	40
32 points/Transistor Sink Output	FC4A-T32K3		90.0 × 29.7 × 70.0	20	70
32 points/Transistor Source Output	FC4A-T32S3		90.0 × 29.7 × 70.0	20	70

Combination I/O Modules

Input/Output	Part No. (Ordering No.)	Connector	Dimensions (L × W × H mm)	Consumption Current (mA)	
				5V	24V
4 points/DC Input 4 points/Relay Output	FC4A-M08BR1	Removable Terminal Block	90.0 × 23.5 × 70.0	25	20
16 points/DC Input 8 points/Relay Output	FC4A-M24BR2	Non-removable Terminal Block	90.0 × 39.1 × 70.0	65	45

- IDEC PLC MicroSmart expansion I/O modules can be used.
  <Maximum number of expansion I/O modules>
  - HG4G/3G: Up to 4 modules (Note)
  - HG2G-5F: Up to 2 modules
- Only one FC4A-M24BR2 module can connect to one main unit.
- Use the expansion module clamp when using expansion modules.
  Order the module clamp by referring to the width of the module shown in the dimensions of each module.
  Note: When connecting more than 3 expansion modules to the HG4G/3G, note the limits shown below:
  <Limits>
  Current flow rate at 5V: 130 mA max.   Total width: 92.3 mm max.
  Current flow rate at 24V: 150 mA max.
- See catalog or instruction manual (http://www.idec.com/language/) for details on MicroSmart expansion modules.

HG4G/3G/2G Operator Interface

Compatible PLCs

Manufacturer	Series
IDEC	MICROSmart
	SmartAXIS Pro/Lite
	MICROSmart (Ethernet)
	SmartAXIS Pro/Lite (Ethernet)
Mitsubishi	MELSEC-A (link unit)
	MELSEC-QnA (link unit)
	MELSEC-Q (link unit)
	MELSEC-Q (Ethernet)
	MELSEC-FX
	MELSEC-FX (Ethernet)
OMRON	SYSMAC-C
	SYSMAC-CS
	SYSMAC-CJ1
	SYSMAC-CJ2
	SYSMAC-CP1
	SYSMAC (Ethernet)
Allen-Bradley (Note)	PLC-5 (Half Duplex)
	SLC-500 (Half Duplex)
	MicroLogix (Full Duplex)
	ControlLogix (Full Duplex)
	CompactLogix (Full Duplex)
	FlexLogix (Full Duplex)
	ControlLogix (Ethernet/IP, Ethernet/IP (Logix Native Tag))
	CompactLogix (Ethernet/IP, Ethernet/IP (Logix Native Tag))
	PLC-5 (Ethernet/IP)
	SLC 500 (Ethernet/IP)
	MicroLogix (Ethernet/IP)
SIEMENS	S7-200
	S7-300 (connects to CPU)
	S7-300 (link unit)
	S7-400
	S7-1200 (Ethernet)
Keyence	KV-700/1000/3000/5000
	KV Nano
	KZ
	KV
	KV (Ethernet)
Hitachi	S10mini
	S10V
JTEKT	TOYOPUC-PC2J
	TOYOPUC-PC3J
Toshiba Machine Works	TC200
	TCmini
GE Fanuc Automation	Series90-30
	VersaMax

Manufacturer	Series
Schneider	Twido
Modicon	Modbus RTU Master
	Modbus ASCII Master
	Modbus TCP Client
	Modbus TCP Server
	Modbus RTU Slave
Panasonic	FP Series
Yaskawa Electric	MP
	MP (Ethernet)
Koyo	DirectLOGIC 05
	DirectLOGIC 06
	DirectLOGIC 205
	KOSTAC SZ
	KOSTAC SU
	KOSTAC SU (Ethernet)
Fanuc	Power Mate
	Series
Yokogawa Electric	FA-M3
	FA-M3 (Ethernet)
Fuji Electric	FREX-PC
	MICREX-F
	MICREX-SX
	MICREX-SX (Ethernet)
Toshiba	PROSEC T Series
	V Series
LS Industrial Systems	MASTER-K
VIGOR	VB
	VH
Emerson	FloBoss
Hitachi Industrial Equipment Systems	EH (Ethernet)

Note: HG2G-5TT and HG2G-5TN cannot communicate using Ethernet/IP (Logix Native Tag)

• The compatible PLC information is for reference only (except for IDEC PLCs), and IDEC does not guarantee the operation of any other manufacturers' PLC. When using other manufacturers' PLCs, read their specifications and instruction manual carefully. The PLC must be operated correctly under the user's responsibility.
• The company names and product names are registered trademarks or brand names.

An updated listing of compatible PLCs can be found at the following website.
http://www.idec.com/oi/drivers