

Operator Interface

# HG Series



Excellent visibility by super-bright LED backlight even in well-lit surroundings.

  Withstands harsh environments.

• See website for details on approvals and standards.



**HG4G**  
(12.1 inch)

Page **L-095**



**HG3G**  
(10.4 inch)

**L-097**



**HG3G**  
(8.4 inch)

**L-099**



**HG2G**  
(5.7 inch)

**L-101**



**HG1G**  
(4.3 inch)

**L-108**

Vertical  
OK

# HG4G / 3G / 2G series

# 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.



<b>HG4G</b> (12.1 inch) <b>550</b> cd/m <sup>2</sup>	<b>HG3G</b> (10.4 inch) <b>700</b> cd/m <sup>2</sup> (8.4 inch) <b>600</b> cd/m <sup>2</sup>	<b>HG2G</b> (5.7 inch) (High Performance) <b>800</b> cd/m <sup>2</sup>	<b>HG2G</b> (5.7 inch) (Basic / Color) <b>500</b> cd/m <sup>2</sup> (Basic / Monochrome) <b>1100</b> cd/m <sup>2</sup>
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**48-level** LED backlight  
Brightness Adjustment dimming control

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

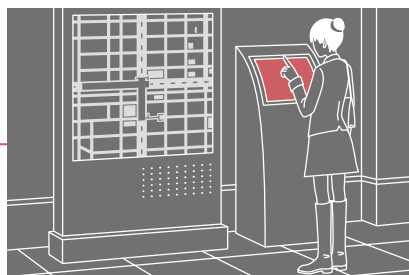


**Graphics** More than 7,000 graphic images

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.



Application Example



- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
- Terminal Blocks
- Relays & Sockets
- Circuit Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors
- AUTO-ID

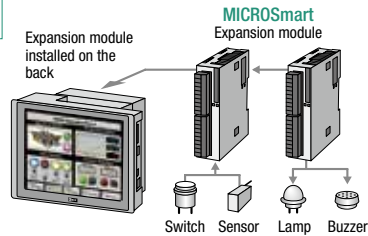
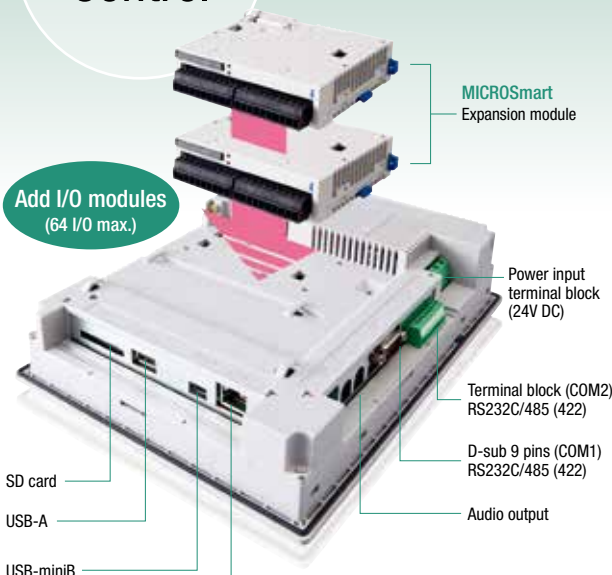
- Programmable Operator Interfaces
- Periphery Equipment

- HG4G
- HG3G
- HG2G
- HG1G

# HG4G / 3G / 2G series

# Control

## Simple I/O Control



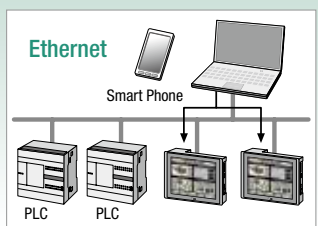
### Audio Output Sound file (30 sec max.)

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



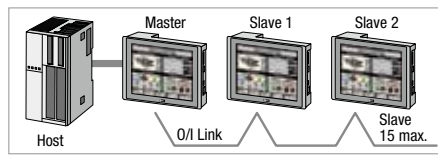
### Ethernet Remote data maintenance

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.



### 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.



### 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 L-106.

### 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		

- APEM
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- Programmable Operator Interfaces
- Periphery Equipment

- HG4G
- HG3G
- HG2G
- HG1G



# Fast & Easy

- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
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Stress-Free

## 3-sec startup

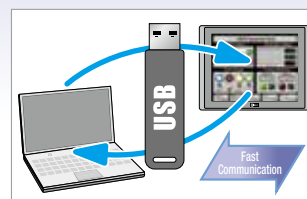


**High Speed CPU** **Fast start-up**

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

**High Speed CPU** **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

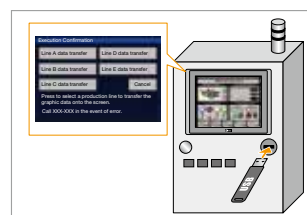


**SD Card** **Convenient SD card slot**

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.

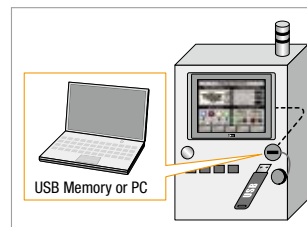
**USB Flash Drive** **USB flash drive enables easy data transfer.**

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.

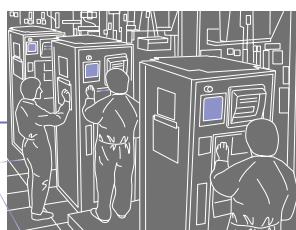


**Front Panel Maintenance** **Easy data maintenance, without opening the control cabinet.**

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.

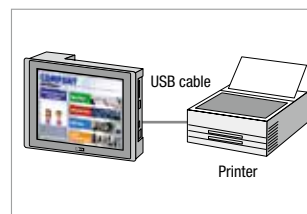


Application Example



**Pict Bridge** **USB printer compatible**

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



- Programmable Operator Interfaces
- Periphery Equipment
- HG4G
- HG3G
- HG2G
- HG1G

## HG4G / 3G / 2G series

## Environment

Withstands  
Harsh  
Environments

## Excellent environmental resistance



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)

Long  
Life

Long-life LED back light

Long 100,000-hour service reduces maintenance work.

Water  
proof

IP66 rating (protection against powerful jets)  
suitable for washdown applications

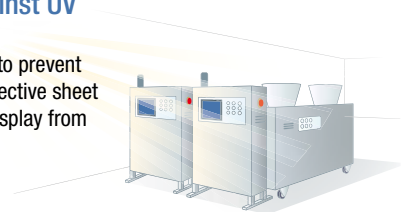
Touchscreens can be used on machines washed down by water such as food machines.



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.)

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\* (Operation is not guaranteed when used with certain types of oils.)



# Multimedia

## Multimedia Functions

### Records and plays back high quality images

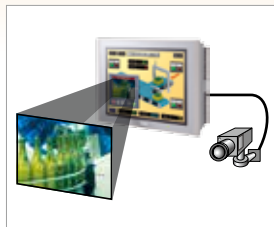
Multimedia models with video and audio input terminals.

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.

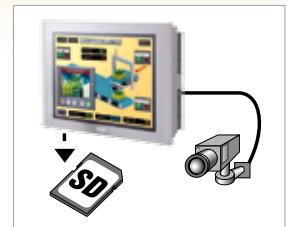
#### Display

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.

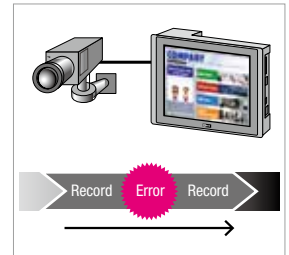
MPEG4 video files can be played back on the screen. Work procedures can be shown on the screen, and when trouble occurs, it can be used as a video manual for troubleshooting on-site.



#### Video Recording

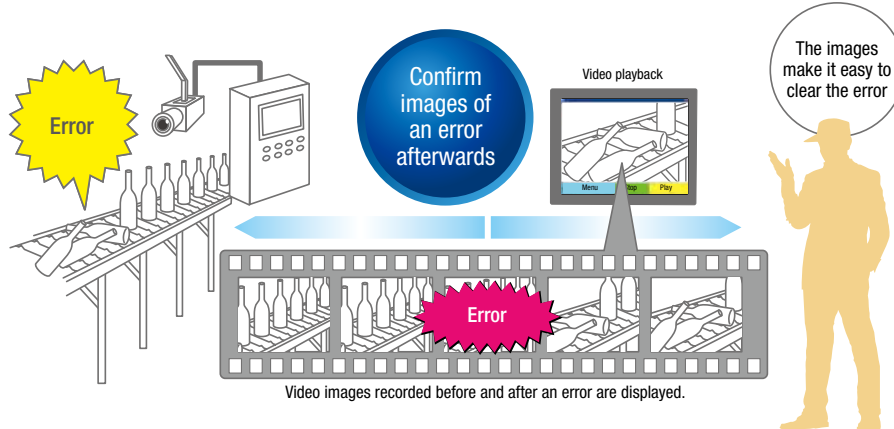
Records video images of an error

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.



### Application Examples

Find out the cause of an error



Video images recorded before and after an error are displayed.

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Programmable Operator Interfaces  
Periphery Equipment

HG4G

HG3G

HG2G

HG1G



Download catalogs and CAD from <http://asia.idec.com/downloads>

# HG1G series

102mm

4.3  
inch

128mm



\* The screen images on this brochure are simulated pictures.

Accumulate, analyze, update, and share your data anywhere.  
Use HG1G to create a safe and reliable work environment, and monitor daily operation status and/or control emergency situation.

## Easy and reliable remote maintenance

### FTP Server Function

#### Share/manage data and info anywhere



Data in the HG1G uploaded using the FTP server function can be shared by people who need access to the data.

#### Remote monitoring and data analysis from PC



The HG1G status on the site can be monitored and controlled remotely by a PC. Accumulated data on the HG1G can be reviewed in tabular format, to make analyzing the data easier.

#### Refresh project data and utilize data log easily



FTP server function enables transfer of project data. Data log can also be read from the HG1G.



#### On-time status monitoring with mobile terminals



With Web Server Function, you can monitor and control the HG1G remotely from a tablet or smartphone. Because starting a PC is not necessary, errors can be corrected immediately. Also suitable for applications in a large factory where HG1Gs installed on multiple machines need to be monitored and controlled from a remote location.

### Email Function

#### Get notified via e-mail



The site status can be monitored remotely by getting daily status reports of operation and system errors via email.

#### No special application necessary—easy connection



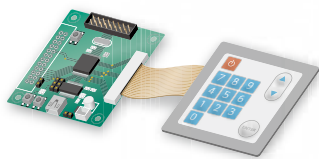
Because universal web browsers can be used, no special application is necessary. (recommended: Internet Explorer 8.0 and later, Firefox 3.0 and later)

## Small and functional

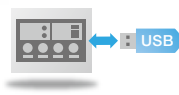
### Display and control in one



Ideal to replace membrane switches or 7-segment displays.

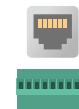


### USB flash drive



Use USB flash drive to update project data and collect data log.

### Easily connects to the host PLC



Connects to RS232C, RS422/485, and Ethernet.

### Multiprotocol



Multiple machines using PLCs made by different manufacturers can be controlled, configured, and monitored by one HG1G.

### Downsizing of control panels



Compact size reduces space inside the control board. Also eliminates wiring of switches.

## Excellent visibility and operability

### Bright and true-to-life display



High resolution, highly bright, and true-to-life color displays are easy to see and operate.

- TFT color LCD 65K colors
- 800cd/m<sup>2</sup> brightness<sup>\*1</sup>
- 70,000 hours average backlight life<sup>\*2</sup>
- 65536 colors
- High resolution 480 x 272 dot

\*1: Operating temperature at 25°C.

\*2: Refers to the time until the brightness reduces by half. It is an expected value after use at 25°C and not guaranteed. Actual backlight life depends on the operating environment and conditions.

### Quick 1.5-sec startup

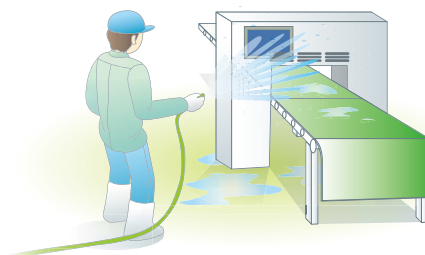


Startup/end time due to debugging can be shortened.

### Withstands harsh environments



Suitable for use in environments with wide temperature range, and also powerful water jets or temporary submersion in water.



Operating temperature: -20 to +55°C  
 Operating humidity: 10 to 90% RH  
 Degree of protection\*: IP66F, IP67F

\* When panel thickness is 1.5mm minimum.

APEM

Switches & Pilot Lights

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

Programmable Operator Interfaces

Periphery Equipment

HG4G

HG3G

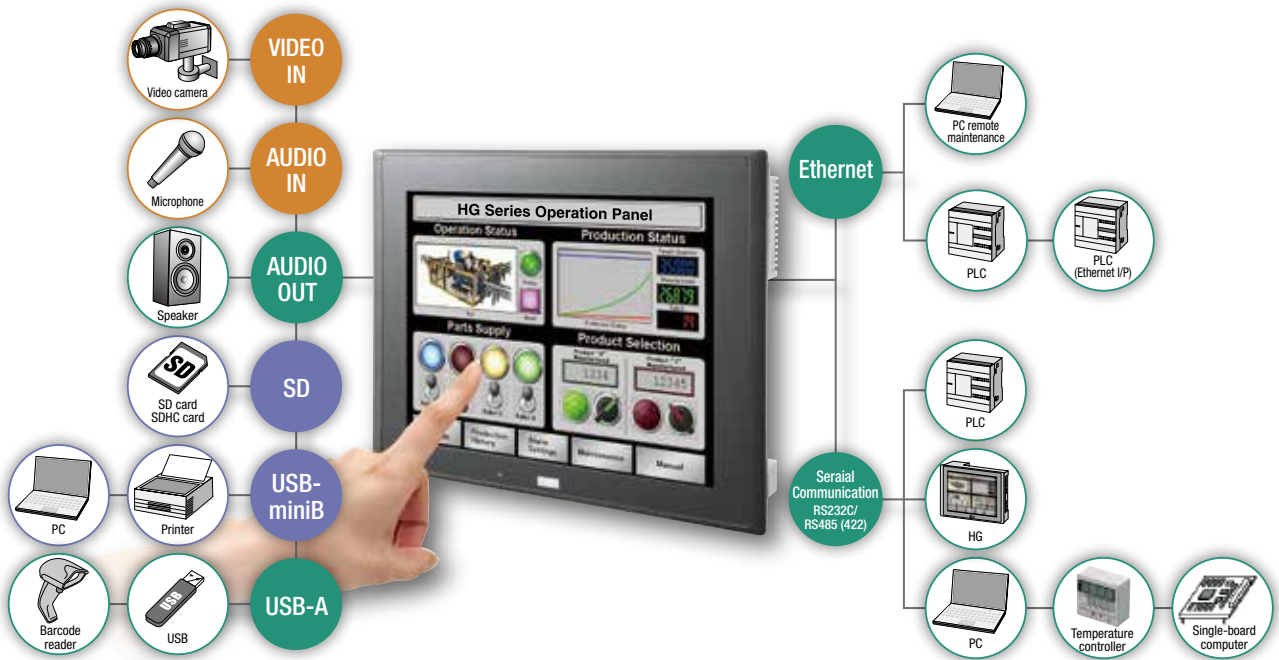
HG2G

HG1G








# Human-machine interface expands



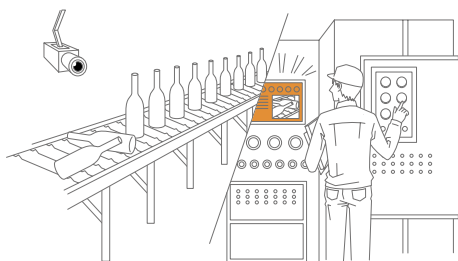
## Lineup HG series Operator Interface

**High Performance**

HG4G	HG3G		HG2G-5F
<b>12.1 inch</b>	<b>10.4 inch</b>	<b>8.4 inch</b>	<b>5.7 inch</b>
			
314 × 240 × 54.1 mm SVGA (800 × 600) TFT65,536 colors	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid red; padding: 2px;">Bright 700 cd/m<sup>2</sup></div> <div style="border: 1px solid red; padding: 2px;">270 × 212 × 52.7 mm SVGA (800 × 600) TFT65,536 colors</div> <div style="border: 1px solid red; padding: 2px;">Bright 600 cd/m<sup>2</sup></div> <div style="border: 1px solid red; padding: 2px;">231 × 176 × 54.4 mm SVGA (800 × 600) TFT65,536 colors</div> </div>		167.2 × 134.7 × 54.4 mm VGA (640 × 480) TFT65,536 colors
<div style="display: grid; grid-template-columns: repeat(4, 1fr); gap: 5px;"> <div style="border: 1px solid red; padding: 2px;">Bright 550 cd/m<sup>2</sup></div> <div style="border: 1px solid red; padding: 2px;">LED 100,000 Hours</div> <div style="border: 1px solid red; padding: 2px;">48-level Brightness Adjustment</div> <div style="border: 1px solid red; padding: 2px;">Graphics</div> <div style="border: 1px solid red; padding: 2px;">Stroke Fonts</div> <div style="border: 1px solid red; padding: 2px;">Serial Interface</div> <div style="border: 1px solid red; padding: 2px;">Ethernet</div> <div style="border: 1px solid red; padding: 2px;">USB mini-B</div> <div style="border: 1px solid green; padding: 2px;">USB A</div> <div style="border: 1px solid green; padding: 2px;">4 Expansion Modules</div> <div style="border: 1px solid green; padding: 2px;">Audio Output</div> <div style="border: 1px solid green; padding: 2px;">O/I Link</div> <div style="border: 1px solid green; padding: 2px;">Cyclic Script</div> <div style="border: 1px solid green; padding: 2px;">SD Card</div> <div style="border: 1px solid green; padding: 2px;">USB Flash Drive</div> <div style="border: 1px solid green; padding: 2px;">High Speed CPU</div> <div style="border: 1px solid blue; padding: 2px;">High Speed Data</div> <div style="border: 1px solid blue; padding: 2px;">User Memory 12MB</div> <div style="border: 1px solid blue; padding: 2px;">Pict Bridge</div> <div style="border: 1px solid blue; padding: 2px;">Front Panel Maintenance</div> <div style="border: 1px solid orange; padding: 2px;">Audio Input</div> <div style="border: 1px solid orange; padding: 2px;">Video Input</div> <div style="border: 1px solid orange; padding: 2px;">Video Play</div> <div style="border: 1px solid orange; padding: 2px;">Video Recording</div> <div style="border: 1px solid gray; padding: 2px;">Voltage 24V DC</div> <div style="border: 1px solid gray; padding: 2px;">Vertical OK</div> <div style="border: 1px solid gray; padding: 2px;">Bezel Color</div> <div style="border: 1px solid gray; padding: 2px;">Dark gray</div> </div>	<div style="display: grid; grid-template-columns: repeat(4, 1fr); gap: 5px;"> <div style="border: 1px solid red; padding: 2px;">LED 100,000 Hours</div> <div style="border: 1px solid red; padding: 2px;">48-level Brightness Adjustment</div> <div style="border: 1px solid red; padding: 2px;">Graphics</div> <div style="border: 1px solid red; padding: 2px;">Stroke Fonts</div> <div style="border: 1px solid green; padding: 2px;">Serial Interface</div> <div style="border: 1px solid green; padding: 2px;">Ethernet</div> <div style="border: 1px solid green; padding: 2px;">USB mini-B</div> <div style="border: 1px solid green; padding: 2px;">USB A</div> <div style="border: 1px solid green; padding: 2px;">4 Expansion Modules</div> <div style="border: 1px solid green; padding: 2px;">Audio Output</div> <div style="border: 1px solid green; padding: 2px;">O/I Link</div> <div style="border: 1px solid green; padding: 2px;">Cyclic Script</div> <div style="border: 1px solid green; 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# IDEC network control

Easy troubleshooting using video images



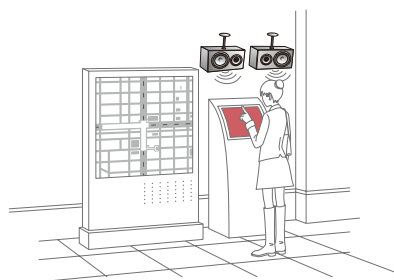
Remote control from a distance



Complicated maintenance can be carried out






Combine networks for multiple uses



- APEM
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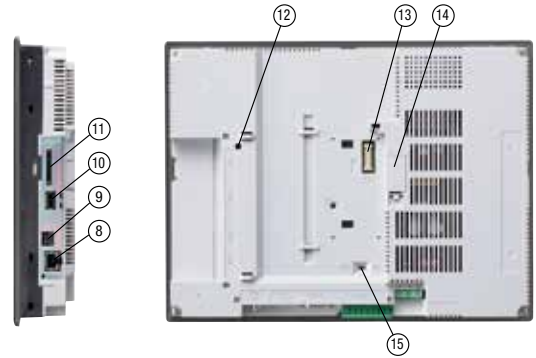
- Programmable Operator Interfaces
- Periphery Equipment

- HG4G
- HG3G
- HG2G
- HG1G

Basic		Compact																																													
<b>HG2G-5TT</b>	<b>HG2G-5TN</b>	<b>HG1G</b>																																													
<b>5.7 inch</b>	<b>5.7 inch</b>	<b>4.3 inch</b>																																													
																																															
167.2 × 134.7 × 40.9 mm QVGA (320 × 240) TFT 65,536 colors	167.2 × 134.7 × 40.9 mm QVGA (320 × 240) TFT monochrome (16 shades)	128 × 102.0 mm WQVGA (480 × 272)																																													
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<p>OI Touchscreen Programming Software &gt;&gt;L-003</p>																																															

# 12.1 inch HG4G Operator Interface

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



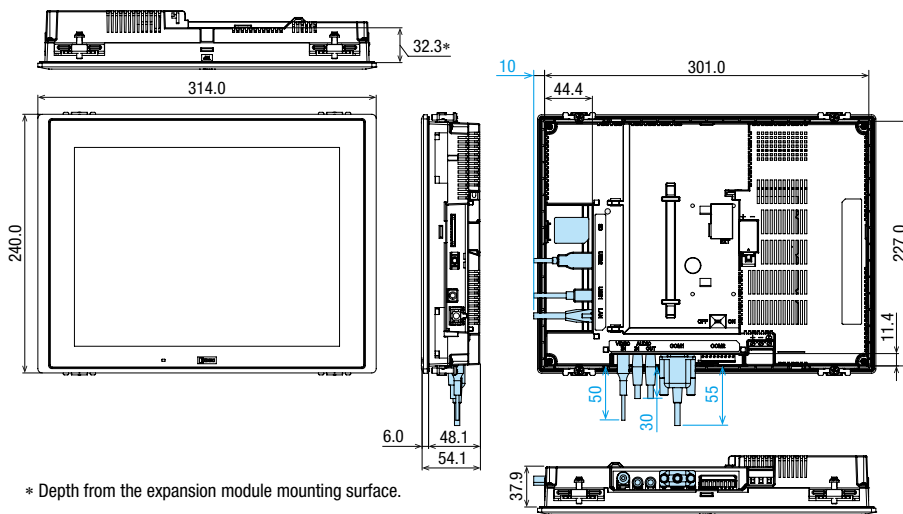
No.	Name
①	Power LED
②	Display
③	Touchscreen
④	Power Supply Terminal
⑤	Serial Interface (COM2)
⑥	Serial Interface (COM1)
⑦	Audio Interface (AUDIO OUT)
⑧	Ethernet Interface (LAN)
⑨	USB Interface (USB1)

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

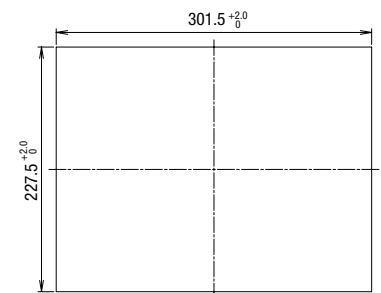
Display Screen	Operation Style	Communication/Memory Interface	Video/Audio Interface	Housing/Bezel Color	Part No. (Ordering No.)	Approvals
12.1-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM1 COM2 LAN USB1 USB2 SD Memory Card	VIDEO IN AUDIO IN AUDIO OUT	Dark gray	<b>HG4G-CJT22MF-B</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	<b>HG4G-CJT22TF-B</b>	

## Dimensions



\* Depth from the expansion module mounting surface.

## Panel Cut-out



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
Operating Humidity	10 to 90% RH (no condensation)
Storage Temperature	-20 to +60°C
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 <sup>2</sup> 10 cycles (100 minutes) on each of three mutually perpendicular axes
Shock Resistance	147 m/s <sup>2</sup> , 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/m <sup>2</sup> *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 is not guaranteed and refers to the time until the brightness reduces by half after use at 25°C. The actual life depends on operating environments and conditions.

\*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 5 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
	Output 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).

APEM

Switches &amp; Pilot Lights

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays &amp; Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

Programmable Operator Interfaces

Periphery Equipment

HG4G

HG3G

HG2G

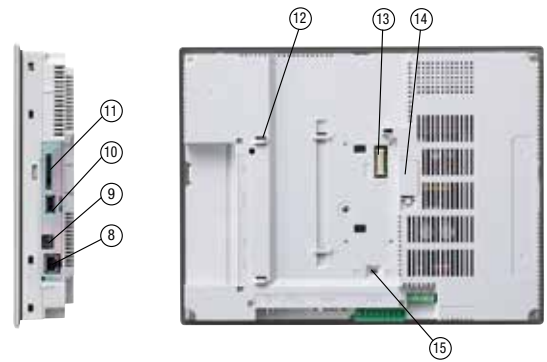
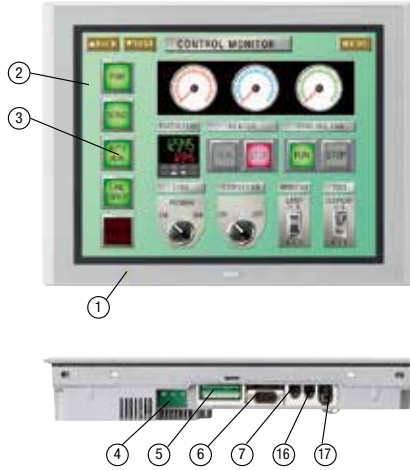
HG1G



# 10.4 inch HG3G Operator Interface

Excellent visibility by super-bright LED backlight.  
700 cd/m<sup>2</sup> (10.4-inch)

Bright 700 cd/m <sup>2</sup>	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/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	



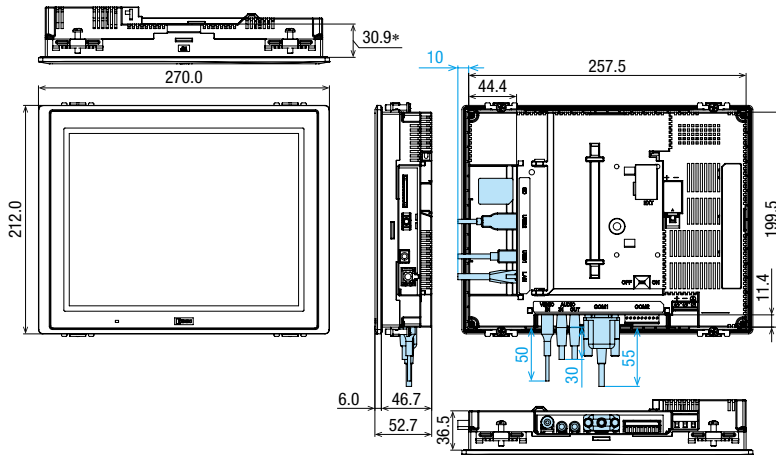
No.	Name
①	Power LED
②	Display
③	Touchscreen
④	Power Supply Terminal
⑤	Serial Interface (COM2)
⑥	Serial Interface (COM1)
⑦	Audio Interface (AUDIO OUT)
⑧	Ethernet Interface (LAN)
⑨	USB Interface (USB1)

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

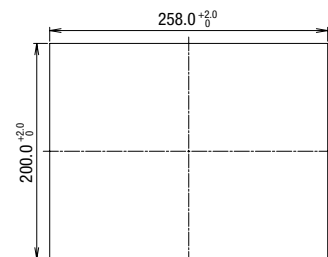
Display Screen	Operation Style	Communication/Memory Interface	Video/Audio Interface	Housing/Bezel Color	Part No. (Ordering No.)	Approvals
10.4-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM1 COM2 LAN USB1 USB2 SD Memory Card	VIDEO IN AUDIO IN AUDIO OUT	Light gray	HG3G-AJT22MF-W	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



\* Depth from the expansion module mounting surface.

## Panel Cut-out



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
Operating Humidity	10 to 90% RH (no condensation)
Storage Temperature	-20 to +60°C
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 <sup>2</sup> 10 cycles (100 minutes) on each of three mutually perpendicular axes
Shock Resistance	147 m/s <sup>2</sup> , 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/m <sup>2</sup> *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 is not guaranteed and refers to the time until the brightness reduces by half after use at 25°C. The actual life depends on operating environments and conditions.

\*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 5 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
	Output 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).

APEM

Switches &amp; Pilot Lights

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays &amp; Sockets

Circuit Protectors

Power Supplies

LED Illumination

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Sensors

AUTO-ID

Programmable Operator Interfaces

Periphery Equipment

HG4G

HG3G

HG2G

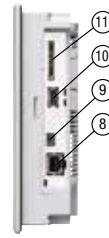
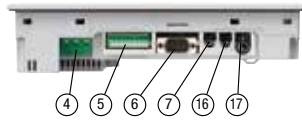
HG1G



8.4 inch

# HG3G Operator Interface

Excellent visibility by super-bright LED backlight.  
600 cd/m<sup>2</sup> (8.4-inch)



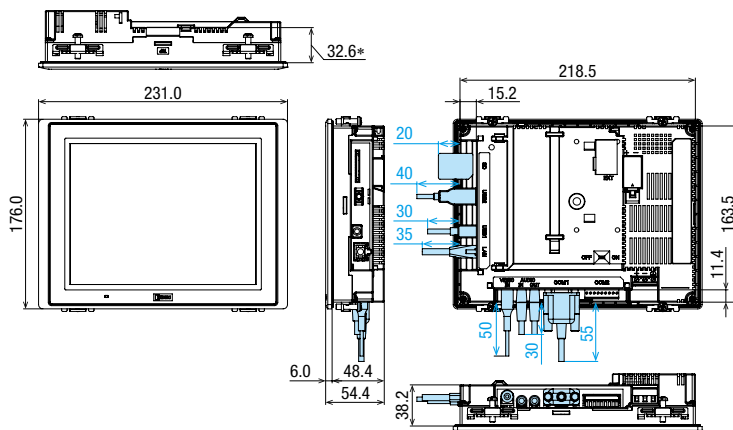
No.	Name
①	Power LED
②	Display
③	Touchscreen
④	Power Supply Terminal
⑤	Serial Interface (COM2)
⑥	Serial Interface (COM1)
⑦	Audio Interface (AUDIO OUT)
⑧	Ethernet Interface (LAN)
⑨	USB Interface (USB1)

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

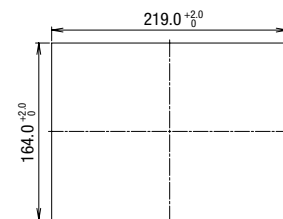
Display Screen	Operation Style	Communication/Memory Interface	Video/Audio Interface	Housing/Bezel Color	Part No. (Ordering No.)	Approvals
8.4-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM1 COM2 LAN USB1 USB2 SD Memory Card	VIDEO IN AUDIO IN AUDIO OUT	Light gray	HG3G-8JT22MF-W	Safety 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



\* Depth from the expansion module mounting surface.

## Panel Cut-out



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
Operating Humidity	10 to 90% RH (no condensation)
Storage Temperature	-20 to +60°C
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 <sup>2</sup> 10 cycles (100 minutes) on each of three mutually perpendicular axes
Shock Resistance	147 m/s <sup>2</sup> , 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/m <sup>2</sup> *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)
Quantity of Characters	Scalable	Width 8 to 128 dots (1/2 size fixed) (ISO 8859-1 western language, 7-segment)
	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 is not guaranteed and refers to the time until the brightness reduces by half after use at 25°C. The actual life depends on operating environments and conditions.

\*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 5 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).

APEM

Switches &amp; Pilot Lights

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays &amp; Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

Programmable Operator Interfaces

Periphery Equipment

HG4G

HG3G

HG2G

HG1G

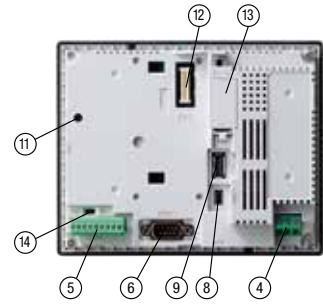
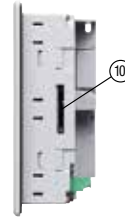
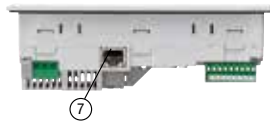
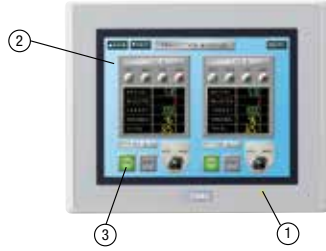
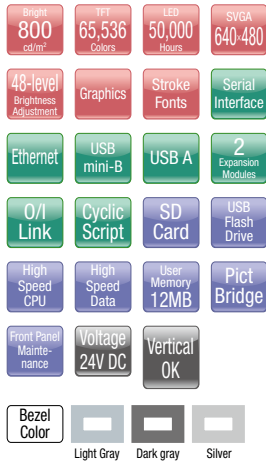




5.7 inch

# HG2G Operator Interface (High Performance)

Excellent visibility by super-bright LED backlight.  
800 cd/m<sup>2</sup> (5.7-inch)

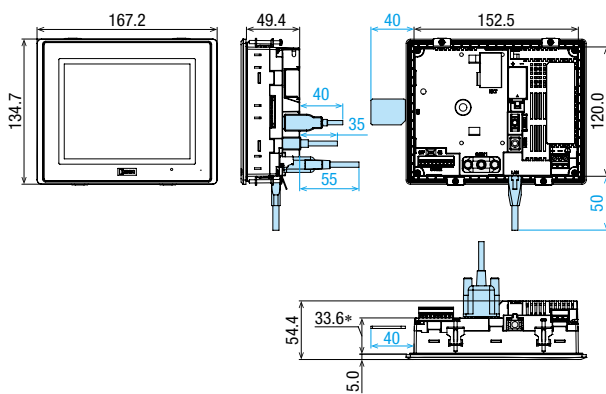


No.	Name	No.	Name
①	Power LED	⑥	USB Interface (USB1)
②	Display	⑨	USB Interface (USB2)
③	Touchscreen	⑩	Memory Card Interface (SD)
④	Power Supply Terminal	⑪	SD Memory Access LED
⑤	Serial Interface (COM2)	⑫	Expansion Module Interface (EXT)
⑥	Serial Interface (COM1)	⑬	Battery Cover
⑦	Ethernet Interface (LAN)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

## HG2G Operator Interface

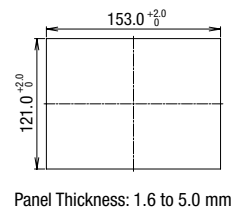
Display Screen	Operation Style	Communication/Memory Interface	Housing/Bezel Color	Part No. (Ordering No.)	Approvals
5.7-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM1 COM2 LAN USB 1 USB 2 SD Memory Card	Light gray	<b>HG2G-5FT22TF-W</b>	Safety Standards: UL508 CSA C22.2 No.142 CSA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

## Dimensions



\* Depth from the expansion module mounting surface.

## Panel Cut-out



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
Operating Humidity	10 to 90% RH (no condensation)
Storage Temperature	-20 to +60°C
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 <sup>2</sup> 10 cycles (100 minutes) on each of three mutually perpendicular axes
Shock Resistance	147 m/s <sup>2</sup> , 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	50,000 hours *1	
Brightness	800 cd/m <sup>2</sup> *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 is not guaranteed and refers to the time until the brightness reduces by half after use at 25°C. The actual life depends on operating environments and conditions.

\*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 5 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
	Output 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).

APEM

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Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

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LED Illumination

Controllers

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AUTO-ID

Programmable Operator Interfaces

Periphery Equipment

HG4G

HG3G

HG2G

HG1G



5.7 inch

# HG2G Operator Interface (Basic)

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

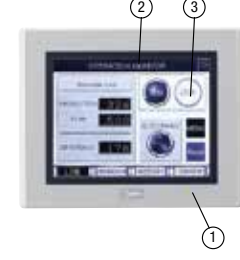
## HG2G-5TT (Color) / HG2G-5TN (Monochrome)

- LED 100,000 Hours
- 32-level Brightness Adjustment
- Stroke Fonts
- DVGA 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)



## HG2G-5TN (Monochrome)



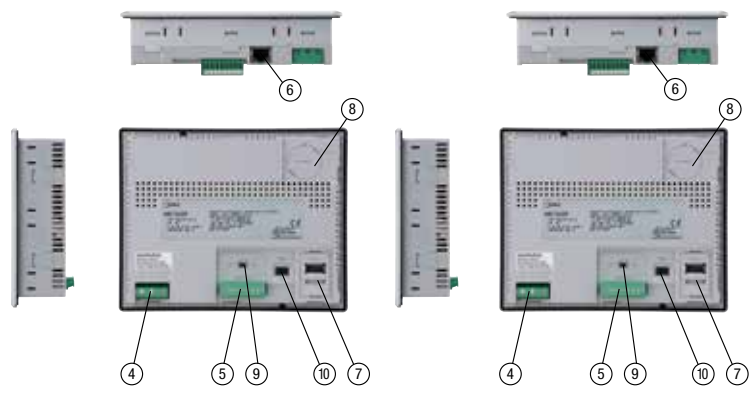
No.	Name
①	Power LED
②	Display
③	Touchscreen
④	Power Supply Terminal
⑤	Serial Interface 1 (COM1)
⑥	Ethernet Interface (LAN)
⑦	USB Interface (USB2)
⑧	Battery Cover
⑨	Terminal Resistor Switch
⑩	USB Interface (USB)

## HG2G-5TT (Color)

- Bright 500 cd/m<sup>2</sup>
- TFT 65,536 Colors
- Graphics

## HG2G-5TN (Monochrome)

- Bright 1100 cd/m<sup>2</sup>
- Monochrome 16 levels

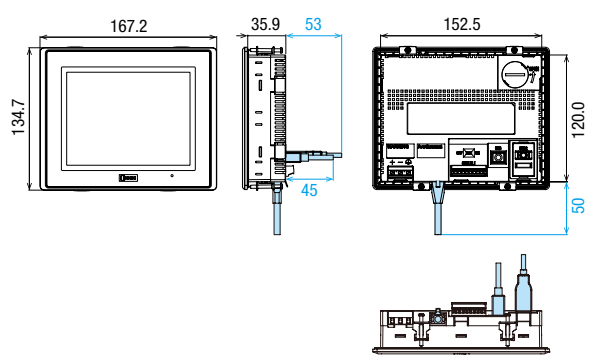


## HG2G Operator Interface

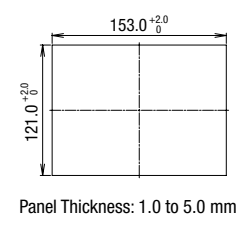
Display Screen	Operation Style	Communication/Memory Interface	Housing/Bezel Color	Part No. (Ordering No.)	Approvals
5.7-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM1 LAN USB USB 2	Light gray	HG2G-5TT22TF-W	UL508 CSA C22.2 No.142 CSA C22.2 No.213 ANSI/ISA-12.12.01
			Dark gray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

• Models with a coated board that can be used even in harsh environments and bright color (1000 cd/m<sup>2</sup>) models are also available.

## Dimensions



## Panel Cut-out



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
Operating Humidity	10 to 90% RH (no condensation)
Storage Temperature	-20 to +70°C
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 <sup>2</sup> 10 cycles (100 minutes) on each of three mutually perpendicular axes
Shock Resistance	147 m/s <sup>2</sup> , 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/m <sup>2</sup> *2	1100 cd/m <sup>2</sup> *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 lines
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 is not guaranteed and refers to the time until the brightness reduces by half after use at 25°C. The actual life depends on operating environments and conditions.

\*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 5 years (at 25°C)

## Interface Specifications

Serial Interface 1 (COM1) *	RS232C	Electrical Characteristics	EIA RS232C compliant
		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		
Serial Interface 2 (COM2) *	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).

APEM

Switches &amp; Pilot Lights

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays &amp; Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

Programmable Operator Interfaces

Periphery Equipment

HG4G

HG3G

HG2G

HG1G



## HG4G / 3G / 2G Operator Interface

## 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	√	√	√	—	—

\*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 Catalog 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 FC6A-M24BR1 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.
- To use the FC6A expansion module, update the version of the WindO/I-NV4 to Ver. 1.4.0 or higher. (WindO/I-NV2 does not support FC6A)
- FC6A expansion module cannot be used with FC4A expansion modules.

APEM

Switches &  
Pilot Lights

Control Boxes

Emergency  
Stop SwitchesEnabling  
Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays &amp; Sockets

Circuit  
Protectors

Power Supplies

LED Illumination

Controllers

Operator  
Interfaces

Sensors

AUTO-ID

Programmable  
Operator InterfacesPeriphery  
Equipment

HG4G

HG3G

HG2G

HG1G



## 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 (*1)
	Modbus RTU Slave (*2)
	Modbus ASCII Master (*1)
	Modbus TCP Client (*1)
Panasonic	FP Series
	MP
Yaskawa Electric	MP (Ethernet)
	DirectLOGIC 05
Koyo	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.

\*1 HG4G/3G/2G is connected as a master.



\*2 HG4G/3G/2G is connected as a slave.

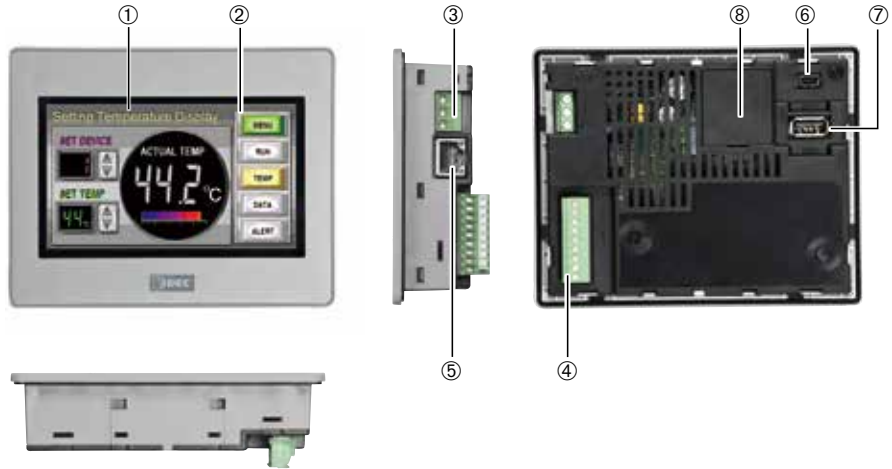
An updated listing of compatible PLCs can be found at the following website.  
<http://www.idec.com/oi/drivers>

# HG1G Operator Interface

4.3 inch

Maintenance time reduced by IoT monitoring.  
Enhanced visibility and user-friendly.

Bright 800 cd/m <sup>2</sup>	TFT 65,536 Colors	LED 70,000 Hours	32-level Brightness Adjustment	Graphics
Stroke Fonts	QVGA 480×272	Serial Interface	Ethernet	USB mini-B
USB A	USB Flash Drive	User Memory 12MB	Front Panel Maintenance	Voltage 12/24V DC
Operating Temperature -20 to +55°C	Vertical OK			
Bezel Color	 			
	Black Silver			



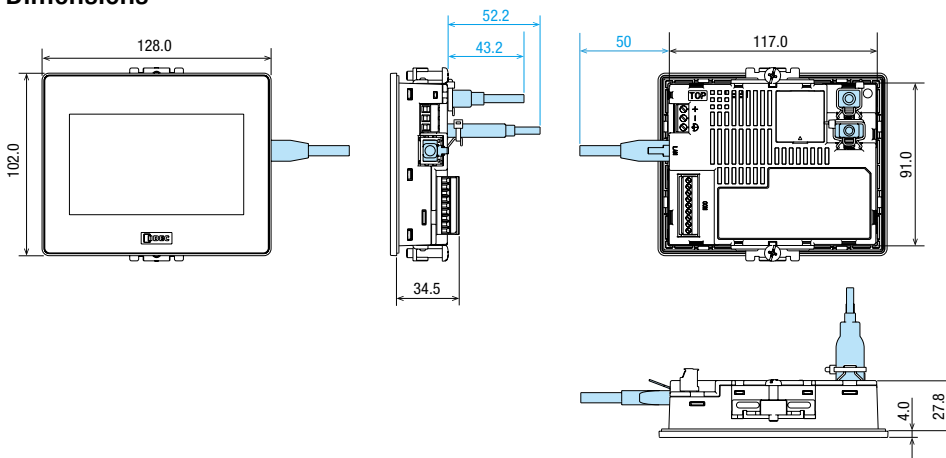
No.	Name
①	Display
②	Touchscreen
③	Power Supply Terminal
④	Serial Interface (COM)

No.	Name
⑤	Ethernet Interface (LAN)
⑥	USB Interface (USB1)
⑦	USB Interface (USB2)
⑧	Battery Cover

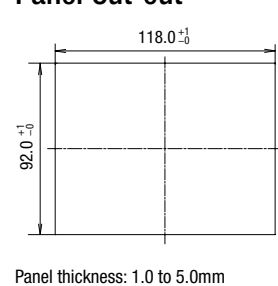
## HG1G Operator Interface

Display Screen	Operation Style	Communication/ Memory Interface	Bezel Color	Part No. (Ordering No.)	Approvals
4.3-inch TFT color LCD 65,536 colors	Touch Switch (analog resistive)	COM LAN USB 1 USB 2	Black	HG1G-4VT22TF-B	UL508 CSA C22.2 No.142 CSA C22.2 No.213 ANSI/ISA-12-12.01
			Silver	HG1G-4VT22TF-S	

## Dimensions



## Panel Cut-out



All dimensions in mm.

- Dimensions in blue show the mounting dimensions of the cable. Dimensions in the figure vary depending on the type of cable connected.
- Install the HG1G into a panel cut-out by tightening the two mounting clips (supplied) to a torque of 0.2 to 0.3 N·m.
- Do not use excessive force to tighten, otherwise the HG1G may be distorted. Also waterproof characteristics may be lost.

- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
- Terminal Blocks
- Relays & Sockets
- Circuit Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors
- AUTO-ID

- Programmable Operator Interfaces
- Periphery Equipment
- HG4G
- HG3G
- HG2G
- HG1G



## HG1G Operator Interface

## General Specifications

Electrical Specifications	Rated Power Voltage	12/24 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	1,000V AC, 10 mA, 1 minute between power and FG terminals
Environmental Specifications	Operating Temperature	-20 to +55°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/s <sup>2</sup> 10 cycles (100 minutes) on each of three mutually perpendicular axes
	Shock Resistance	147 m/s <sup>2</sup> , 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
Structure	Mounting	Panel mounting (panel thickness: 1.0 to 5.0 mm)
	Degree of Protection	IP66F/IP67F (IEC 60529, JIS C0920) (see JIS C 0920 Annex 1 for "F") (front part when mounted) *1 IP65F/IP67F when panel thickness is below 1.5mm TYPE 4X TYPE 13 *2
	Dimensions	128 W × 102 H × 31.8 D mm
	Weight (approx.)	300g

\* Do not use the HG1G 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 under environments using certain types of oils.

## Display Specifications

Display	TFT color LCD	
Color/Shade	65,536	
Effective Display Area	95.04 W × 53.836 H mm	
Display Resolution	480 W × 272 H pixels	
View Angle	Right and left 70°, up 60°, down 65°	
Backlight	White LED	
Backlight Life	70,000 hours *1	
Brightness	800 cd/m <sup>2</sup> *2	
Brightness Adjustment	32 levels	
Backlight Replacement	N/A	
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	60 characters × 34 lines
	1/2 size	60 characters × 17 lines
	Full size	60 characters × 17 lines
	Double size	15 characters × 8 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. It is an expected value after use at 25°C and not guaranteed. Actual backlight life depends on the operating environment and conditions.

\*2 Brightness of LCD when operating condition is 25°C.

## 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 Screen Script Command, Multi Command, Timer
Calendar	Year, Month, Day, Hour, Min., Sec., Day of Week ±90 sec per month (at +25°C)
Power Failure Backup Data	Calendar, log data, keep internal relay, keep internal register
Battery	Recommended replacement time: every 5 years (at +25°C)

## Interface Specifications

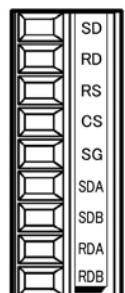
Serial Interface 1 (COM1) *1	RS232C	Electrical Characteristics	EIA RS232C compliant
		Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps *2
		Synchronization	Asynchronous
		Communication Method	Half or full duplex
	Control System	Hardware control or none	
	RS422/485	Electrical Characteristics	EIA RS422/485 compliant
		Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps *2
		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	Modular connector (RJ45)	
USB Interface (USB1)	Interface	USB 2.0 high speed (480 Mbps)	
	Connector	USB Type Mini-B connector	
USB Interface (USB2)	Interface	USB 2.0 Full speed (12 Mbps)	
	Connector	USB Type Mini-A connector	

\*1: RS232C and RS 422/485 can be used simultaneously.

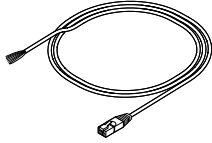
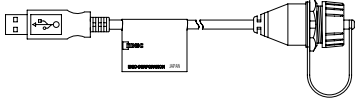
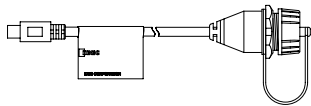
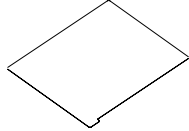
\*2: 187,500 bps is available only with SIEMENS SIMATIC S7-300/400 series (MPI port direct connection).

## Serial Interface Terminal Arrangement

Name	I/O	Function	Communication Type
SD	OUT	Send Data	RS232C
RD	IN	Receive Data	
RS	OUT	Request to Send	
CS	IN	Clear to Send	RS232C, RS422/485
SG	—	Signal Ground	
SDA	OUT	Send Data (+)	RS422/485
SDB	OUT	Send Data (-)	
RDA	IN	Receive Data (+)	
RDB	IN	Receive Data (-)	



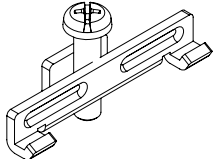
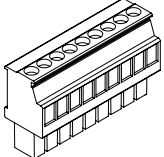
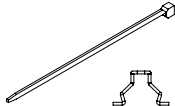
Options

Name		Part No. (Ordering No.)	Package Quantity	Description
Application Software		SW1A-W1C	1	Automation Organizer (includes WindO/I-NV4)
USB Maintenance Cable		HG9Z-XCM42	1	2m USB Cable USB-miniB
PLC Connection Cable *1		HG9Z-KC1C	1	5m For IDEC MicroSmart (FC6A) RJ45 connector (loose wire)
		HG9Z-XC275	1	5m For IDEC MicroSmart (FC5A, FC4A) For SmartAXIS (Pro/Lite)
		FC2A-KP1C	1	2.4m Mini DIN 8-pin (loose wire)
USB Panel-mount Extension Cable	For USB-A port 	HG9Z-XCE11	1	1m For USB-A port
	For USB-mini B port 	HG9Z-XCE21	1	1m For USB-mini B port
Protective Sheet *2	 (Size: 121.6 × 95.6mm, thickness: 0.188mm)	HG9Z-1D4PN05	5	For 4.3 inch (5 pcs/pack) (used to protect the LCD)
User's Manual		HG9Y-B1701	1	English

\*1: For the applicable connection cable to connect with the PLC of other than IDEC, refer to WindO/I -NV4 External Device Setup Manual included in the system configuration software Automation Organizer. The manual is also available on IDEC's website.

\*2: The protective sheet is UV resistant, however, resistance against direct sunlight in outdoor usage is not guaranteed.  
Used to protect the display screen.

Maintenance Parts

Name		Part No. (Ordering No.)	Package Quantity	Description
Mounting Clip		HG9Z-4K2PN04	4	Two clips are supplied with HG1G.
Serial Interface Connector (detachable 9-pin terminal block)		HG9Z-XT09V	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 USB1, USB2). Two pins are supplied with HG1G.

- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
- Terminal Blocks
- Relays & Sockets
- Circuit Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors
- AUTO-ID

- Programmable Operator Interfaces
- Periphery Equipment
- HG4G
- HG3G
- HG2G
- HG1G

## 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	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 Electric	Twido
Modicon	Modbus RTU Master *1
	Modbus RTU Slave *2
	Modbus ASCII Master *1
	Modbus TCP Client *1
Panasonic	FP Series
	MP
Yaskawa Electric	MP (Ethernet)
	Koyo
DirectLOGIC 06	
DirectLOGIC 205	
KOSTAC SZ	
KOSTAC SU	
Fanuc	KOSTAC SU (Ethernet)
	Power Mate Series
Yokogawa Electric	FA-M3
	FA-M3 (Ethernet)
Fuji Electric	FREX-PC
	MICREX-F
	MICREX-SX
Toshiba	MICREX-SX (Ethernet)
	PROSECT Series
LS Industrial Systems	V Series
	MASTER-K
VIGOR	VB
	VH
Emerson	FloBoss
Equipment Systems	EH (Ethernet)

- 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.

\*1: Can be connected to slave devices from HG1G.

\*2: Can connect to HG1G from a master device.

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

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