

# Operator Interface HG1G



4.3  
inch

## HMI for the IoT era

# HMI for the IoT era

## 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.

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.



Cloud

4.3  
inch

*Easy and reliable remote maintenance*

On-time status monitoring with mobile terminals

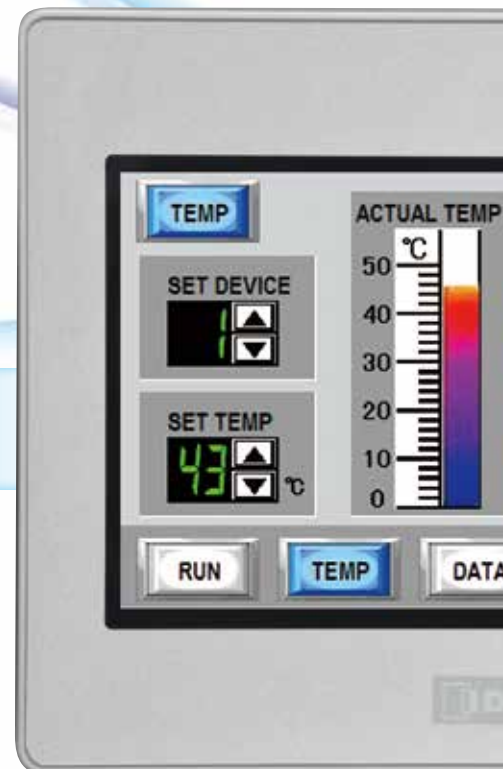


With Web Server Function, you can monitor and control the HG1G remotely from a tablet or smartphone. Because starting a PC is not necessary, errors can be corrected immediately. Also suitable for applications in a large factory where HG1Gs installed on multiple machines need to be monitored and controlled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

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)



128mm

Mobile

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.

### 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.



Available Soon

### 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.

(actual size)



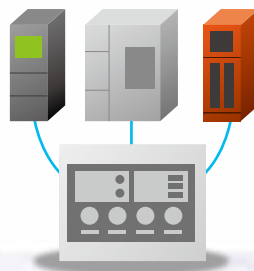
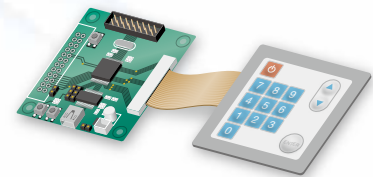
102mm

Office

### Small and functional

### Display and control in one

Ideal to replace membrane switches or 7-segment displays.

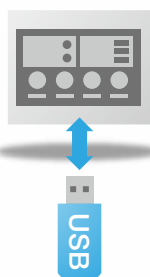


### Multiprotocol

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

### USB flash drive

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



On-site

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

# HMI Solution

Operator interfaces for optimum HMI (Human Machine Interface) environment



## Excellent visibility and operatability



### 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>
- 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.

## Easy-to-use software

### Dynamic and flexible screen designs

The ribbon organizes commands in groups and tabs, making it possible to find commands easily and quickly. Project structure can be listed in the easy-to-view workspace, and operating conditions for buttons and lamps can be programmed easily.



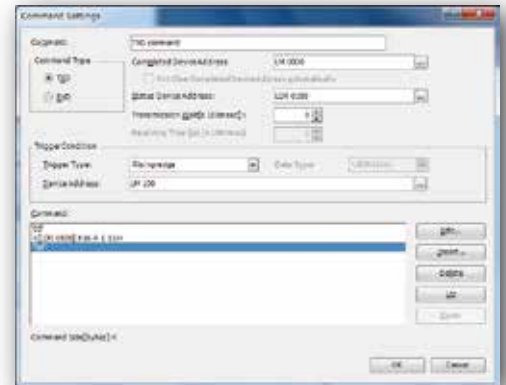
Programming software



WindO/I-NV4 is included in IDEC's package software "Automation Organizer".

### User communication function for original protocols

User communication allows you to develop a communication protocol to transmit and receive data.



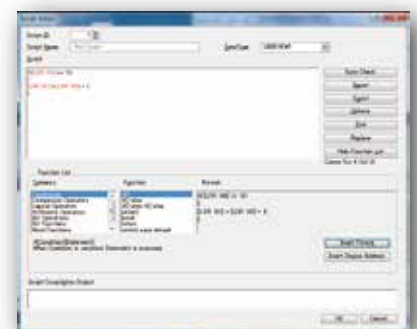
### USB flash drive enables easy data transfer

Inserting a USB flash drive into the HG1G will automatically bring up the USB transfer menu. Operator can work on errors, write and/or read the configuration data, without the use of a PC. Menu screen can be created daily using the USB autorun definition file creation tool.



### Script function for easy complex process programming

Complex processes such as conditional branching, logical operation, arithmetic operation, functions can be programmed easily with script function.



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NEW

# HG1G Operator Interface

The super-bright, compact 4.3" HG1G has most of the features and functionalities of a large screen, including remote monitoring and control via PC, tablet or smartphone. It supports multiple protocols simultaneously, FTP Server function and best-in-class LED backlight of 70,000 hours. The HG1G can be mounted portrait or landscape to fit your needs. It also supports a wide range of operating temperature  $-20$  to  $55$  °C, and its rated IP66F, Type 4X and Class 1 Div 2. It's small enough to fit in a tight space and priced to fit in a tight budget.

## Key Features

- Supports up to four protocols simultaneously
- Remote monitor and control
- FTP Server Function
- Operating temperatures:  $-20^{\circ}\text{C}$  to  $55^{\circ}\text{C}$
- 65K colors with  $800\text{cd}/\text{m}^2$
- 480 x 272 Pixel Resolution
- Backlight lifespan: > 70,000 hours
- Portrait and Landscape mounting
- Rated Power Voltage: 12 to 24V DC
- Two serial ports, two USB ports and one Ethernet port
- IP 66F, Type 4X, Class I Div 2



(Approval for HG1G operator interface only, excluding options or expansion modules.)

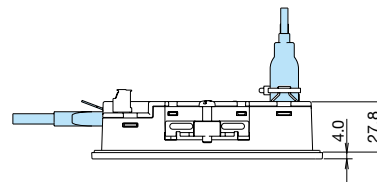
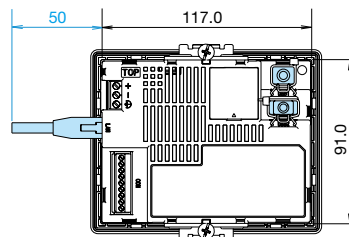
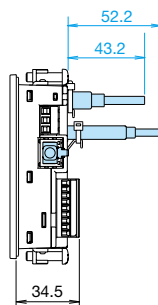
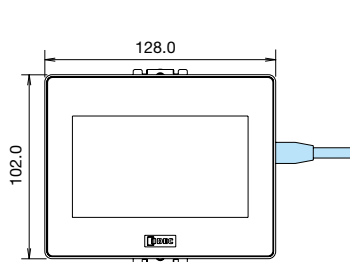
No.	Name
①	Display
②	Touchscreen
③	Power Supply Terminal
④	Serial Interface (COM)

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

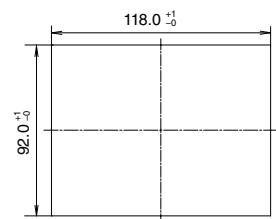
## HG1G Operator Interface

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



Panel thickness: 1.0 to 5.0mm

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.

# 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 x 102 H x 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 x 53.836 H mm	
Display Resolution	480 W x 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 x 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 x 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)
	Full size	16 x 32 pixels, 24 x 48 pixels, 32 x 64 pixels (Western European language: ISO 8859-1)
	Double size	32 x 32 pixels (Japanese JIS first level characters, Mincho font)
Quantity of Characters	1/4 size	60 characters x 34 lines
	1/2 size	60 characters x 17 lines
	Full size	60 characters x 17 lines
	Double size	15 characters x 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

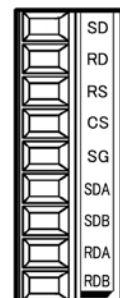
Serial Interface 1 (COM1) *1	RS232C	Electrical Characteristics	EIA RS232C compliant
		Transmission Speed	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 bps
		Synchronization	Asynchronous
		Communication Method	Half or full duplex
		Control System	Hardware control or none
	RS422/485	Electrical 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.

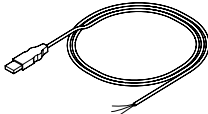
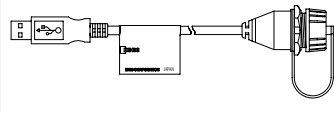
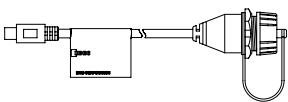
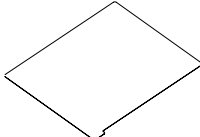
\*2: 187,500 bps is available only with SIEMENS SIMATIC S7-300/400 series (MPI port direct connection).

## 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	
SG	—	Signal Ground	RS232C, RS422/485
SDA	OUT	Send Data (+)	RS422/485
SDB	OUT	Send Data (-)	
RDA	IN	Receive Data (+)	
RDB	IN	Receive Data (-)	



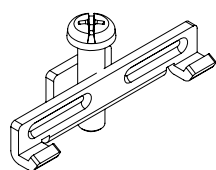
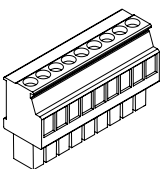
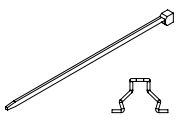
## Options

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 IEC MicroSmart (FC6A) RJ45 connector (loose wire)
	HG9Z-XC275	1	5m For IEC 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 x 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 IEC, refer to WindO/I -NV4 External Device Setup Manual included in the system configuration software Automation Organizer. The manual is also available on IEC'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.	

# HG1G 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)	
Mitsubishi	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 (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	Modbus TCP Server *2
	FP Series
Yaskawa Electric	MP
	MP (Ethernet)
Koyo	DirectLOGIC 05
	DirectLOGIC 06
	DirectLOGIC 205
	KOSTAC SZ
	KOSTAC SU
Fanuc	KOSTAC SU (Ethernet)
	Power Mate
Yokogawa Electric	Series
	FA-M3
Fuji Electric	FA-M3 (Ethernet)
	FREX-PC
	MICREX-F
Toshiba	MICREX-SX
	MICREX-SX (Ethernet)
LS Industrial Systems	PROSEC T Series
	V Series
VIGOR	MASTER-K
	VB
Emerson	VH
	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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