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# 4.3-inch Operator Interface HG1G Series



## OPERATOR INTERFACE PART NUMBERS

| Display screen                          | Operation Style                | Communication                | Bezel color | Part Number    |
|---|--------------------------------|------------------------------|-------------|----------------|
| 4.3-inch TFT color LCD<br>65,536 colors | Touchscreen (analog resistive) | COM<br>LAN<br>USB 1<br>USB 2 | Black       | HG1G-4VT22TF-B |
|   |                                |                              | Silver      | HG1G-4VT22TF-S |

## SPECIFICATIONS

### General Specifications

|                              |  |   |
|------------------------------|--|---|
| Electrical Specifications    | Rated Power Voltage                    | 12-24V DC   |
|                              | Power Voltage Range                    | 10.2 to 28.8V DC  |
|                              | Power Consumption                      | 8W maximum<br>4W maximum when not using USB interface (USB2)  |
|                              | Allowable Momentary Power Interruption | 10ms maximum (voltage 20.4 to 28.8V DC)<br>1ms maximum (voltage 10.2 to 20.4V DC)   |
|                              | Inrush Current                         | 40A maximum   |
| Environmental Specifications | Dielectric Strength                    | 1,000V AC, 10mA, 1 minute between power and FG terminals  |
|                              | 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 8.4Hz amplitude 3.5 mm,<br>8.4 to 150Hz, acceleration 9.8m/s <sup>2</sup><br>10 cycles (100 minutes) on each of three mutually perpendicular axes                                      |
|                              | Shock Resistance                       | 147m/s <sup>2</sup> , 11ms<br>5 shocks on each of three mutually perpendicular axes   |
|                              | Noise Immunity                         | Fast transient/burst test,<br>Power terminals: ±2kV,<br>Communication line: ±1kV<br>(IEC/EN 61131-2, IEC/EN 61000-4-4)  |
|                              | Electrostatic Discharge                | Contact ±6kV, air ±8kV<br>(IEC/EN 61131-2, IEC/EN 61000-4-2)  |
| Structure                    | Corrosion Immunity                     | Free from corrosive gases   |
|                              | Mounting                               | Panel mounting (panel thickness: 1.0 to 5.0mm)  |
|                              | Degree of Protection                   | IP66F/IP67F (IEC 60529, JIS C0920) (see JIS C 0920 Annex 1 for "F") (front part when mounted)<br>*1<br>IP65F/IP67F when panel thickness is below 1.5mm<br>TYPE 4X TYPE 13 *2, Class I Div 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.

## PRODUCT DESCRIPTION

The super-bright, compact 4.3-inch HG1G has most of the features and functionalities found in a larger screen, including monitoring and control via PC, tablet or smartphone. It supports multiple protocols simultaneously, FTP Server function and best-in-class LED backlight life of 70,000 hours. HG1G can be mounted in portrait or landscape to fit your needs. It also supports a wide range of operating temperatures from -20 to 55 degrees C, and is rated IP66F/67F, Type 4X & Type 13, and Class 1 Div 2. It's flexible and small enough to fit in a tight space, and priced to fit a tight budget.

## KEY FEATURES

- Supports up to four protocols simultaneously
- Remote monitor and control
- FTP Server Function
- Operating temperatures: -20°C to 55°C
- 65,536 colors with 800cd/m<sup>2</sup>
- 480 x 272 Pixel Resolution
- LED backlight lifespan: >70,000 hours
- Portrait or landscape mounting
- Rated power voltage: 12-24V DC
- Two Serial ports, 2 USB ports and an Ethernet port
- IP66F/IP67F, Type 4X, Type 13, Class 1 Div 2

## SPECIFICATIONS (CON'T)

### 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             | 800cd/m <sup>2</sup> *2              |
| Brightness Adjustment  | 32 levels                            |
| Backlight Replacement  | N/A                                  |

\*1 Backlight life refers to 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.<br>Popup screen: 3,015 max.   |
| User Memory               | 12MB (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<br>±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)  |

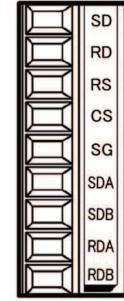
### Interface Specifications

|                              |                                 |  |   |
|------------------------------|---------------------------------|--|---|
| 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, 187500bps *2 |
|                              |                                 | Synchronization                            | Asynchronous  |
|                              |                                 | Communication Method                       | Half or full duplex   |
| Connector                    | Detachable 9-pin terminal block |  |   |
| Ethernet Interface (LAN)     | Interface                       | IEEE802.3u (10BASE-T/100BASE-TX compliant) |   |
| USB Interface (USB1)         | Interface                       | USB 2.0 high speed (480Mbps)               |   |
|                              | Connector                       | USB Type Mini-B connector                  |   |
| USB Interface (USB2)         | Interface                       | USB 2.0 Full speed (12Mbps)                |   |
|                              | Connector                       | USB Type Mini-A connector                  |   |

\*1: RS232C and RS 422/485 can be used simultaneously. \*2: 187,500bps 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 (-) |                    |



## ACCESSORIES

### Software and Cable Part Numbers

| Name                    | Part No. (Ordering No.) | Package Quantity | Description  |
|-------------------------|-------------------------|------------------|--|
| Application Software    | SW1A-W1C                | 1                | Automation Organizer Software Suite (includes WindO/I-NV4) |
| USB Maintenance Cable   | HG9Z-XCM2A              | 1                | USB Programming Cable USB-miniB                            |
| PLC Connection Cable *1 | FC6A-KC1C               | 1                | Communication cable between IEC HMI and FC6A (RS232/RS485) |

\*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.

### Maintenance Part Numbers

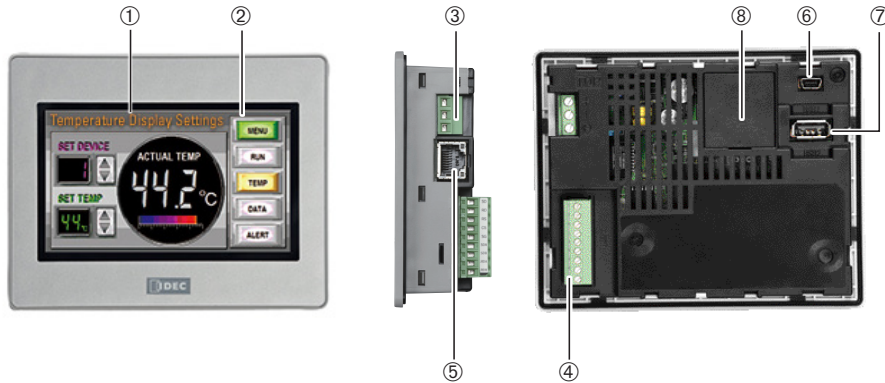
| Name   | Part No. (Ordering No.) | Package Quantity | Description   |
|--|-------------------------|------------------|---|
| Mounting Clip  | HG9Z-4K2PN04            | 4                | Two clips are supplied with HG1G.   |
| Serial Interface Connector (detachable 9-pin terminal block) | HG9Z-XT09V              | 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. |
| Protective Sheet *2  | HG9Z-1D4PN05            | 5                | For 4.3 inch (5 pcs/pack) (used to protect the LCD)                       |

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

## STARTER KITS

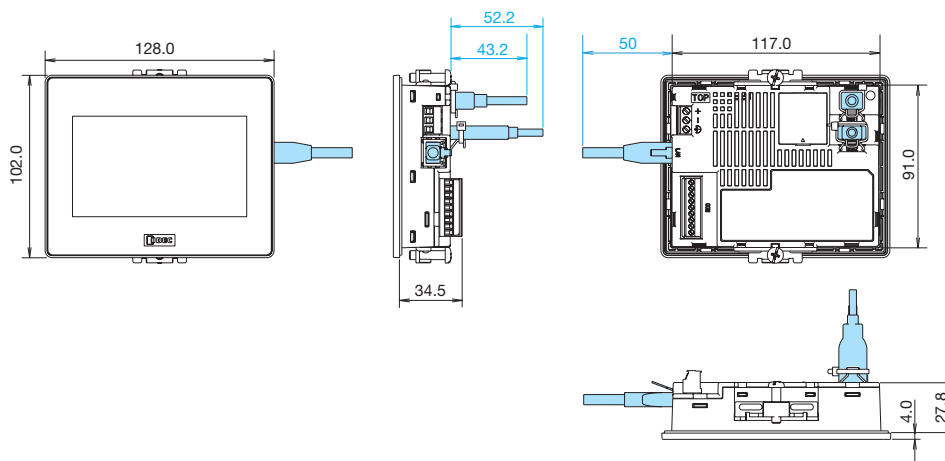
| Part Numbers        | Description   |
|---------------------|---|
| SMARTTOUCH-1G-B     | HMI Kit - HG1G TFT 65K COLOR BLK Bezel, Power Supply, Software, and Programming Cable                             |
| KIT-FC6A-16-RA-HG1G | PLC/HMI Kit - FC6A 16IO 100–240V AC Relay Output, and HG1G TFT LCD black bezel, Power Supply, Software and cables |
| KIT-FC6A-16-RC-HG1G | PLC/HMI Kit - FC6A 16IO 24V DC Relay Output, and HG1G TFT LCD black bezel, Power Supply, Software and cables      |
| KIT-FC6A-24-RA-HG1G | PLC/HMI Kit - FC6A 24IO 100–240V AC Relay Output, and HG1G TFT LCD black bezel, Power Supply, Software and cables |
| KIT-FC6A-24-RC-HG1G | PLC/HMI Kit - FC6A 24IO 24V DC Relay Output, and HG1G TFT LCD black bezel, Power Supply, Software and cables      |

## HARDWARE

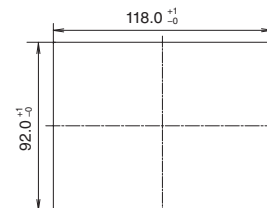


| No. | Name                   | No. | Name                     |
|-----|------------------------|-----|--------------------------|
| ①   | Display                | ⑤   | Ethernet Interface (LAN) |
| ②   | Touchscreen            | ⑥   | USB Interface (USB1)     |
| ③   | Power Supply Terminal  | ⑦   | USB Interface (USB2)     |
| ④   | Serial Interface (COM) | ⑧   | Battery Cover            |

## DIMENSIONS



### Panel Cut-out



All dimensions in mm.  
Panel thickness: 1.0 to 5.0mm

- 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.

## COMPATIBLE PLCS

| Manufacturer          | Series   |
|-----------------------|--|
| IDEC                  | MICROSmart   |
|                       | SmartAXIS Pro/Lite   |
|                       | MICROSmart (Ethernet)                                      |
| Mitsubishi            | SmartAXIS Pro/Lite (Ethernet)                              |
|                       | MELSEC-A (link unit)                                       |
|                       | MELSEC-QnA (link unit)                                     |
|                       | MELSEC-Q (link unit)                                       |
|                       | MELSEC-Q (Ethernet)  |
| OMRON                 | MELSEC-FX  |
|                       | MELSEC-FX (Ethernet)                                       |
|                       | SYSMAC-C   |
|                       | SYSMAC-CS  |
|                       | SYSMAC-CJ1   |
|                       | SYSMAC-CJ2   |
| Allen-Bradley         | SYSMAC-CP1   |
|                       | SYSMAC (Ethernet)  |
|                       | 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    |
|                       | Modbus RTU Slave     |
|                       | Modbus ASCII Master  |
|                       | Modbus TCP Client    |
|                       | Modbus TCP Server    |
| Panasonic             | FP Series            |
| Yaskawa Electric      | MP                   |
|                       | MP (Ethernet)        |
| Koyo                  | DirectLOGIC 05       |
|                       | DirectLOGIC 06       |
|                       | DirectLOGIC 205      |
|                       | KOSTAC SZ            |
|                       | KOSTAC SU            |
|                       | KOSTAC SU (Ethernet) |
| Fanuc                 | Power Mate           |
|                       | Series               |
| Yokogawa Electric     | FA-M3                |
|                       | FA-M3 (Ethernet)     |
| Fuji Electric         | FREX-PC              |
|                       | MICREX-F             |
|                       | MICREX-SX            |
|                       | MICREX-SX (Ethernet) |
| Toshiba               | PROSEC T Series      |
| LS Industrial Systems | V Series             |
| VIGOR                 | MASTER-K             |
|                       | VB                   |
| Emerson               | VH                   |
| Equipment Systems     | FloBoss              |
|                       | EH (Ethernet)        |

