4.3-inch Operator Interface
HG1G Series

IDEC

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.

OPERATOR INTERFACE PART NUMBERS

Display screen	Operation Style	Communication	Bezel color	Part Number
4.3-inch TFT color LCD 65,536 colors	Touchscreen (analog resistive)	COM LAN USB 1 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 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, 10mA, 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 8.4Hz amplitude 3.5 mm, 8.4 to 150Hz, acceleration 9.8m/s² 10 cycles (100 minutes) on each of three mutually perpendicular axes
	Shock Resistance	147m/s², 11ms 5 shocks on each of three mutually perpendicular axes
	Noise Immunity	Fast transient/burst test, Power terminals: ±2kV, Communication line: ±1kV (IEC/EN 61131-2, IEC/EN 61000-4-4)
	Electrostatic Discharge	Contact ±6kV, air ±8kV (IEC/EN 61131-2, IEC/EN 61000-4-2)
	Corrosion Immunity	Free from corrosive gases
structure	Mounting	Panel mounting (panel thickness: 1.0 to 5.0mm)
	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, 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.

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/m²
- 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/m² *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. 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 ±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
		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 (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 (−)	
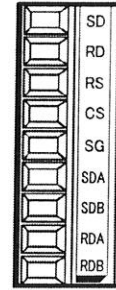
ACCESSORIES

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 IDEC HMIs and FC6A (RS232/RS485)

*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.

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)

(Size: 121.6 × 95.6mm, thickness: 0.188mm)

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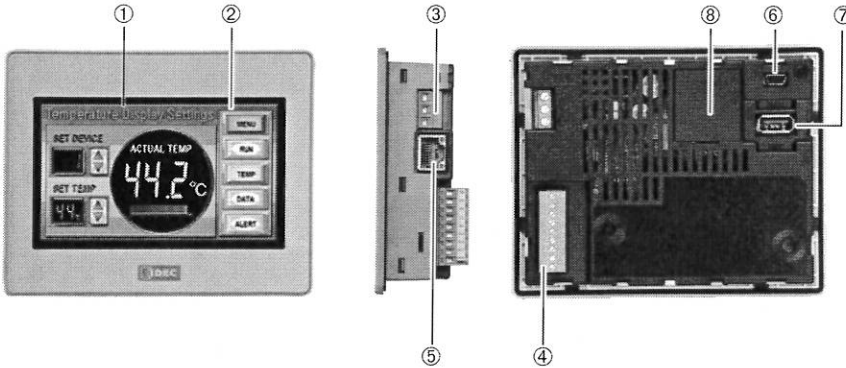
No.	Name	No.	Name
①	Display	⑤	Ethernet Interface (LAN)
②	Touchscreen	⑥	USB Interface (USB1)
③	Power Supply Terminal	⑦	USB Interface (USB2)
④	Serial Interface (COM)	⑧	Battery Cover

DIMENSIONS
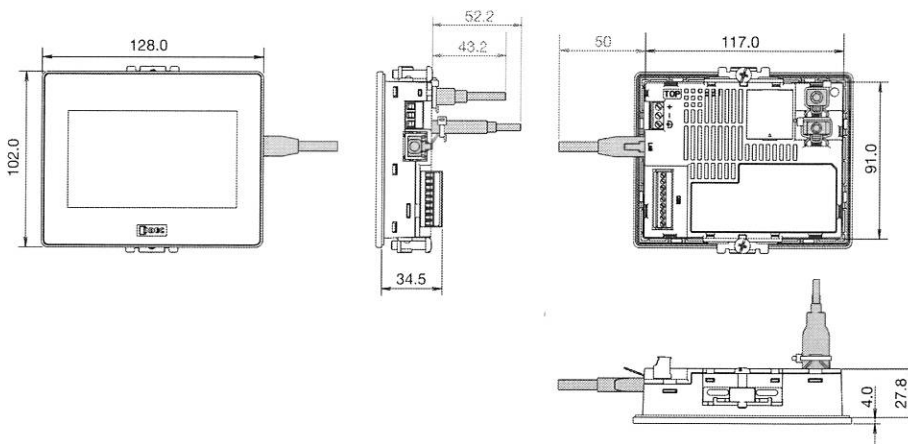
Panel Cut-out
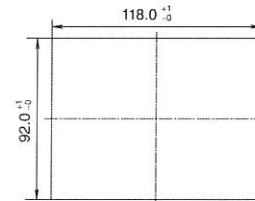
All dimensions in mm.

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)
	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
	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)
	FREX-PC
Fuji Electric	MICREX-F
	MICREX-SX
	MICREX-SX (Ethernet)
Toshiba	PROSEC T Series
	V Series
LS Industrial Systems	MASTER-K
VIGOR	VB
	VH
Emerson	FloBoss
Equipment Systems	EH (Ethernet)

EU Declaration of Conformity

Identification of the Product :	Operator Interface
Name and address of Manufacturer IDEC CORPORATION 2-6-64 Nishimiyahara, Yodogawa-Ku, Osaka 532-0004 Japan	**Name and address of the authorized representative :** IDEC ELEKTROTECHNIK GmbH Heselstuecken 8, 22453 Hamburg, Germany

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Object of the declaration : Series Name – HG1G Series
Model No. – Details are as per attached sheet

The object of the declaration described above is in conformity with the relevant EU harmonization legislation :

2014/30/EU	Electromagnetic Compatibility Directive
2011/65/EU	Restriction of the use of certain hazardous substances (RoHS) Directive

Applied Union harmonized legislation and references to the relevant harmonization standards used or references the other technical specifications in relation to which conformity is declared.
EN 61131-2: 2007
EN 50581: 2012

Where applicable, the notified body
Additional Information :

Signed for and on be half of the above named manufacturer :

Place and date of issue :   Japan, 29 July, 2016

Name, function   :   Atsushi Matsumoto, Executive Officer, Quality Assurance Center

Signature   :   *Atsushi Matsumoto*

IDEC

HG1G Series, 4.3 inch type

HG1G-4VT22TF-W   HG1G-4VT22TF-B   HG1G-4VT22TF-S
HG1G-4VT22TG-W   HG1G-4VT22TG-B   HG1G-4VT22TG-S
HG1G-4VT22TH-W   HG1G-4VT22TH-B   HG1G-4VT22TH-S
HG1G-4VT22TJ-W   HG1G-4VT22TJ-B   HG1G-4VT22TJ-S

CERTIFICATE OF COMPLIANCE

Certificate Number 20160727-E102542
Report Reference E102542-20110527
Issue Date 2016-JULY-27

Issued to: IDEC CORP

6-64 NISHIMIYAHARA 2-CHOME
YODOGAWA-KU, OSAKA 532-0004 JAPAN

This is to certify that representative samples of

PROGRAMMABLE CONTROLLERS
SEE ADDENDUM PAGE FOR MODELS

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety:

UL508 - Industrial Control Equipment
CSA C22.2 NO. 142-M1987 - Process Control Equipment

Additional Information:

See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

CERTIFICATE OF COMPLIANCE

Certificate Number 20160727-E102542

Report Reference E102542-20110527

Issue Date 2016-JULY-27

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Models:
HG2G Series, 5.7 inch type
HG2G-5ST22VF-W, -5ST22VF-B, -5ST22VF-S
HG2G-5ST22TF-W, -5ST22TF-B, -5ST22TF-S
HG2G-5FT22TF-W, -5FT22TF-B, -5FT22TF-S.

HG4G Series, 12.1 inch type
HG4G-CJT22TF-B, -CJT22MF-B.

HG1G Series, 4.3 inch type
HG1G-4VT22TF-W, -4VT22TF-B, -4VT22TF-S
HG1G-4VT22TG-W, -4VT22TG-B, -4VT22TG-S
HG1G-4VT22TH-W, -4VT22TH-B, -4VT22TH-S
HG1G-4VT22TJ-W, -4VT22TJ-B, -4VT22TJ-S

CERTIFICATE OF COMPLIANCE

Certificate Number 20160801-E211795
Report Reference E211795-20121009
Issue Date 2016-AUGUST-01

Issued to: IDEC CORP

6-64 NISHIMIYAHARA 2-CHOME
YODOGAWA-KU
OSAKA 532-0004 JAPAN

This is to certify that representative samples of PROGRAMMABLE CONTROLLERS FOR USE IN HAZARDOUS LOCATIONS
See next page for models.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/ISA-12.12.01-2015, Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
CAN/CSA C22.2 No. 213-15, Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program
UL LLC

CERTIFICATE OF COMPLIANCE

Certificate Number	20160801-E211795
Report Reference	E211795-20121009
Issue Date	2016-AUGUST-01

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Programmable Display Operator Interface, HG2G and HG1G Series
for use in Class I, Division 2, Group A, B, C, D Hazardous Locations.
Consists of the following modules:

HG2G Series, 5.7 inch type,
HG2G-5ST22VF-W, -5ST22VF-B, -5ST22VF-S
HG2G-5ST22TF-W, -5ST22TF-B, -5ST22TF-S
HG2G-5FT22TF-W, -5FT22TF-B, -5FT22TF-S.
HG2G-5Txx2Tx-W, -5Txx2Tx-B, -5Txx2Tx-S.

HG1G Series, 4.3 inch type
HG1G-4VT22TF-W, -4VT22TF-B, -4VT22TF-S
HG1G-4VT22TG-W, -4VT22TG-B, -4VT22TG-S
HG1G-4VT22TH-W, -4VT22TH-B, -4VT22TH-S
HG1G-4VT22TJ-W, -4VT22TJ-B, -4VT22TJ-S