HG1H Small Teaching Pendant

A small and lightweight teaching pendant.

- Features IDEC's 3-position enabling switch
- Mechanical switches, such as pushbuttons and/or key switches, can be mounted
- Designed for easy teaching operation with one hand. Lightweight 400g (not including cable)
- IDEC's XA1E emergency stop switch with a maximum of 4NC contacts (standard with 2NC contacts)
- User friendly software reduces software development time
- Degree of protection IP54

Type No.

Backlight	Expansion Memory	Host I/F	Type No. (Ordering Type No.)	Remarks	Package Quantity
Without	Without	RS232C	HG1H-SA12BH-A3	• Cable length: 3m • Membrane switches: 7 rows × 5 columns (35 pcs) • LED indicators: 1 row × 5 columns (5 pcs)	1
		RS485	HG1H-SA12CH-A3		
		RS422	HG1H-SA12JH-A3		
	With	RS232C	HG1H-SA12BEH-A3		
		RS485	HG1H-SA12CEH-A3		
		RS422	HG1H-SA12JEH-A3		

• Accessories (Options)

Product Name	Type No. (Ordering Type No.)	Remarks	Package Quantity
Maintenance Cable	HG9Z-TCM22	Cable used to connect the HG1H to PC. Necessary when debugging the system program in the HG1H (RS232C communication).	1
Wall Mount Bracket	HG9Z-HK1	Made of polypropylene	
Wrist Strap	HG9Z-PS1	Used to hold pendant securely on wrist	
Grip Belt	HG9Z-TS2	Used to hold pendant securely in hand	

General Specifications

Electrical Specifications	Rated Power Voltage	24V DC	
	Power Voltage Range	21.6 to 26.4V DC	
	Power Consumption	2.8W maximum	
	Allowable Momentary Power Interruption	10 ms maximum	
	Inrush Current	10A maximum	
	Dielectric Strength	500V AC 10 mA for 1 minute (between power and FG terminals)	
	Insulation Resistance	10 MΩ minimum between power terminals and interface connector hood (500V DC megger)	
Environmental Specifications	Operating Temperature	0 to 40°C (no freezing)	
	Operating Humidity	10 to 90% RH (no condensation)	
	Storage Temperature	–20 to +60°C (no freezing)	
	Storage Humidity	10 to 90% RH (no condensation)	
	Vibration Resistance (Damage Limit)	10 to 55Hz: 9.8 m/s² (2 hours each on three mutually perpendicular axes)	
	Shock Resistance (Damage Limit)	98 m/s² (5 shocks each on three mutually perpendicular axes)	
	Noise Immunity	Fast transient/burst test, Common mode: Level 3 Power terminals: ±2 kV Communication line: ±1 kV	IEC61000-4-4
	Electrostatic Discharge	ESD-3 (RH-1) Level 3 (Contact ±6 kV, aerial ±8 kV)	IEC61000-4-2
	Atmosphere	No corrosive gas	
Construction Specifications	Ground	Functional ground (connect to the ground to ensure correct operation)	
	Degree of Protection	IP54 (not including the cable connector)	
	Cable Length	3m (standard) (10m maximum)	
	Dimensions	110W × 218.4H × 66.6D mm	
	Weight (approx.)	400g maximum (not including cable)	
	Mounting	Hand-held (or can be hung on the wall using the mounting bracket)	

Display Specifications

Display Device	Reflecting STN monochrome LCD (without backlight)
Display Method	Character display
Display Resolution	20 characters × 4 lines
Contrast Adjustment	Software control

Operation Specifications

• Membrane Switch Specifications

Method	Tactile switch
Switch Quantity	7 rows × 5 columns (35 switches)
Operating Force	3N maximum
Life	500,000 operations minimum
LED indicators	1 × 5 columns (5 LEDs, amber)

• Mechanical Switch Specifications

	Emergency Stop Switch ∗1	Enabling Switch ∗1
Type No.	XA1E-BV302R (IDEC)	HE2B-M200PY (IDEC)
Quantity	1	1
Contact Rating	24V DC, 1A ∗2	24V DC, 50 mA
Contact Configuration	2NC	3-position switch × 2 (OFF-ON-OFF)

∗1: EN60947-1 compliant
∗2: With a larger applied current, the voltage drop tends to be bigger due to resistance of the cable.

Interface Specifications

• RS232C

Electrical Characteristics	EIA RS232C compliant
Transmission Speed	38400, 19200, 9600, 4800, 2400, 1200, 600, 300 bps
Synchronization	Asynchronous
Communication Method	Full duplex or half duplex

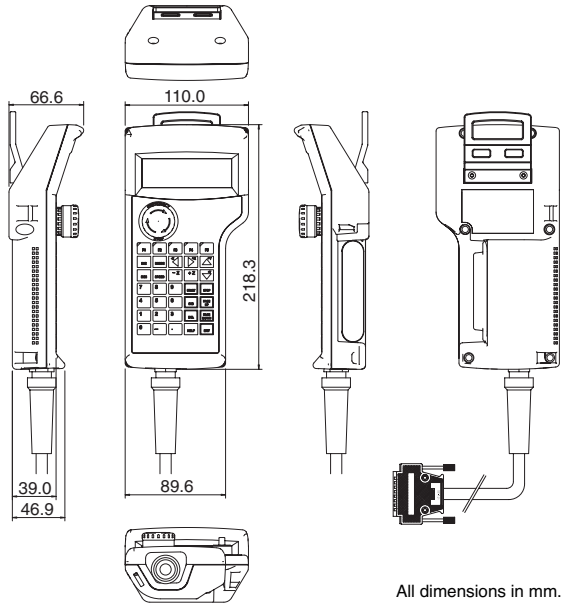
• RS422

Electrical Characteristics	EIA RS422 compliant
Transmission Speed	38400, 19200, 9600, 4800, 2400, 1200, 600, 300 bps
Synchronization	Asynchronous
Communication Method	Full duplex

• RS485

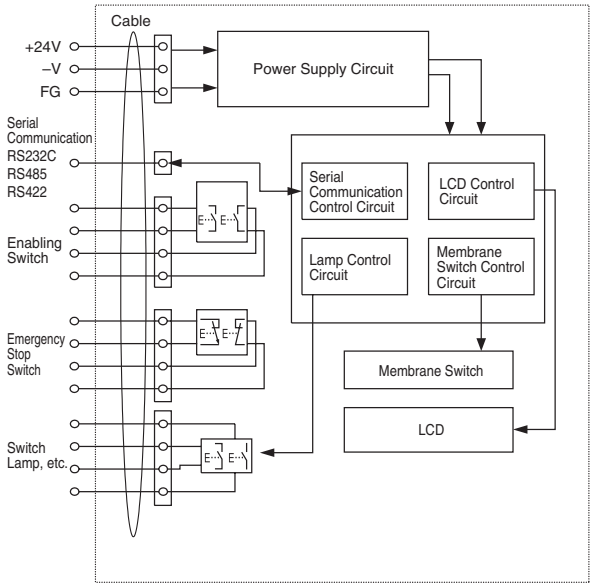
Electrical Characteristics	EIA RS485 compliant
Transmission Speed	38400, 19200, 9600, 4800, 2400, 1200, 600, 300 bps
Synchronization	Asynchronous
Communication Method	Half duplex

Dimensions

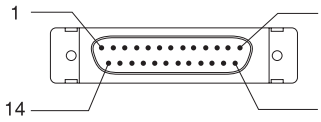


All dimensions in mm.

Block Diagram



Connector Pin Assignment and Functions

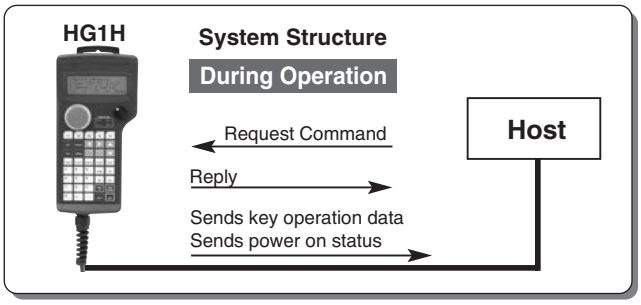


D-sub 25-pin connector (plug)
(17JE-23250-02 made by DDK)

	Name			Function		
	RS232C	RS422	RS485	RS232C	RS422	RS485
1	FG			Frame ground		
2	NC	RD2–	TDB	Unused	Receive data–	Communi-cation dataB
3	NC	RD2+	TDA	Unused	Receive data+	Communi-cation dataA
4	NC	SD2–	NC	Unused	Send data–	Unused
5	NC	SD2+	NC	Unused	Receive data+	Unused
6	SG			Communication signal ground		
7	CS	NC	NC	Communication control input	Unused	Unused
8	RS	NC	NC	Communication control output	Unused	Unused
9	E_NO1			Enabling switch contact 1 terminal 1 (NO)		
10	E_C1			Enabling switch contact 1 terminal 1 (COM)		
11	A_NC11			Emergency stop switch contact 1 terminal 1 (NC)		
12	A_NC12			Emergency stop switch contact 1 terminal 2 (NC)		
13	24V DC (–)			Power supply 24V DC (–)		
14	RD1	NC	NC	Receive data	Unused	Unused
15	SD1	NC	NC	Send data	Unused	Unused
16	NC			Unused		
17	NC			Unused		
18	NC			Unused		
19	NC			Unused		
20	SG			Communication signal ground		
21	E_NO2			Enabling switch contact 2 (NO)		
22	E_C2			Enabling switch contact 2 (COM)		
23	A_NC21			Emergency stop switch contact 2 terminal 1 (NC)		
24	A_NC22			Emergency stop switch contact 2 terminal 2 (NC)		
25	24V DC (+)			Power supply 24V DC (+)		

Programming

Standard programming is designed to reduce the burden of software development by a customer. It performs screen display control and transmits information to the host device, when pressing keys in response to commands from the host.



• Command List

Command Character	Description
C	Clear screen
V	LCD ON/OFF
P	Set cursor position
I	Set cursor shape
E	Set automatic scrolling
S	Character display
N	Enable numerical input mode
Z	Disable numerical input mode
K	Read key pressing condition
J	LED ON/OFF
B	Buzzer ON/OFF
F	Set operation
G	Read operation setting
X	Read system program version
x	Read model information
U	Check communication
W	Adjust contrast

Ordering Information

IDEC tailors HG1H small teaching pendants to your specific requirements. Available options are shown on the specification sheet below. Please discuss your specifications with IDEC's sales representatives before ordering. Minimum ordering quantity is 100 per lot.

HG1H Specifications Sheet

Please use this sheet for specifications of the HG1H small teaching pendant. Date:

Customer		Department				
Contact Person		TEL	( ) –			
Address						
Type No. (Ordering Type No.)	HG1H –SA12 ① ② H –MK ∗∗∗∗ –S ③			Standard System Program	☐Necessary ☐Unnecessary	Gland	
Applications		Lot Quantity		Annual Quantity		

① Host communication code: B (RS232C), C (RS485), J (RS422)
② Expansion memory code: E (with), Blank (without)
③ Cable length code: Specify an integer in meters 3 to 10 (3 to 10m)
MK∗∗∗∗ shows IDEC's control number.

Specify the Mechanical Switches

Determine the arrangement of the mechanical switches. For switch A, select the switch model (button color) and check the box. For switch B, fill in the following columns for Switch Code, Color Code, and Contact with reference to the table on the right.

Switch A

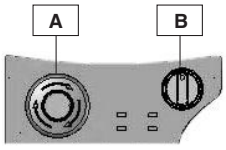
Switch Position	Switch Model (Button Color)
A	☐Emergency stop switch (red) ☐Stop switch (gray)

Switch B (A6 Series Round)

Fill in the following columns.

Switch Position	Switch Code	Color Code	Contact (1NO, 2NO)
B			

• **Mechanical Switch Arrangement**

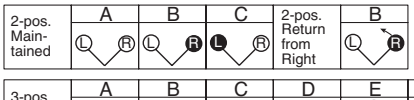


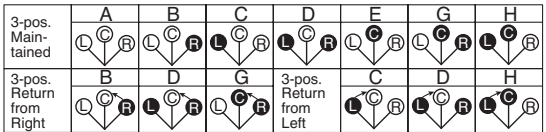
• **When not specifying B**

• **Switch Code** (other codes are not available)

ø16 A6 Series Control Units for Switch B			Switch Code
Illuminated Pushbutton (LED, gold contact, 5V DC)		Momentary	R11
		Maintained	R12
Pushbutton (gold contact)		Momentary	R21(L) ∗1
		Maintained	R22(L) ∗1
Pilot Light (LED, 5V DC)			R31
Selector Switch (gold contact)	2-position	Maintained	R41
		Spring return from right	R42
	3-position	Maintained	R43
		Spring return from right	R44
		Spring return from left	R45
		Spring return two way	R46
Key Selector Switch (gold contact)	2-position	Maintained	R51_ ∗2
		Spring return from right	R52_ ∗2
	3-position	Maintained	R53_ ∗2
		Spring return from right	R54_ ∗2
		Spring return from left	R55_ ∗2
		Spring return two way	R56_ ∗2

∗1: When ordering the "Illuminated lens type" button, add "L" to the switch code.
∗2: When ordering a key selector switch, add the following key removable position code to the switch code.

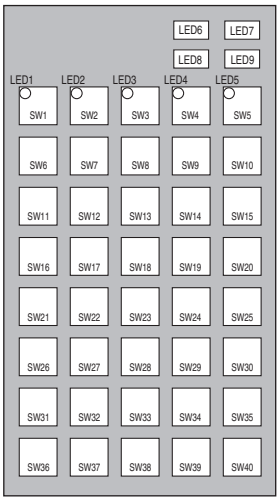




○: Key removable position.
●: Key retained position.

• **Color Code** (except for selector and key selector switches)
Illuminated Pushbutton and Pilot Light:
A (amber), G (green), R (red), W (white), Y (yellow)
Pushbutton:
B (black), G (green), R (red), S (blue), W (white), Y (yellow)

Specify the Key Sheet



For the key sheet arrangement, refer to the figure on the left. Check the indicators and keys to use in the figure and write the quantities in the table below.

No. of LED Indicators	pcs	5 pcs standard 9 pcs maximum
No. of Membrane Keys	pcs	35 pcs standard 40 pcs maximum
No. of Sheet Colors	colors	

The LED indicator color is amber.

IDEC will make a key sheet as specified by a customer. The customer is requested to design the key sheet and provide the data [File format: ∗.AI (Adobe Illustrator)]. IDEC can also design a key sheet for customer at an extra charge.

[Remarks]

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

IDEC:
HG1H-SA12BEH-A3 HG1H-SA12BH-A3 HG1H-SA12CEH-A3 HG1H-SA12CH-A3 HG1H-SA12JEH-A3 HG1H-SA12JH-A3