

ELC Graphics Panels

Product Description

ELC Graphics Panels are simple to program and easily connect to ELC products. ELC graphics panels make modifying an application quick and easy. ELC graphics panels also connect to Cutler-Hammer® MVX drives, IQ MODBUS meters and many other devices. With over 30 objects that can be placed anywhere on the display, these tough panels also communicate to other major controllers. These graphics panels have two serial ports which can be used simultaneously to communicate. Transfer applications to or from these graphics panels using the handy transfer module. Ten programmable functions keys provide easy to change pages, input numeric values, enter alpha-numeric passwords, set, reset and more. Create alarms, password protect, import bit-maps, and use many different fonts.

Protocols Supported

- Eaton D50/D32LT, D320
- Eaton ELC
- Eaton MVX ASCII
- Eaton MVX RTU
- MODBUS ASCII
- MODBUS RTU
- AB DF1
- Mitsubishi FX Series
- Mitsubishi FX2N Series
- Koyo K-Sequence
- LG 200S
- OMRON C-Series
- Siemens 57-200 Series
- ASCII Slave Mode
- And more...




ELC-GP02



ELC-GP04

Features

Table 1. ELC Graphics Panel Features

Item	ELC-GP02	 ELC-GP04
Display Screen		
Screen	STN-LCD	
Color	Monochromatic	
Back-light	The back-light automatic turn off time is 1 – 99 minutes (0 = do not to turn off) (back-light life is 50 thousand hours at 25°C)	
Resolution	160X32 pixels	128X64 pixels
Display Range	72 mm (W) X 22 mm (H)	67mm (W) X 32mm (H); 3.00" (diagonal preferred)
Contrast Adjustment	15-step contrast adjustment	10-step contrast adjustment
Language Font	ASCII: characters (including European Fonts) Taiwan: (BIG 5 code) traditional Chinese character font China: (GB2324-80 code) simplified Chinese character font	
Font Size (ASCII)	5 X 8, 8 X 8, 8 X 12, 8 X 16	
ALARM Indication LED	1. Power on indication (Flash three times) 2. Flash for communication error or other alarm 3. Special Indication by user programming	
RS-232 LED (Yellow)	Flashes when communicating	
RS-485 LED (Green)	Flashes when communicating	
Program Memory		
Program Memory	256KB flash memory	
External Interface		
Serial Communication Port RS-232 (COM1) 9 PIN D-SUB male	Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Baud Rate: 4800 bps – 115200 bps	
Extension Communication port RS-485 (COM2) 5-Pin Removal Terminal (RS-485 or RS-422)	Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Baud Rate: 4800 bps – 115200 bps	
Extension Slot	The slot for program copy card	
Power	24V DC input	

Product Selection

Table 2. Graphics Panels

Description	Catalogue Number
160 x 32 pixels, 10 Function Keys, Monochrome	ELC-GP02
128 x 64 pixels, 10 Function Keys, Monochrome	ELC-GP04

Standards and Certifications

Table 3. Approvals/Certifications

Description	Specifications
Electrical/EMC	
Electrostatic Discharge Immunity	EN61000-4-2/1995
Radiated Immunity	EN61000-4-3/1995
Electrical Fast Transient	EN61000-4-4/1995
Radiated Emission	CISPR22, Class A
Other Approvals	
Waterproof Class of Front Panel	UL Type 4X Outdoor Rated
Agency Certifications	UL 508, cUL (CSA C22.2 No. 14), CE (Low Voltage Directive)

Technical Data and Specifications

Table 4. Environmental Ratings/Specifications

Description	Specification
Transportation & Storage	
Temperature	-4° – 140°F (-20° – 60°C)
Operating	
Temperature	32° – 122°F (0° – 50°C)
Humidity	20 – 90% RH (non-condensing)
Communication Interface	COM1: RS-232; COM2: RS-485/RS-422
Vibration	0.5 mm displacement, 10 – 55 Hz, X, Y, Z three directions and two hours for each direction
Impact	10G, 11 mS, from X, Y, Z three directions and three times for each direction
Weight	0.53 Lbs. (0.24 kg)
Cooling Method	Natural Air Cooling

Dimensions

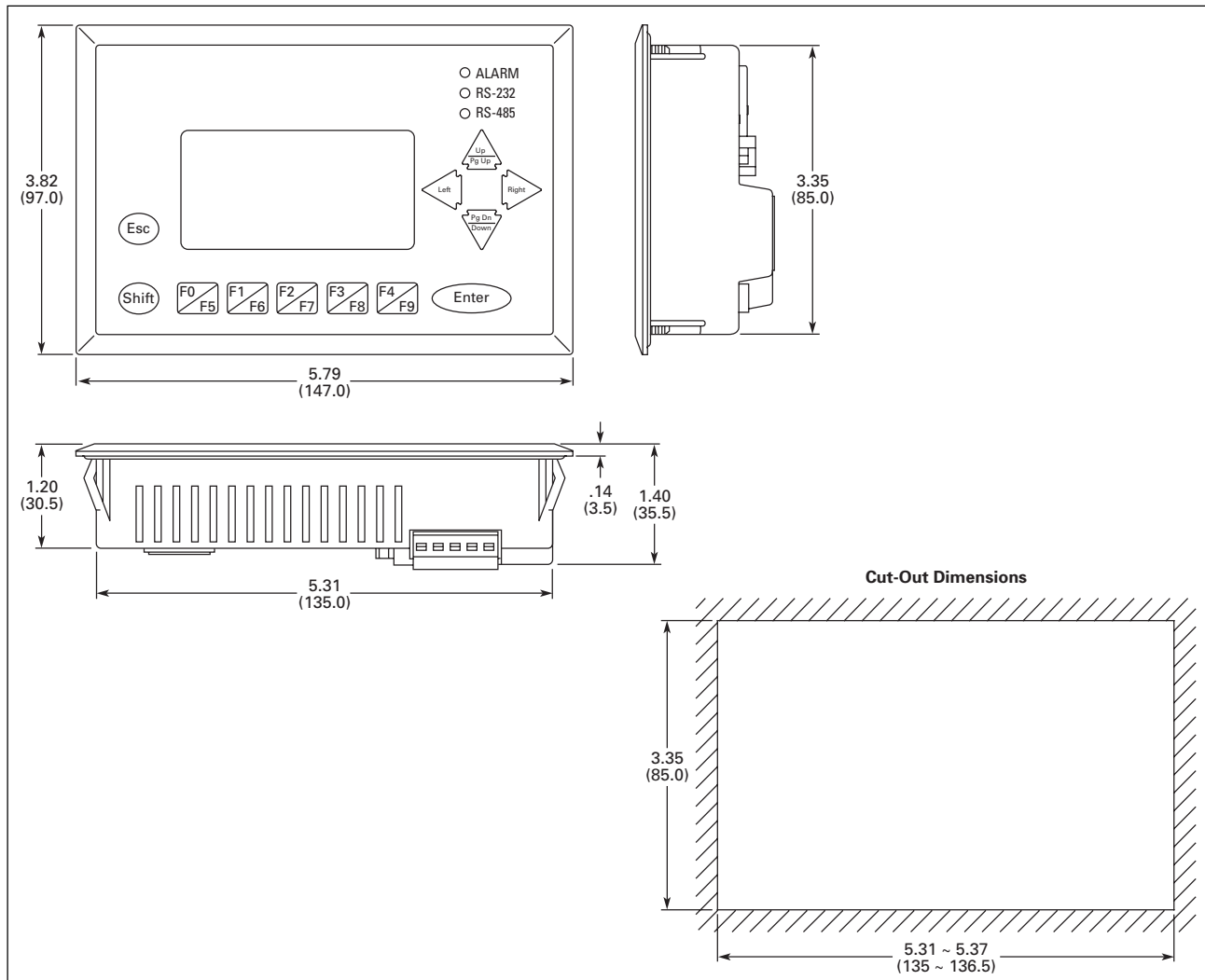


Figure 1. ECL-GP04 — Approximate Dimensions in Inches (mm)

February 2007

Graphics Panels

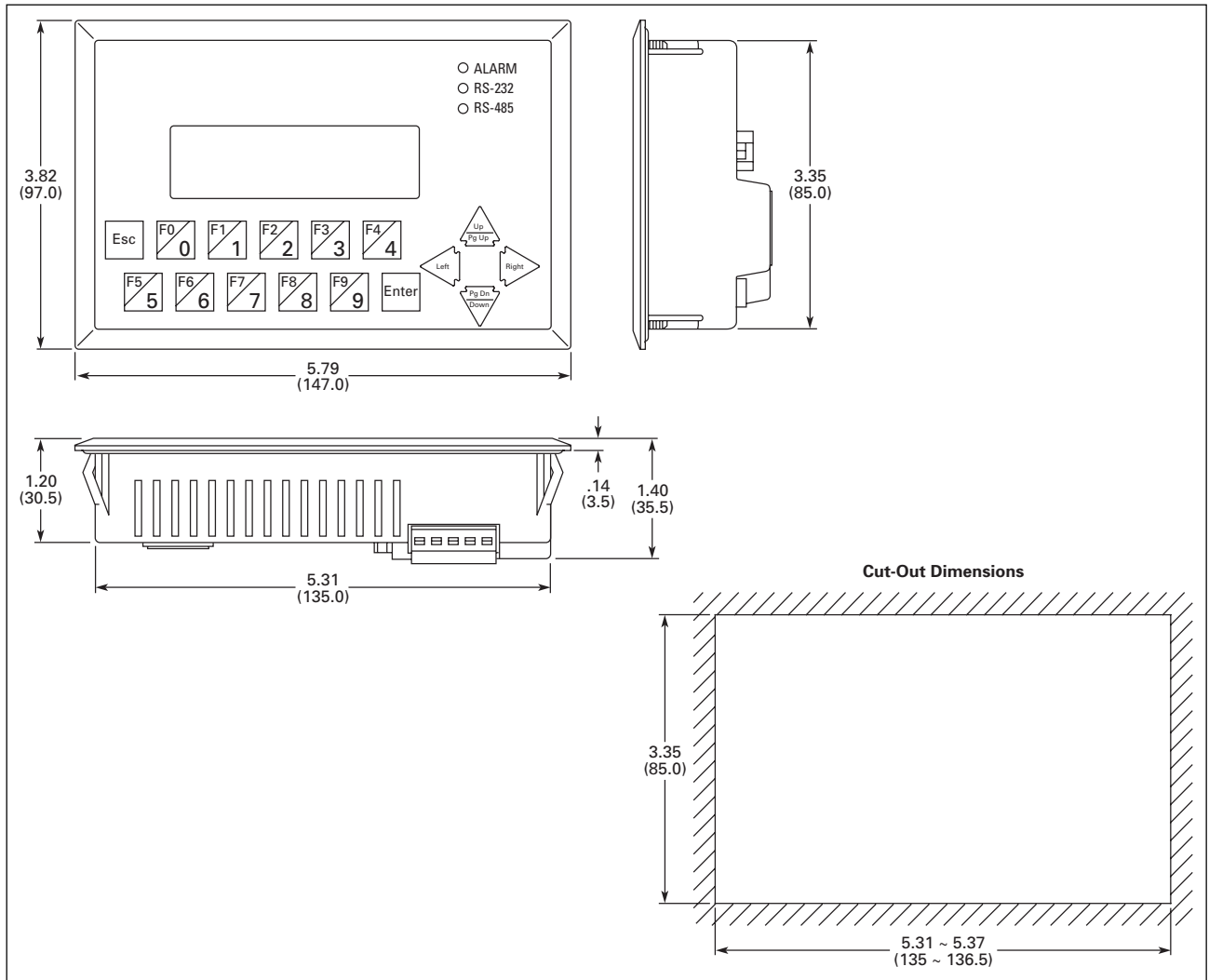


Figure 2. ECL-GP02 — Approximate Dimensions in Inches (mm)

Font	ASCII: characters Other: user define	
Maximum Words x Rows, for Each Font Size	5X 8: 25 words X 8 rows	
	8X8: 16 words X 8 rows	
	8X12: 16 words X 5 rows	
	8X16: 16 words X 4 rows	
Font Size	ASCII: 5X8, 8X8, 8X12, 8X16	
Alarm Indication LED (RED)	1. Power on indication (Flash three times) 2. Flash for communication error or other alarm 3. Special Indication by user programming	
RS-232 Indication LED (Yellow)	It will be flashing when transmitting program and communicating by using RS-232.	
RS-485/RS-422 Indication LED (green)	It will be flashing when communicating by using RS-485/RS-422.	
Program Memory	256KB flash memory	
External Interface	Serial Communication Port RS-232 (COM1)	RS-232 Data length: 7 or 8 bits, Stop bits: 1 or 2 bits Parity: None/Odd/Even, Transmission speed: 9600bps~115200bps RS-232: 9 PIN D-SUB male
	Extension Communication Port RS-422/RS-485 (COM2)	RS-485/RS-422 Data length: 7 or 8 bits, Stop bits: 1 or 2 bits Parity: None/Odd/Even Transmission speed: 9600bps~115200bps RS-422: 9 PIN D-SUB male RS-485: 5-Pin removal terminal
	Extension Slot	1. Update program version 2.The slot for program copy card
	Battery Cover	DC 3V battery for HMI
	5-Pin Removal Terminal	There are DC 24V input and RS-485 input

3 TRANSFER MODULE

The function of transfer module that ELC-GP04 provides to copy user program, system function and passwords is different from the copy program. It is used to copy the whole HMI environment settings and application programs to another HMI rapidly. It can save much time and manpower. The operation is in the following.

Definition: Transfer module (ELC-GPXFERMOD) = XMOD, GP Series = GP

Step	GP XMOD	XMOD GP
1	Turn the switch on the XMOD to GP XMOD	Turn the switch on the XMOD to XMOD GP
2	Insert the XMOD into the extension slot of GP	Insert the XMOD into the extension slot of GP
3	Input the power to GP	Input the power to GP
4	It will display "remove XMOD" on the screen and power on again	It will display "remove XMOD" on the screen and power on again

HMI display message

Copy HMI program to XMOD (GP XMOD)	Copy XMOD program to HMI (XMOD GP)
If the model type of GP does not correspond with the model type of program of XMOD, GP will display "GP series and XMOD is different. Press Enter to Confirm GP series XMOD. Press Esc to Exit".	If there is no program in XMOD, GP will display "The XMOD is Empty. XMOD GP series is illegal".
GP will display "GP XMOD series Please wait!" during transmission.	GP will display "XMOD GP series Please wait!" during transmission.
GP will display "Please Remove the XMOD and Reboot !" when completing transmitting.	GP will display "Please Remove the XMOD and Reboot !" when completing transmitting.

4 PASSWORD FUNCTION

- If the password is forgotten, the password may be cleared using the following code: XXXXXXXXXX. This universal code will clear the password and all internal programs of ELC-GP04. The ELC-GP04 will be re-set to the factory settings.
- Users may use 0~9 and A~Z as characters for the password. Users must use the function keys F0~F4 to input the password characters.
F0/F5: scrolls in a loop as follows 0 5 A B C D E F 0

- F1/F6: scrolls in a loop as follows 1 6 G H I J K 1
 F2/F7: scrolls in a loop as follows 2 7 L M N O P 2
 F3/F8: scrolls in a loop as follows 3 8 Q R S T U V 3
 F4/F9: scrolls in a loop as follows 4 9 W X Y Z 4

5 HARDWARE OPERATION

The steps to Startup the ELC-GP04:

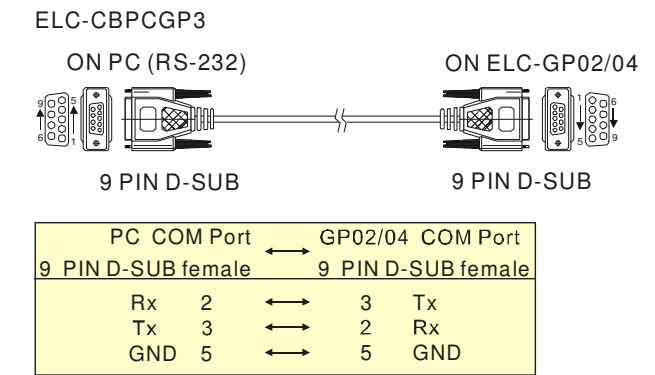
- Apply 24V DC power,
- Enter into the startup display,
- Enter the user-designed program,
- Press Esc key and hold on for 5 seconds to return to system menu.

There are five selections in the system menu and are described below.

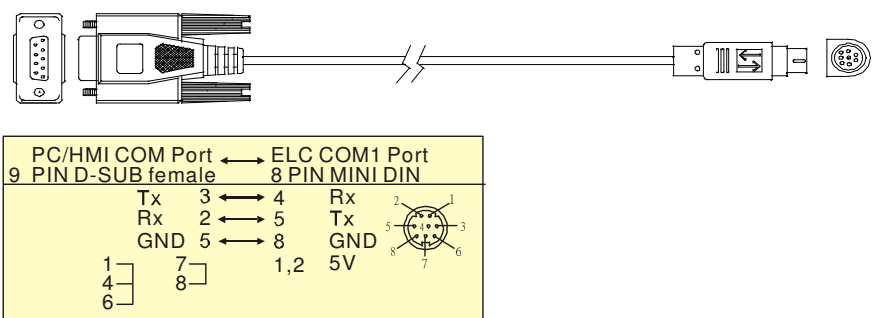
SELECTIONS	EXPLANATION
Download Program	Use the connection cable (ELC-CBPCGP3) to connect the serial communication port RS-232 of ELC-GP04 to a PC. Then use the ELCSoftGP software to download an application program to the ELC-GP04.
Upload Program	Use the connection cable (ELC-CBPCGP3) to connect the serial communication port RS-232 of ELC-GP04 to a PC. Then use the ELCSoftGP software to upload an application program from the ELC-GP04.
Copy Program	Transfer a program between two ELC-GP04 units. 1: transmit programs 2: receive programs When transmitting programs and data between two ELC-GP04 units. Set one ELC-GP04 to "Receive Program" mode and the other ELC-GP04 to "Transmit Program" mode. Please use twisted pair wires to connect the two units via the RS-485 ports.
ELC-GP04 Settings	There are 8 items that used to modify ELC-GP04 system settings: 1. Communication protocol: Setting the address of ELC-GP04, the control port of ELC, and the communication string for either RS-232 or RS-485. 2. Contrast: Adjust the contrast of LCD screen. 3. Back-light: adjust the automatic turn off time of LCD. Setting range is 00~99 seconds. If set to 00, the LCD Back-light will not turn off. 4. Date and Time: It is used to set the ELC-GP04 built-in RTC including year, month, day, hour, minute, second and week. Also the internal battery capacity display is shown here. 5. Buzzer: Used to set the buzzer sound, normal mode or quiet mode. 6. Language Setting: Used to set the displayed language. English, Traditional Chinese, simplified Chinese or user defined language. 7. Password setting: Used to set, enable, and disable the password function. If the password function is enabled, it will require the user to input a password before entering any system menu. The factory password is 1234. 8. Startup display: Used to select the ELC-GP04 startup display. User can select "user defined" to use the file that designed by ELCSoftGP and download to ELC-GP04. 9. Comm. Indicator : Used to select the communication Indicator enable or disable.
ELC Connection	There are three methods to connect to ELC: Using serial communication port (COM1) RS-232 of ELC-GP04: set 8-pin DIP switch to RS-485 mode and connect the cable (ELC-CBPCELC3) to program communication I/O RS-232C of ELC. Using extension communication port (COM2): set 8-pin DIP switch to RS-485 mode and connect 5-pin removal terminal of extension communication port to RS-485 of ELC with twisted pair. Using extension communication port (COM2): set 8-pin DIP switch to RS-422 mode and connect four pins (6, 7, 8, 9) of 9 PIN D-SUB male to RS-422 of ELC with 4-wire cable.
Execution	Execute the internal program that download from ELCSoftGP or transmitted from other ELC-GP04 units. When entering execution program, you can return to system menu by pressing Escape/Exit (Esc) key for 5 seconds.

6 COMMUNICATION CONNECTION

ELC-GP04 may connect to a PC by using cable ELC-CBPCGP3



ELC-GP04 may connect to a ELC by using cable ELC-CBPCELC3



The Pin definition of 9 PIN D-SUB

RS-232:

ELC-GP04 COM Port RS-232 9 PIN D-SUB male	
3	Tx
2	Rx
5	GND

RS-422:

ELC-GP04 COM Port RS-422 9 PIN D-SUB male	
6	Rx +
7	Rx -
8	Tx +
9	Tx -

Switch between RS-422 / RS-485 (by using 8-PIN DIP switch)

8-PIN DIP switch	RS-485	RS-422
SW1~SW4	On	Off
SW5~SW8	Off	On

7 BATTERY LIFE AND PRECISION OF CALENDAR TIMER

Battery life

Temperature (C)	-20	0	20	60
Life (year)	1.972	2.466	2.712	2.835

Precision of calendar timer(sec)

- At 0 C/32 F, less than -117 seconds error per month.
- At 25 C/77 F, less than 52 seconds error per month.
- At 55 C/131 F, less than -132 seconds error per month.