

# Flex Network I/F Unit Installation Guide

Thank you for purchasing Digital's "Flex Network I/F Unit" (GLC100-FN41) unit. This I/F Unit is used with the GLC100/300 Series and features Digital Electronics Corporation's original wiring-saving system (Flex Network). To ensure correct use of this unit's functions and features, be sure to carefully read this installation guide and the Flex Network User's Manual (sold separately).

The GLC100/300 Series (hereafter referred to as the GLC) in this guide include the following models.

GLC100 Series ..... GLC100-LG41-24V, GLC100-SC41-24V  
GLC300 Series ..... GLC300-TC41-24V



**SCIGATE AUTOMATION (S) PTE LTD**  
No.1 Bukit Batok Street 22 #01-01 Singapore 659592  
Tel: (65) 6561 0488 Fax: (65) 6562 0588  
Email: [sales@scigate.com.sg](mailto:sales@scigate.com.sg) Web: [www.scigate.com.sg](http://www.scigate.com.sg)  
Business Hours: Monday - Friday 8.30am - 6.15pm




# Safety Precautions

This guide contains a variety of safety markings for safe and correct operation of this unit. Please read this installation guide and any related manuals carefully to fully understand how to correctly use this unit's functions.

## ■ Safety Symbols

This guide uses the following symbols for important information related to the safe and correct operation of this unit. Please pay attention to these symbols and follow all instructions given.

Safety symbols and their meanings:

 <b>Danger</b>	A hazardous situation that could result in serious injury or even death if instructions are not followed.
 <b>Warning</b>	A potentially hazardous situation that could result in serious injury or even death if instructions are not followed.
 <b>Caution</b>	A potentially hazardous situation that could result in minor injury or equipment damage if instructions are not followed.



## Danger

- An emergency stop circuit and an interlock circuit should be constructed outside of this unit. Constructing these circuits inside this unit may cause a runaway situation, system failure, or an accident due to unit failure.
- Systems using this unit should be designed so that output signals which could cause a serious accident are monitored from outside the unit.
- This unit is designed to be a general-purpose device for general industries, and is neither designed nor produced to be used with equipment or systems in potentially life-threatening conditions. If you are considering using this unit for special uses, including nuclear power control devices, electric power devices, aerospace equipment, medical life support equipment, or transportation vehicles, please contact your local Flex Network distributor.



## Warning

- Whenever installing, dismantling, wiring, and conducting maintenance or inspections, be sure to disconnect power to this unit to prevent the possibility of electric shock or fire.
- Do not disassemble or remodel this unit, since it may lead to an electric shock or fire.
- Do not use this unit in an environment that contains flammable gases since an explosion may occur.
- Do not use this unit in an environment that is not specified in either the Installation Guide or User Manual. Otherwise, an electric shock, fire, malfunction or other failure may occur.
- Because of the possibility of an electric shock or malfunction, do not touch any power terminals while the unit is operating.



## Caution

- Communication cables or I/O signal lines must be wired separately from the main circuit (high-voltage, large-current) line, high-frequency lines such as inverter lines, and the power line. Otherwise, a malfunction may occur due to noise.
- This unit must be properly installed according to directions in the installation guide and user's manual. Improper installation may cause the unit to malfunction, or fail.
- This unit must be properly wired according to directions in the Installation Guide and User Manual. Improper wiring may cause a malfunction, failure or electric shock.
- Do not allow foreign substances, including chips, wire pieces, water, or liquids to enter inside this unit's case. Otherwise, a malfunction, failure, electric shock, or fire may occur.
- When disposing of this unit, handle it as an industrial waste.

### ■ To Avoid Damage

- Avoid storing or operating this unit in either direct sunlight or excessively dusty or dirty environments.
- Because this unit is a precision instrument, do not store or use it in locations where excessive shocks or vibration may occur.
- Avoid covering this unit's ventilation holes, or operating it in an environment that may cause it to overheat.
- Avoid operating this unit in locations where sudden temperature changes can cause condensation to form inside the unit.
- Do not use paint thinner or organic solvents to clean this unit.

# UL/c-UL (CSA) Approval

The GLC100-FN41 is a UL/c-UL 508, UL/c-UL 1604 listed products.  
(UL file No. E182139)

GLC100-FN41 conforms as a product to the following standards:

## ■ UL508

Industrial Control Equipment

## ■ UL1604

Electrical Equipment for use in Class I and II, Division 2 and Class III Hazardous Location, industrial control applications.

## ■ CAN/CSA-C22.2 No.1010. 1-92

Safety requirements for electrical equipment for measurement and laboratory use  
GLC100-FN41 (UL Registration Model : 2880063-01)

### <Cautions>

- This unit must be used as a built-in component of an end-use product.
- This unit must be installed in a GLC.
- If the GLC is installed so as to cool itself naturally, be sure to install it in a vertical panel. Also, be sure that it is mounted at least 100mm away from any adjacent structures or equipment. If these requirements are not met, the heat generated by the GLC's internal components may cause the unit to fail to meet UL/c-UL standard requirements.

UL1604 Conditions of Acceptability and Handling Cautions:

1. Power, input and output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods - Article 501- 4(b) of the National Electrical Code, NFPA 70 within the United States, and in accordance with Section 18-152 of the Canadian Electrical Code for units installed within Canada.
2. Suitable for use in Class I, Division 2, Groups A, B, C and D, Hazardous Locations.
3. WARNING: Explosion hazard - substitution of components may impair suitability for Class I, Division 2.
4. WARNING: Explosion hazard - when in hazardous locations, turn power OFF before replacing or wiring modules.
5. WARNING: Explosion hazard - do not disconnect equipment unless power has been switched OFF, or the area is known to be non-hazardous.

# CE Marking

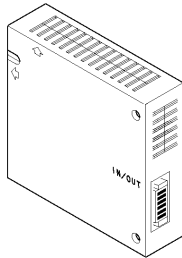
The GLC100-FN41 is a CE Marked unit that conforms to EMC directives EN50081-2 and EN61000-6-2.

### <Caution>

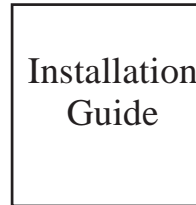
While this unit is officially marked as conforming to the relevant EMC directives, it is the user's final application of this unit in a larger system (i.e. the machinery, wiring, control panel, installation method, etc.) that will determine if this unit maintains or loses this conformance marking. Therefore, it is strongly advised that the user investigate and confirm whether their overall system (i.e. all related machinery and equipment) also conforms with these EMC directives.

# Package Contents

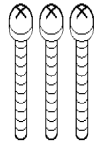
- Flex Network I/F Unit (1)  
(GLC100-FN41)



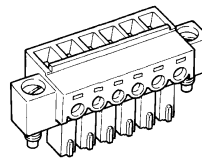
- Installation Guide (1) <This Guide>



- Installation Screws (3)



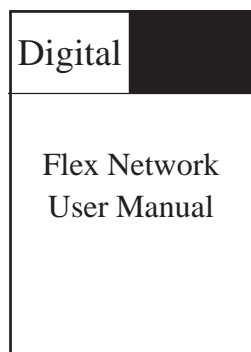
- Flex Network Communication Connector (1)



This unit has been carefully packed, with special attention to quality. However, should you find anything damaged or missing, please contact your local GP distributor immediately.

## Optional Item (sold separately)

- Flex Network User Manual



(GLC100-MMFN11-ENG)

# 1 Part Names

## ■ Environmental

<b>Rated Voltage</b>	DC5V +/-5% (supplied from GLC)
<b>Power Consumption</b>	Less than 1.25W
<b>Ambient Operating Temperature</b>	0°C to 50°C (however cannot be higher than that of GLC)
<b>Ambient Storage Temperature</b>	-20°C to +60°C

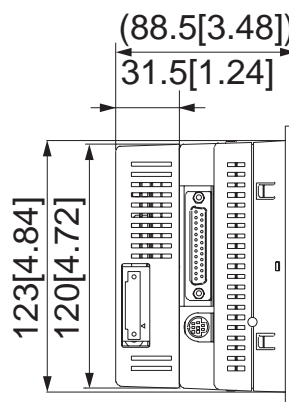
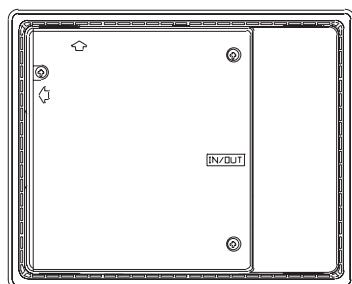
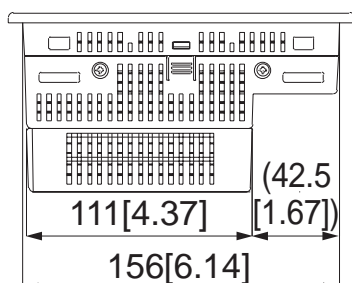
## ■ Structural

<b>External Dimensions</b>	W111[4.37] x H120[4.72] x D31.5[1.24] mm[in.] (Main unit only, excluding projections and connector)
<b>Weight</b>	Less than 350g[771lb]

# 2 Dimensional Drawings

The dimensional drawings of the Flex Network I/F Unit, when it is installed in the GLC100 Series, are as follows.\*1

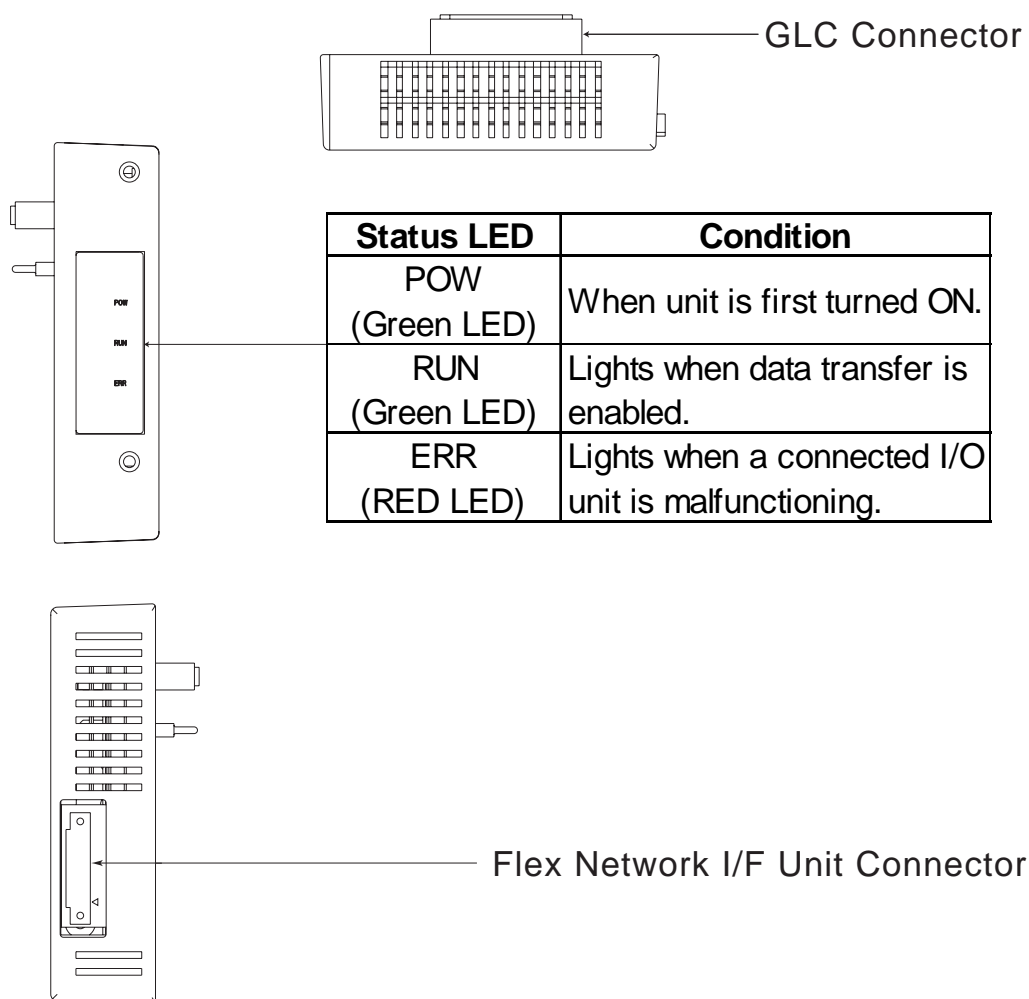
Units: mm[in.]



\*1 See "Flex Network User's Manual," when the Flex Network I/F Unit is installed in the GLC300 Series.

### 3 Part Names and Functions

This section shows the part names of the Flex Network I/F Unit Connector and the functions of the LEDs.



### 4 Installation

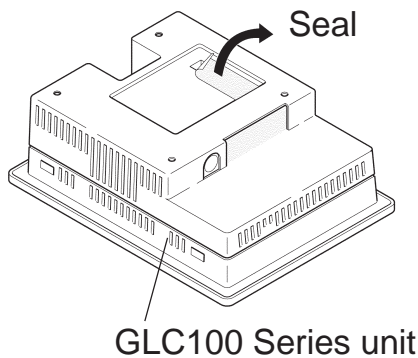
Use the following procedure when installing the I/F Unit in the GLC.



#### Warning

Prior to installing the Flex Network Unit:

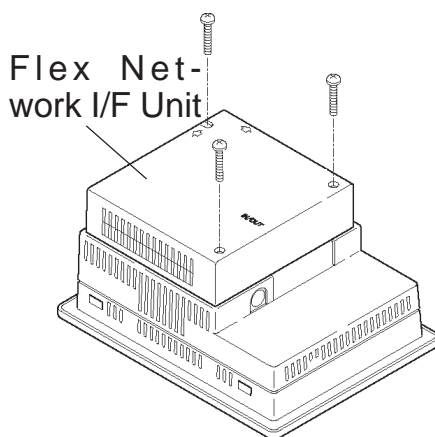
- Be sure that the main power supply is turned completely OFF before beginning to wire the unit.
- Be sure not to install or remove the I/F Unit while the GLC is being activated. Otherwise, a malfunction or a failure may occur.



- 1) Be sure the GLC's main power supply is turned OFF.
- 2) Peel the GLC 100's rear face connector seal off to expose the connector.



***Be sure the GLC unit's power cord terminals are attached to the GLC before installing the Flex Network I/F unit. This is because the power terminals cannot be connected after the Flex Network unit is attached.***



- 3) Attach the Flex Network unit and secure it in place with its three (3) attachment screws.

- The torque required for these screws on only 0.5 to 0.6N•m.
- When attaching this unit to the GLC-300, a Bus Conversion adapter (GLC300-BCB41) is required. For this unit's installation method, refer to its Installation Guide.

## 5 Using the Flex Network communication Cable

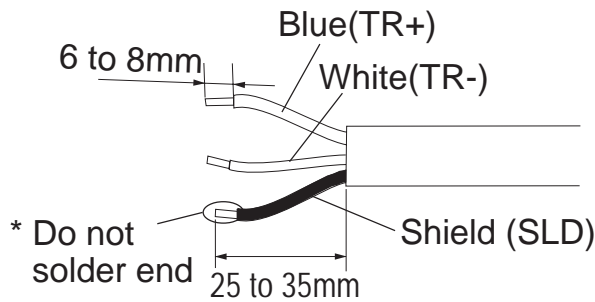
We suggest the following cables for your Flex Network.

Retailer	Model No.	Length
Digital Electronics Corporation	FN-CABLE-2050-31-MS	50m
	FN-CABLE-2200-31-MS	200m

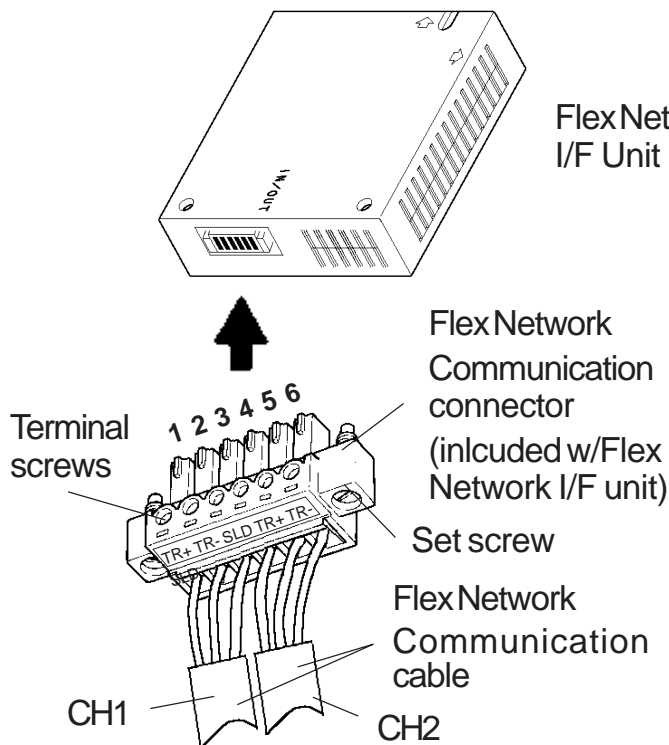


## ■ Flex Network I/F Unit Wiring

Remove the wire's external covering and insert the wire center strand into the opening.



- **Be sure to tape or put a plastic tube over the shield line.**
- **Do not solder the wire itself. This could lead to a bad or poor contact.**



Pin No.	Insulation Color	Meaning
1	Blue	CH1 Comm. Data (TR+)
2	White	CH1Comm Data (TR-)
3	Shield	CH1 Shield (SLD)
4	Blue	CH2 Comm. Data (TR+)
5	White	CH2Comm Data (TR-)
6	shield	CH2 Shield (SLD)

The same communication data is output to each channel (CH1/CH2). When either channel is used, both CH1 and CH2 are available.

Used channel	Status LED	
CH1 or CH2	CH1 or CH2	31 units
CH1 and CH2	CH1 and CH2	63 units (31 units + 32 units)

The maximum communication distance (1 channel) is 200m for a communication speed of 6 Mbps, and 100m for 12 Mbps. (Recommended communication speed: 6 Mbps)



**Use a small flat screw driver to tighten the terminal screws.**  
**(Edge Thickness: 0.4mm, Edge Width: 2.5mm)**



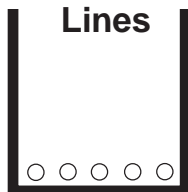
- Use a small sized screwdriver to tighten the set screws.
- Use both attachment screws to attach the connector to the I/F unit.(recommended torque is 0.22 to 0.25N•m)
- If the central wire's end (individual) wires are not twisted correctly, the end wires may either short against each other, or against an electrode. When using pin terminals, the following maker is recommended.

Phoenix Connector: AI0.5-6WH AAI0.3-6TQ

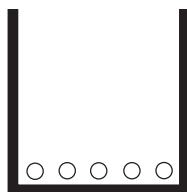
## 6 Cautions When Wiring communication Lines

Separating all communication lines from power lines by placing them in a separate duct will help to prevent problems from noise and interference.

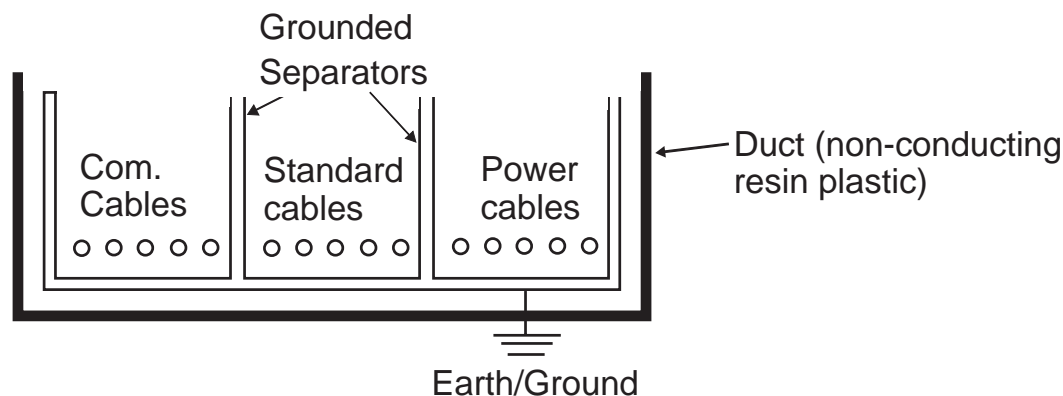
**Duct for  
Communication  
Lines**



**Duct for  
Power Lines**



If the wires must be placed in the same duct, separate them via an earthed/grounded divider.



When you are unable to separate the cables as shown above, be sure to use shielded cable and create a ground from the shield line.

Head Office

**Digital Electronics Corporation**

8-2-52 Nanko-higashi

Suminoe-ku, Osaka 559-0031 JAPAN

Tel: +81-(0)6-6613-1101 Fax: +81-(0)6-6613-5888