Digital
HMI Human Machine Interface

Pro-face

GP-70 Series
DeviceNet I/O Unit
User Manual

PREFACE

Thank you for purchasing Digital's DeviceNet I/F Unit (GP070-DN41) for use with the GP70 Series panels and which is hereafter referred to as "this unit". This unit functions as an interface between the < Pro-face® > GP70 Series Graphic Control Panel, (hereafter referred to as the "GP") , and a DeviceNet system.

This manual contains the information necessary to use a GP to communicate via DeviceNet system. To ensure the correct use of your GP, each GP70 series unit has its own User's Manual. Prior to installing this unit in your GP, please read your GP User's Manual's "CHAPTER 1.1: Operating the GP" (Optionally available).

This unit is compatible with the following GPs :

GP-470 Series, GP-570 Series, GP-675 Series, GP-870 Series, GP-477R Series, GP-577R Series units.

NOTE:

(1) It is forbidden to copy the contents of this manual, either in whole or in part, except for the purpose of the user's personal use, without the express written permission of the Digital Electronics Corporation of Japan.

(2) The information provided in this manual is subject to change without notice.

(3) This manual has been written with care and attention to detail; however, should the user discover any errors or omissions, please contact the Digital Electronics Corporation and inform them of your findings.

(4) Please be aware that Digital Electronics Corporation shall not be held liable by the user for any damages, losses, or third party claims arising from the uses of this product.

(5) This unit has received CE marking and is UL approved. Please be aware, however, that, depending on the user's application of this GP70 series product, the product's CE marking and UL approval conformity may be lost.

The product names used in this manual are the registered trademarks of their respective companies.

* *DeviceNet*™ is a registered trademark of ODVA (Open DeviceNet Vendor Association).

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SAFETY PRECAUTIONS

This manual includes the information that must be followed to operate this product correctly and safely. Read this manual and attached manuals to thoroughly understand the correct operation and functions of this product.

Usage of Icons

Throughout this manual, to allow you to use this product correctly, the following icons are provided next to the operations that require special attention. The operations described with these icons contain essential safety information. The following is an example of the icons and their meanings:

| ⚠ **WARNING** | Indicates situations where severe bodily injury, death or major machine damage can occur. |
| ⚠ **CAUTION** | Indicates situations where slight bodily injury or machine damage can occur. |

⚠ WARNINGS

To ensure the safe and correct use of both this unit and your GP, please observe the following precautions:
· When attaching this unit to the GP, make sure that the GP's power cord is not plugged in to the main power (constant), in order to prevent electric shocks.
· Be careful not to touch the surface of this unit's printed circuit board.
· Do not modify this unit in any way, since an electric shock or fire may occur.
· Design your system so that the machine will not malfunction due to a communication error between the GP and the Host (PLC). Otherwise, there could be a danger of bodily injury or damage to equipment and/or materials.

To Prevent this unit from malfunctioning :

· Do not allow water, liquid or metallic objects to enter into the unit, since they can cause the unit to either malfunction or to create an electric shock.
· Please avoid using this unit in areas where sudden, large changes in temperature may occur. These changes can cause condensation form inside the unit, possibly causing an accident.
· Avoid installing this unit in an environment where it will be exposed to direct sunlight, high temperatures or excessive amounts of dust.
· Since this unit is a precision instrument, do not install it where strong impacts or vibration will occur.
· Avoid installing this unit in an environment where it may be exposed to chemical vapors.
· Do not use paint thinner or organic solvents to clean the outside of this unit. Instead, soak a soft cloth in a diluted neutral detergent, wring it tightly, and then wipe the unit's outside case.

DEVICE PROFILE

■ Device Profile Table

General Data	Conforms to DeviceNet Specification	Volume I - Release *2* Volume II - Release *2*
	Vendor Name	*HMS Fieldbus Systems AB (Hassbjer Micro)* ***1**
	Device Profile Name	*Communications Adapter*
	Product Name	*AnyBus-S DeviceNet*
	Product Catalog Number	*12*
	Product Revision	*1.2*

DeviceNet Physical Conformance Data				
Network Power Consumption (Max)	*0.065 A @ 11V DC (worst case)*			
Connector Style	Open-Hardwired	☒	Sealed-Mini	☐
	Open-Pluggable	☒	Sealed-Micro	☐
Isolated Physical Layer	Yes	☒		
	No	☐		
LEDs Supported None ☐	Module	☒	Combo Mod/Net	☐
	Network	☒	I/O	☐
MAC ID Setting	DIP Switch	☒	Software Settable	☐
	Other			
Default MAC ID	*63*			
Communication Rate Setting	DIP Switch	☒	Software Settable	☐
	Other			
Communication Rates Supported	125k bit/s	☒	500k bit/s	☒
	250k bit/s	☒		

DeviceNet Communication Data

Device Network Behavior Check All That Apply	Group 2 Client ☐	Group 2 Only Client ☐
	Group 2 Server ☐	Group 2 Only Server ☒
	Peer-To-Peer ☐	Tool (not a Device) ☐

UCMM Explicit Message Groups Supported	Group ☐	Group 2 ☐	Group 3 ☐
Dynamic I/O Message Groups (Peer to Peer)	Group ☐	Group 2 ☐	Group 3 ☐

Default I/O Data Address Path			
Input:	Class *4*	Inst. *64*	Attr. *3*
Output:	Class *4*	Inst. *96*	Attr. *3*

Fragmented Explicit Messaging Supported	Yes ☒			No ☐
If yes, Acknowledge TimeOut *1200 ms*				

Typical Target Addresses

Consumption	Service *16*	Class *1*	Inst. *1*	Attr. *7*
Production	Service *14*	Class *1*	Inst. *1*	Attr. *7*

*1   Used the DeviceNet module manufactured by HMS Fieldbus Systems AB (Hassbjer Micro).

■ Object Implementation

DeviceNet Required Object Implementation	Object Class	ID	Description	Get	Set	Value Limits
	Attributes Open	1	Revision	X	☐	
		2	Max instance	☐	☐	
	☐ None Supported	3	Number of Instances	☐	☐	
		4	Optional attributes list	☐	☐	
		5	Optional services list	☐	☐	
		6	Max Id of class attributes	☐	☐	
		7	Max Id of instance attributes	☐	☐	
			DeviceNet Services	**Parameter Options**		
	Services	☐	Get_Attributes_All			
		☐	Reset			
	☐ None Supported	X	Get_Attribute_Single			
		☐	Find_Next_Object_instance			
	Object Instance	ID	Description	Get	Set	Value Limits
	Attributes Open	1	Vendor	X	☐	*=(90)*
		2	Device type	X	☐	*=(12)*
		3	Product code	X	☐	*=(12)*
		4	Revision	X	☐	*=(1.2)*
		5	Status (bits supported)	X	☐	
		6	Serial number	X	☐	
		7	Product name	X	☐	*AnyBus-S DeviceNet*
		8	State	☐	☐	
		9	Config. Consistency Value	X	☐	
		10	Heartbeat Interval	☐	☐	
			DeviceNet Services	**Parameter Options**		
	Services	☐	Get_Attributes_All			
		X	Reset	*0,1*		
		X	Get_Attribute_Single			
		☐	Set_Attribute_Single			

|X| Get indicates attribute value is returned by the Get_Attribute_Single service.

|X| Set indicates attribute value is written to by the Set_Attribute_Single service.

DeviceNet Required Object Implementation	Object Class	ID	Description	Get	Set	Value Limits
	Attributes Open ☐ None Supported	1	Revision	☒	☐	

	Services	DeviceNet Services	Parameter Options
	Services ☐ None Supported	☒ Get_Attribute_Single	

Object Instance	ID	Description	Get	Set	Value Limits
Attributes Open ☐ None Supported	1	MAC ID	☒	☐	
	2	Baud rate	☒	☐	
	3	BOI	☒	☒	
	4	Bus-off counter	☒	☒	
	5	Allocation information	☒	☐	
	6	MAC ID switch changed	☐	☐	
	7	Baud rate switch changed	☐	☐	
	8	MAC ID switch value	☐	☐	
	9	Baud rate switch value	☐	☐	

	DeviceNet Services	Parameter Options
Services ☐ None Supported	☒ Get_Attribute_Single	
	☒ Set_Attribute_Single	
	☒ Allocate M/S connection set	
	☒ Release M/S connection set	

☒   Get indicates attribute value is returned by the Get_Attribute_Single service.

☒   Set indicates attribute value is written to by the Set_Attribute_Single service.

DeviceNet Required Object Implementation	Object Class	ID	Description	Get	Set	Value Limits
	Attributes Open ☐ None Supported	1	Revision	☒	☐	

	Services ☐ None Supported	DeviceNet Services		Parameter Options
		☐ Reset	
		☐ Create	
		☐ Delete	
		☒ Get_Attribute_Single	
		☐ Find_Next_Object_Instance	

Object Instance	Predefined M/S Connections		Peer to Peer Connections		Max Instances

Complete the Object Instance section for each Instance type supported. Indicate Production trigger, Transport type and Transport Class supported for Dynamic I/O.	Explicit Message ☐
	Polled ☒
	Bit Strobed ☐
	Change of State ☐
	Cyclic ☐
			Explicit Message ☐
			    Server
			Dynamic I/O ☐
			    Server
					Total
					Client
					Total
					Client

	Production trigger(s) Cyclic ☐ COS ☐ App. trig. ☐ Transport type(s) Server ☐ Client ☐ Transport class(es) ☐ 2 ☐ 3 ☐				

		ID	Description	Get	Set	Value Limits
	Attributes Open	1	State	☒	☐	
		2	Instance type	☒	☐	
		3	Transport Class trigger	☒	☐	
		4	Produced connection ID	☒	☐	
		5	Consumed connection ID	☒	☐	
		6	Initial comm. characteristics	☒	☐	
		7	Produced connection size	☒	☐	
		8	Consumed connection size	☒	☐	
		9	Expected packet rate	☒	☒	
		12	Watchdog time-out action	☒	☐	
		13	Produced connection path length	☒	☐	
		14	Produced connection path	☒	☒	
		15	Consumed connection path length	☒	☐	
		16	Consumed connection path	☒	☒	
		17	Production inhibit time	☒	☐	

	Services	DeviceNet Services		Parameter Options
		☒ Reset	
		☐ Delete	
		☐ Apply_Attributes	
		☒ Get_Attribute_Single	
		☒ Set_Attribute_Single	

☒   Get indicates attribute value is returned by the Get_Attribute_Single service.

☒   Set indicates attribute value is written to by the Set_Attribute_Single service.

UL / c-UL(CSA) APPROVAL

The GP070-DN41 is a UL/ c-UL(CSA) listed product. (UL File No.E182139).

The GP070-DN41 conforms as a component to the following standards:

• UL 508

  Industrial Control Equipment.

• UL 1604

  Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (Classified) Locations.

• CAN / CSA-C22.2, Nos. 142, and 213-M1987

  Standard for Safety of Information Technology Equipment, including Electrical Business Equipment.

GP070-DN41 (UL registration No.:2780041)

• Be sure that the unit is installed so that it is at least 100 mm away from any adjacent structures or devices. If these requirements are not met, the heat generated by the unit's internal components may cause the unit to fail to meet UL standard requirements.

UL 1604 Compliance Conditions 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 or as specified in Section 10-152 of the Canadian Electrical Code for installations within Canada and in accordance with the authority having jurisdiction.

2. Suitable for use in Class I, Division 2, Groups A, B, C and D hazardous location, or nonhazardous location only.

3. WARNING: Explosion hazard - substitution of components may impair suitability for Class I, Division 2.

4. WARNING: Explosion hazard - do not disconnect equipment unless power has been switched off or the area is known to be nonhazardous.

5. WARNING: Explosion hazard - when in hazardous locations, turn off power before replacing or wiring modules.

CE MARKING NOTES

The GP070-DN41 is a CE marked, EC compliant product. It complies with EN55011 class A, EN50082-2.

UNPACKING THE DeviceNet I/F UNIT

The DeviceNet I/F package should include the following items:

- DeviceNet I/F Unit
  (GP070-DN41)
  (Installed with attachment screws)

- GP70 series DeviceNet I/F Unit
 User's Manual (this manual)

GP70 series
DeviceNet
I/F Unit
User's Manual
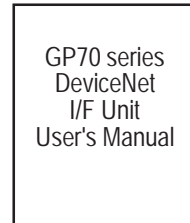
This unit has been carefully packed, however, should you find any item to be either damaged or missing, please contact your local GP distributor immediately for service.

SYMBOL INFORMATION

The terms and symbols used in this manual are described below.

|	
SCREEN EDITING PROGRAM	Designates Digital's "GP-PRO/PB III for Windows" screen editor program.
PLC	Abbreviation for Programmable Logic Controller
⚠ Important	Failure to observe this instruction may cause abnormal operation of equipment or data loss.
Note:	Provides hints on correct use, or supplementary information.
◀ Reference ◀	Indicates related (manual name, page number) information.
1, 2, ...	Describes an operating procedure. Be sure to perform the specified operations in the order written.
*1	Indicates terms or data further explained in a footnote.

MEMO

Chapter 1 : INTRODUCTION

This chapter describes the function of the DeviceNet I/F Unit and the precautions necessary when using the GP to perform DeviceNet data communication.

1.1 Using the DeviceNet I/F Unit

This unit enables your GP to be directly connected to an DeviceNet-compatible PLC or personal computer [1].

Personal computer   or   DeviceNet-compatible PLC   DeviceNet Cable   Direct Connection   DeviceNet I/F Unit   GP
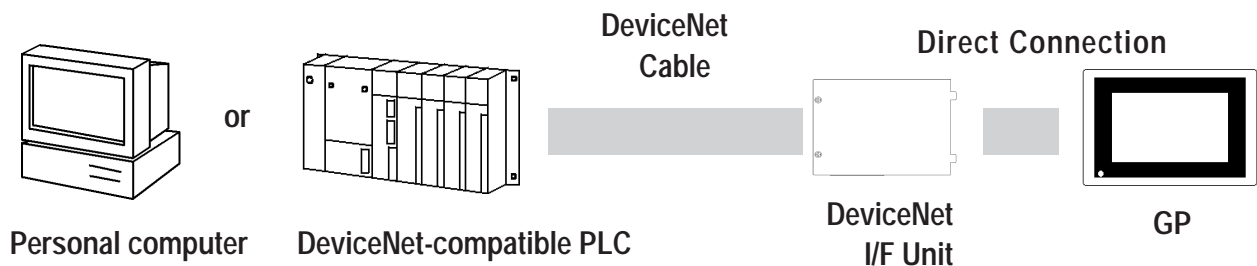
1.2 System Design

Be sure all connections conform to DeviceNet communication standards. Refer to the connection example shown below.

Personal computer   DeviceNet-compatible PLC   < Conforms to DeviceNet communication standards>

or

■ : T - Port Tap

Communication Power Supply

Terminating Resistor   Trunk Line   Trunk Line   Terminating Resistor

Power Supply Tap

Drop Line   Drop Line   Drop Line

DeviceNet I/F Unit

maximum of 63 slaves

(Maximum number of connectable nodes is 64)
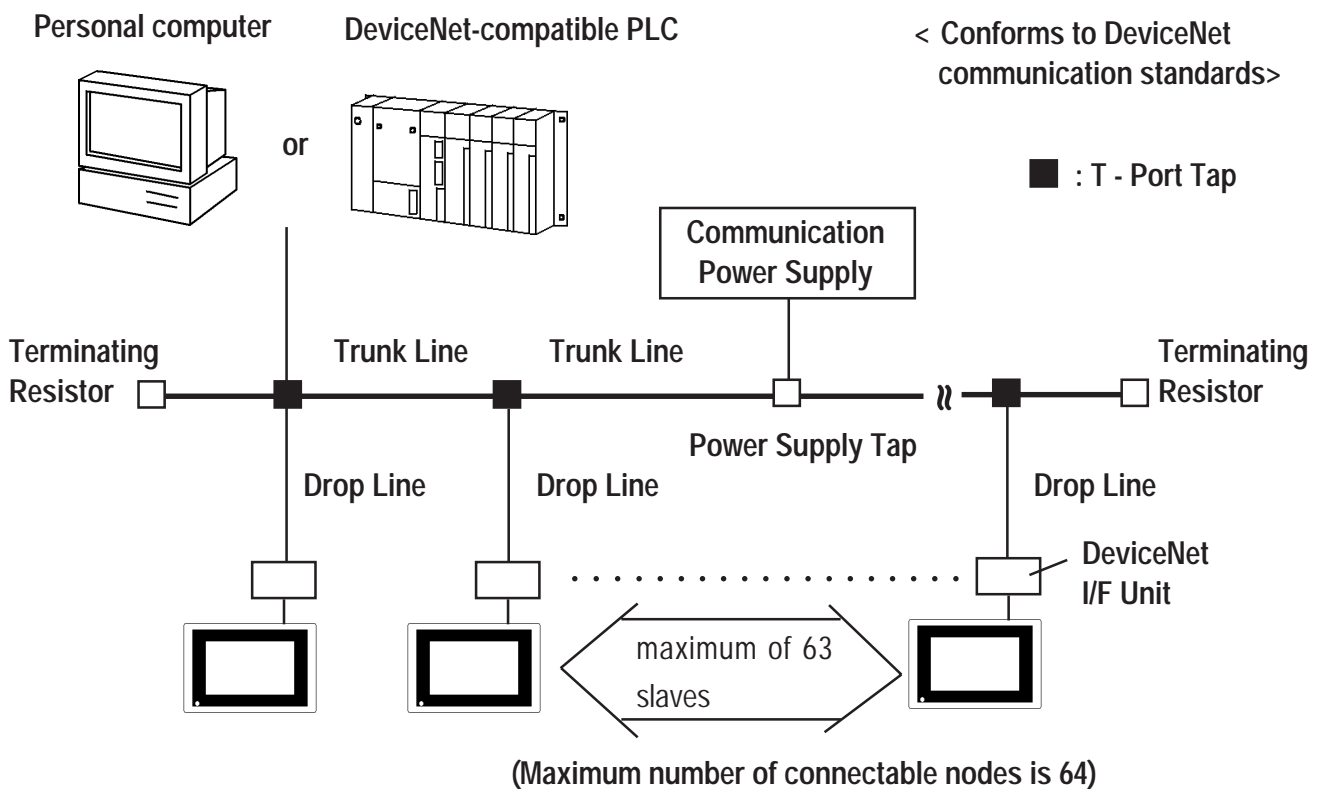
*1 The number of compatible PC types may be limited.

1.3 Screen Editor Program Caution

When using the screen editor to designate the PLC's type, be sure to select "DeviceNet Slave I/O".

For PLC type selection details, refer to your screen editing program's Operation Manual (included with the software).

Note:
- **To use the DeviceNet I/F Unit (GP070-DN41), the "GP-PRO/PB III for Windows Ver.3.0 (or later)" software is required. When using versions of GP-PRO/PB III that are earlier than that, please contact your local GP distributor for information.**

Chapter 2 : SPECIFICATIONS

This chapter describes the specifications, part names, and external dimensions of the DeviceNet I/F Unit.

2.1 | DeviceNet Specifications

2.1.1 | General Specifications

Item	Specification	
Power Supply	I/F Unit Power Supply (supplied from GP unit)	Communication Power Supply (supplied from Network)
	DC5V +/-5%	DC11V to DC25V
Power Consumption	3W or less	2.5W or less
Operating Temperature and Humidity	0 to 50°C / 20 to 85 %RH (not higher than the temperature or humidity of the connected GP unit)	
Storage Temperature and Humidity	-10 to 60°C / 20 to 85 %RH (no condensation)	
Vibration Resistance	10 to 25 Hz (19.6m/s^2 in X, Y, and Z directions for 30 minutes each)	
Operating Atmosphere	Free from corrosive gas	
Grounding	Use a grounding resistance of less than 100Ω and a 2mm^2 or thicker wire, or your country's applicable standard.	

2.1.2 | Structural Specifications

Item	Specification
Usage	Installed in large-sized GP's rearface expansion board slot
Power Consumption	167 (W) x 115 (H) x 21.2 (D) mm (DeviceNet unit only, not including projections and gasket.)
Weight	approx. 300g
Cooling system	Natural air circulation

2.1.3   Performance Specifications

Item	Specification				
Connector	Screw Connector				
I/O	Conforms to DeviceNet communication standards				
Baud Rate	125K / 250K / 500Kbps (via changeover switch)				
Transmission Distance	Baud Rate	Maximum Length of Trunk Line		Drop Line	Total Drop Line Length
		Thick Cable	Thin Cable		
	500Kbps	100m or less	100m or less	6m or less	39m or less
	250Kbps	250m or less	100m or less	6m or less	78m or less
	125Kbps	500m or less	100m or less	6m or less	156m or less

For detailed DeviceNet cable information, ◤*Reference*◢ ***"3.2 Connecting Cables"***.

2.2 Part Names and Functions

The name and function of each item is explained below.

(Unit:mm)
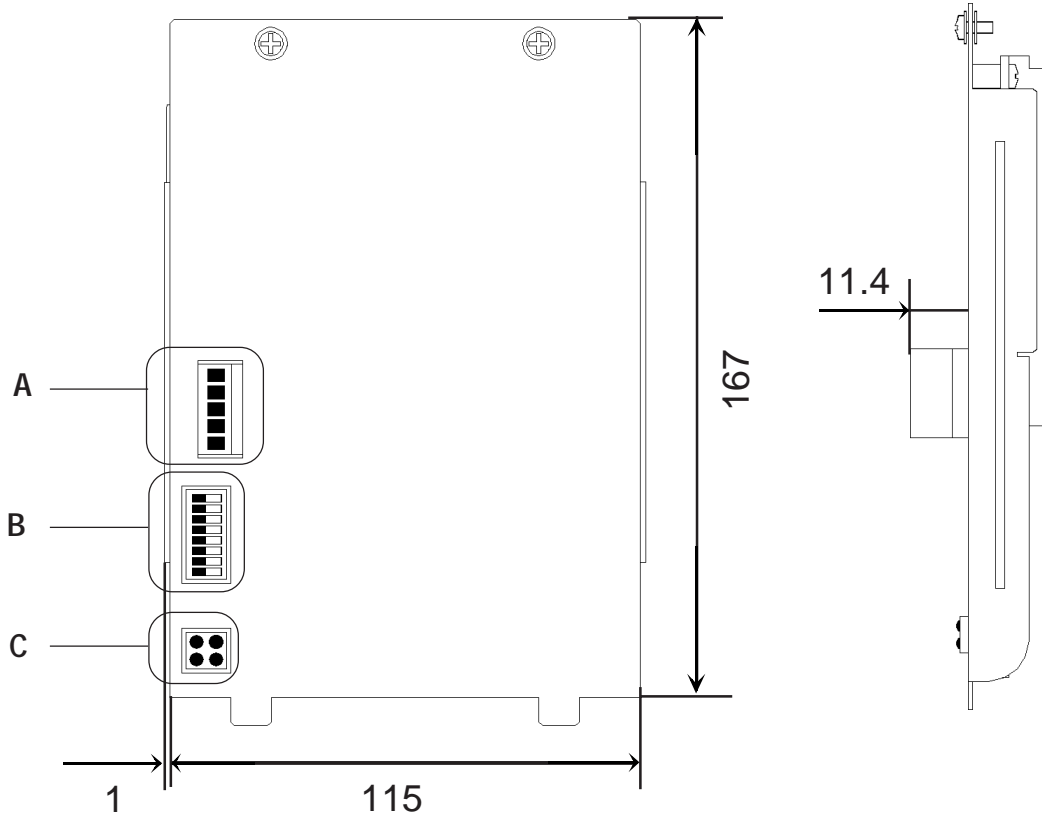
A : DeviceNet Connector Pins

Pin No.	Wire Cover Color	Comment
1	Black	Power Supply (V-)
2	Blue	Communication Data [Low side] (CAN_L)
3	No Cover	Shield
4	White	Communication Data [High side] (CAN_H)
5	Red	Power Supply (V+)

B : DIP SW
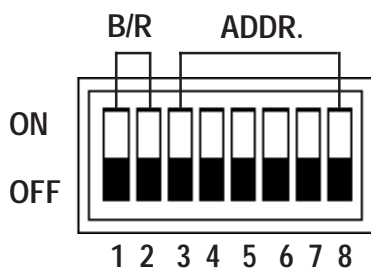
B/R (Baud Rate)

Baud Rate	DIP SW (1,2)
125K	00
250K	01
500K	10
Reserved	11

ADDR. (Node Address)

Address	DIP SW (3 to 8)
0	000000
1	000001
2	000010
::	::
::	::
61	111101
62	111110
63	111111

C : DeviceNet LED
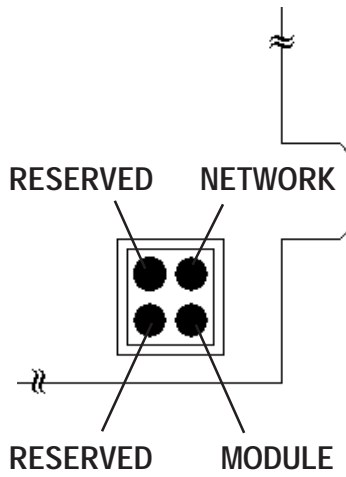
	Network Status		
	Normal	**Error**	**Cannot Transmit**
NETWORK	Green	Red	OFF
MODULE	Green	Red	——
RESERVED	Not Used		
RESERVED	Not Used		

Chapter 3 : INSTALLING AND WIRING
THE DeviceNet I/F UNIT

This section describes how to install and connect the DeviceNet I/F Unit.

3.1 | Installing the DeviceNet I/F Unit

⚠ WARNING

Before Installing This Unit

· Make sure that power is not being supplied to the GP when installing this unit, in order to prevent electric shocks.

· Be careful not to touch the inner surface (circuit board) of this unit.

  Before installing this unit, please put on gloves.

Attachment Screws
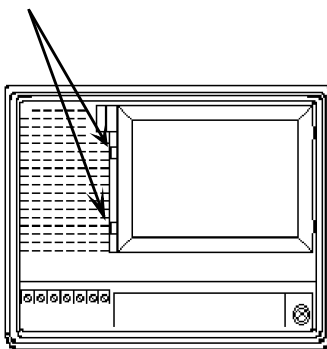
Rear of GP
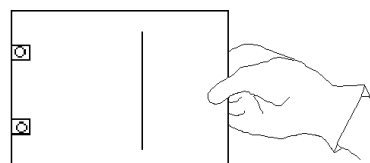
I/O Unit Cover

1. Turn OFF the GP.

2. Unscrew the two I/O unit attachment screws on the rear cover of the GP, and remove the I/O unit cover.

* This diagram uses a GP-470 series unit.

⚠ CAUTIONS

- **Do not touch the "copper spring" or the copper spring's contact.**

Bottom view of DeviceNet I/F Unit

Copper spring
contact location

Copper spring
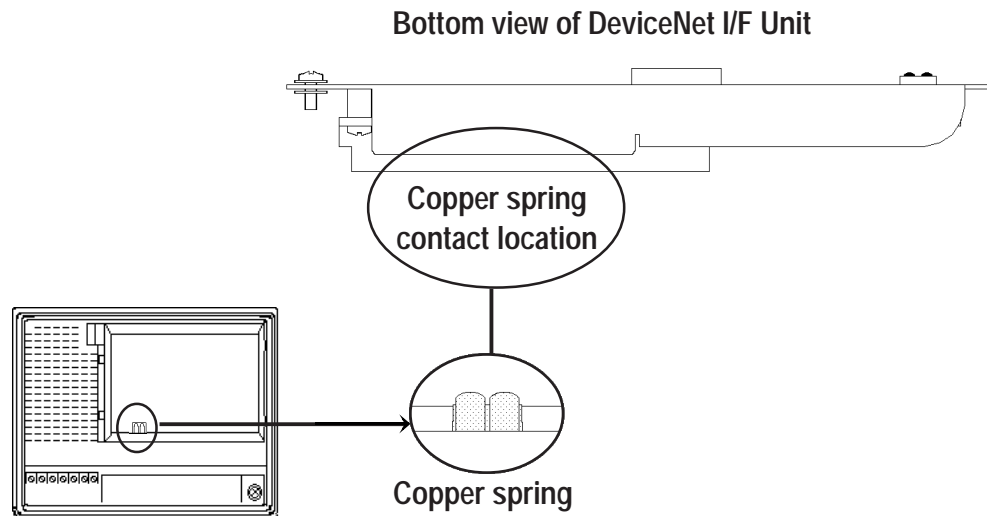
- **Do not remove this unit from the GP unless absolutely necessary. Excessive removal can lead to premature breakdown or malfunction.**
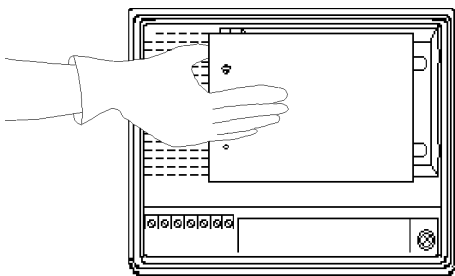
3. **Insert the protruding tabs of the DeviceNet I/F unit into the installation holes.**

Be sure to install the unit so that the smooth metal face of the DeviceNet I/F unit points outward.
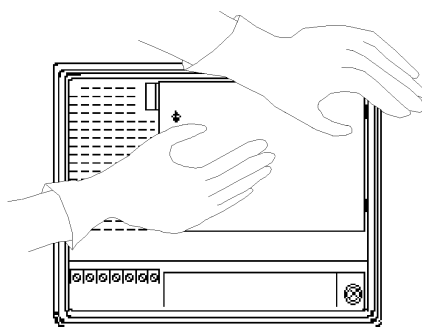
4. **Hold the GP with your left hand and insert the DeviceNet I/F unit into its slot with your right hand.**

Be sure that the unit is seated correctly in place, so that no gaps remain between the GP and the DeviceNet I/F unit.
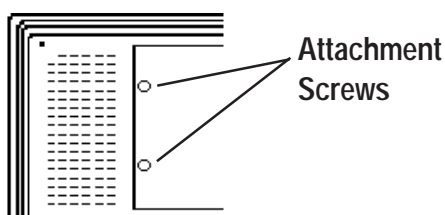
Attachment
Screws

5. **Reattach the attachment screws and secure the DeviceNet I/F unit to the GP.**

Note:
- **To install the DeviceNet I/F unit in a GP-870 series unit, it must be inserted vertically. The attachment procedure , however, is the same as shown above.**

3.2 Connecting Cables

DeviceNet requires special cables that conform to DeviceNet communication standards.

First, connect each wire of the cable to the connector, as shown below (a 5-wire cable is used here) and then attach the connector to the I/F unit.
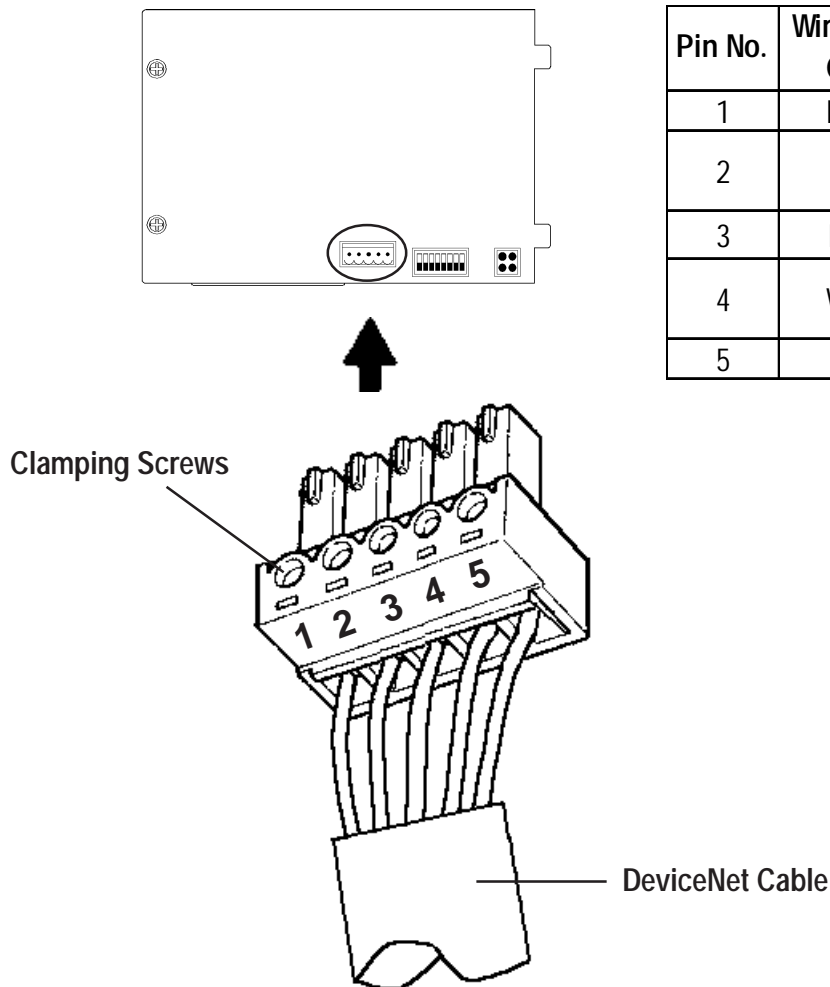
Pin No.	Wire Cover Color	Comment
1	Black	Power Supply (V-)
2	Blue	Communication Data [Low side] (CAN_L)
3	None	Shield
4	White	Communication Data [High side] (CAN_H)
5	Red	Power Supply (V+)

Clamping Screws

DeviceNet Cable

⚠ **Important** • **_Use a standard screwdriver to tighten the clamping screws._**

📝 *Note:* • **Do not solder cable wires to the connector.**

When using 3-wire cables
- Connect these wire to the communication and shield pins only.
- Use separate cables as slave-to-slave power-supply lines.

■ DeviceNet Cable Types

DeviceNet cables use contain either 3 or 5 wires. These 3- or 5-wire cables are available as either thick or thin cables.

Thick cables are hard and difficult to handle. However, they are suitable for long-distance communications since signal degradation is minimal.

On the other hand, thin cables are flexible and easily handled but exhibit more signal degradation. Therefore, they are used for short-distance communications where complex cabling is required.

Also, thick and thin cables, can be combined together to create a single network. The maximum length of cables (total of thick and thin cables) can be calculated by refering to the following graph.

◆ Maximum Length of Cables (Total Thick and Thin Cables)
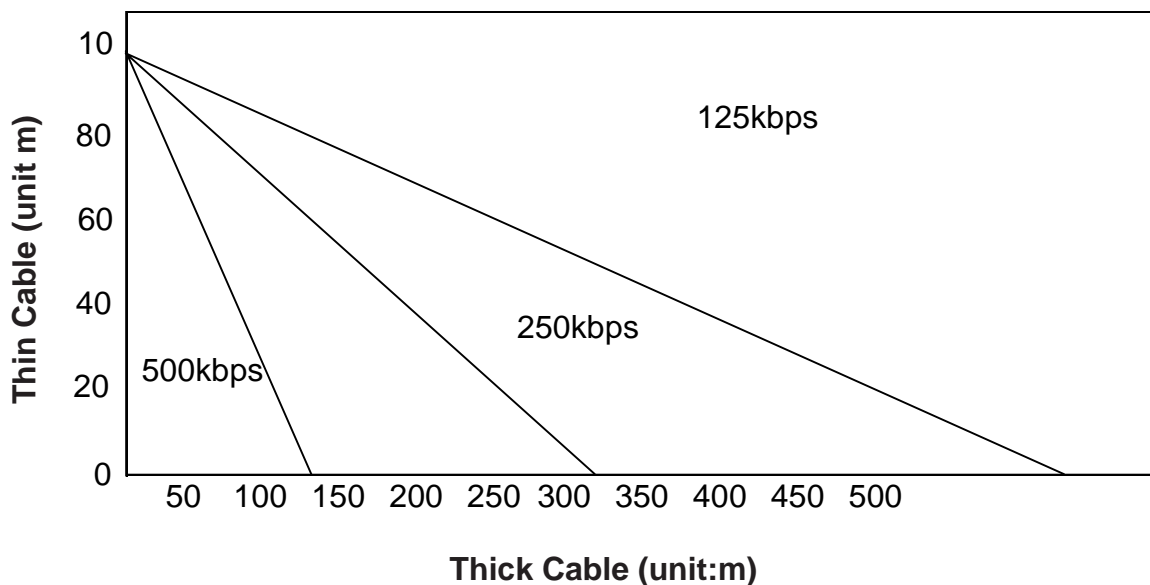
- L (Thick) + 5 × L (Thin) = 500   Baud Rate : 125kbps
- L (Thick) + 2.5 × L (Thin) = 250   Baud Rate : 250kbps
- L (Thick) + L (Thin) = 100   Baud Rate : 500kbps

The "L (Thick)" represents "Thick Cable Length" and "L (Thin)" represents "Thin Cable Length."

⚠ **Important**
- *Between a trunk and a drop line, do not mix 3-wire and 5-wire cables. Use only one type of cable.*

■ Communication Power Supply

For this unit, use a communication power supply whose AC input and DC output lines are insulated. Also, be sure the power supply has sufficient current capacity by calculating the total current flow required by all the connected slaves.

◆ Maximum current capacity for each length of thick cable

Length of Thick Cable	(m) (ft)	0	25 (82)	50 (164)	100 (328)	150 (492)	200 (656)	250 (820)	300 (984)	350 (1148)	400 (1312)	450 (1476)	500 (1640)
Maximum Current	(A)	8.00	8.00	5.42	2.93	2.01	1.53	1.23	1.03	0.89	0.78	0.69	0.63
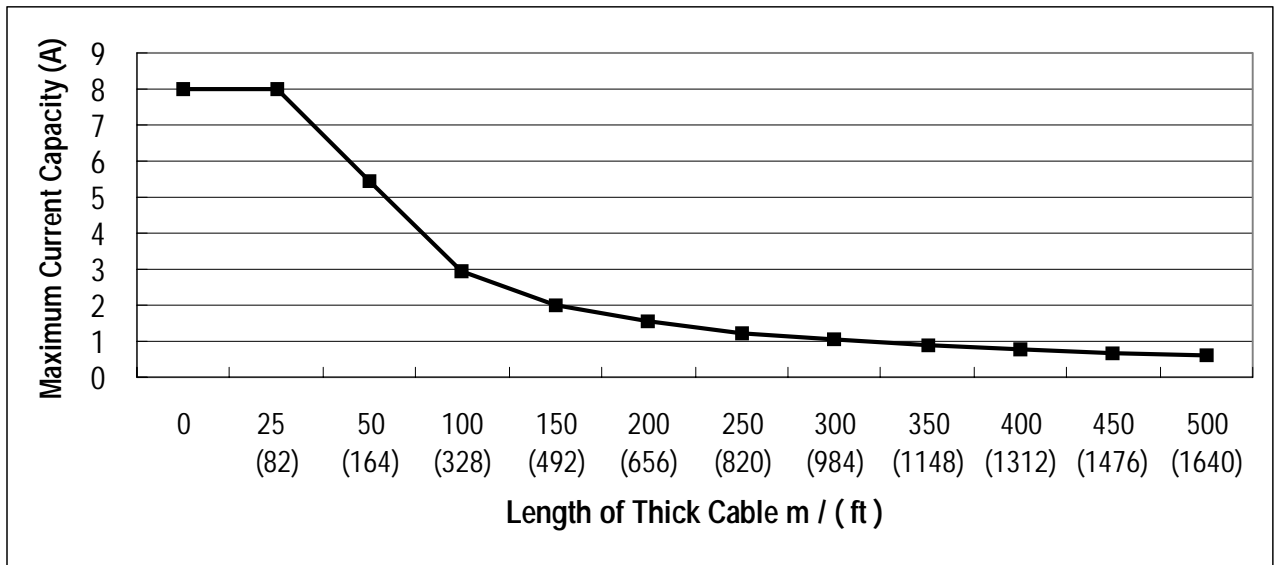
◆ Maximum current capacity for each length of thin cable

Length of Thin Cable	(m) (ft)	0	10 (33)	20 (66)	30 (98)	40 (131)	50 (164)	60 (197)	70 (230)	80 (262)	90 (295)	100 (328)
Maximum Current	(A)	3.00	3.00	3.00	2.06	1.57	1.26	1.06	0.91	0.80	0.71	0.64
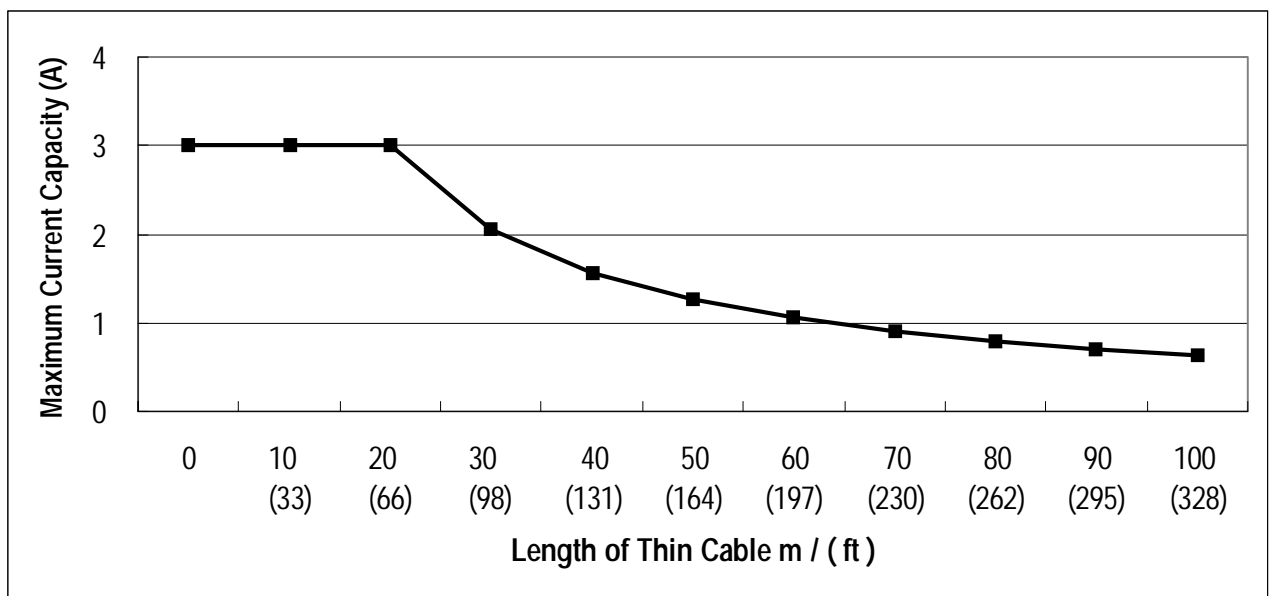
- *Be sure your power supply is in excess of that required by all the units on the network.*

- *Be sure to choose a power supply with sufficient capacity, and take into account elements such as the amount of rush current during startup. Also, set up a fail-safe mechanism to protect against short circuits or other malfunctions.*

- *Use a dedicated communication power supply for this unit. Do not connect any other equipment to it.*

Note:

- **We recommend you consult with an authorized agent when preparing DeviceNet connections.**

Chapter 4 : TROUBLESHOOTING

4.1 Troubleshooting

This section describes how to find and solve I/F problems that may occur.

4.1.1 Problems

During operation of the GP, the following problems may occur:

- Communication Errors.
- GP/HOST Controller communication link is disrupted.

The troubleshooting flow charts for these problems are shown on the following pages.

⚠ WARNING

Prior to Troubleshooting the I/F Unit

- **When connecting the I/F Unit's data transfer cable, make sure that the GP's power cord is disconnected, to prevent electric shocks.**

Note:
- **The problems described in this section are assumed to be attributable to the GP, not to the host controller (PLC). For host controller problems, refer to troubleshooting guide included in the manual for your host controller (PLC).**

4.1.2　When a Communication Error Occurs

When the GP cannot communicate with the host controller, use the flow chart below as a guide to find the cause of the trouble.

When an error message appears on the GP panel screen, check the error code and take the appropriate action. ▼*Reference*△ *Each GP User's Manual "Chapter 4 - Error Messages" (Optionally available).*

```
            ┌─────────────────┐
            │  Communication  │
            │  error occurs   │
            └─────────────────┘
                     │
            ┌─────────────────┐
            │   Unplug the GP's│
            │   power cable.   │
            └─────────────────┘
                     │
```

```
         Is the PLC type          NO       Select the " Target PLC" during
         correct ?          ───────────▶   PLC type setup.
                                            ▼Reference△  "1.3 Screen
            │                               Editing Program Cautions"  or
           YES                              your screen editing software's
            │                               Operation Manual (included
                                            with software)"
```

```
         Is this unit properly    NO       Insert this unit, and securely
         inserted ?         ───────────▶   tighten the attachment screws.
                                            ▼Reference△
            │                                  "3.1 Installing the
           YES                                    DeviceNet  I/F Unit"
            │
```

```
         Are there
         any bent connector pins  YES
         on this unit ?     ───────────▶   Contact your local GP distributor.
            │
           NO
            │
```

```
         Are the DeviceNet        NO
         setup conditions   ───────────▶   Designate the correct setup
         correct ?                          conditions.
            │
           YES
            │
```

```
         Are the                  NO       Properly connect all DeviceNet
         DeviceNet Connections ──────────▶ cables, and secure all DeviceNet
         correct ?                          connectors.
            │
           YES
            │
```

```
                    ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
                      Plug in the GP's power cable.
                    └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                              │
                              ▼
                    Does the NETWORK        YES
                    LED flash green, then  ────────────────────┐
                    remain ON ?                                │
                              │                                │
                             NO                               YES
                              │                                │
                    Is the MODULE           YES                │
                    LED's red light        ──────────────┐     │
                    ON ?                                  │     │
                              │                           │     │
                             NO                           ▼     ▼
                              ▼
```

Contact your local GP distributor about replacing this unit.

Unplug the GP's power cable, turn OFF the host controller's (PLC) power, and re-connect the DeviceNet cable. Then, plug in the GP's power cable and turn ON the host controller's (PLC) power.

Is Data Transfer being performed normally?

YES → This unit is defective. Please contact your local GP distributor.

NO → The GP is defective. Please contact your local GP distributor.

Are the NETWORK LED and MODULE LED's lights ON ?

NO → Check the settings of the host controller (PLC).

YES ↓

Does the self-diagnosis program detect an error?

NO → Check the settings of the host controller (PLC).

YES ↓

This unit is defective. Please contact your local GP distributor.

4.2 | DeviceNet I/F Unit Check Methods

■ GP Self-Diagnosis

The GP provides a self-diagnosis program to check whether or not the GP's system and its interface are operating normally. If a DeviceNet communication error occurs, activate the self-diagnosis program, using the steps below.

1. Insert the DeviceNet I/F unit into the GP.

2. Change the GP to "OFFLINE MODE" and select " $\boxed{B}$ * Communication Check" from the GP's self-diagnosis menu.

3. The Communication Check will start.

If this unit is operating normally, "OK" appears. If an error is found, the corresponding error message appears.

For self-diagnosis menu and details concerning other self-diagnosis functions,

$\blacktriangledown$*Reference*$\blacktriangle$ *Each GP's User's Manual (Optionally available)*

■ Checking the LED Indicators

Turn ON the GP.

The MODULE and NETWORK LED, initially are both green, then change to red in sequence. If the MODULE LED changes to green again after this, this unit is operating normally. When this unit is connected to a Network, communication is occurring normally if the NETWORK LED blinks (green) for a few seconds and then stays lit.