Flex Network Single Axis Positioning Unit Installation Guide

Thank you for purchasing Pro-face's "Flex Network Single Axis Positioning Unit" (FN-PC10SK41). To ensure correct use of this unit's functions and features, be sure to carefully read both this Installation Guide and the Flex Network Single Axis Positioning Unit User Manual.

Safety Precautions

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 modify 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 it may cause an explosion.
- Do not use this unit in an environment with conditions outside of the ranges specified in this Installation Guide and in the 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 the power terminals while the unit is operating.

■ Environmental

Ambient Operating	0°C to 55°C	
Temperature		
Ambient Storage	-25°C to +70°C	
Temperature		
Ambient Humidity	30% RH to 95% RH	
	(no condensation)	
Rating	IP30	

■ Input/Output Specifications

Rated Input Voltage	•	•	•			
No. of Input Points 5 points (1 common)			Rated Input Voltage		DC24V	
Input ON Voltage			Maximum Allowable Input Voltage		DC26.4V	
Control Input Input OFF Voltage DC5V or less Input Impedance 3.9kΩ			No. of Input Points		5 points (1 common)	
Input OH- Voltage			Input ON Voltage		DC19V or higher	
Input Delay	Control Input		Input OFF Voltage		DC5V or less	
Input Delay			Input Impedance		3.9kΩ	
Rated Input Voltage			Input Delay	OFF-ON	1.5ms or less	
No. of Input Points				ON-OFF	1.5ms or less	
No. of Input Points			Rated Input Voltage		DC5V	
Z Phase Input			Maximum All	owable Input Voltage	DC5.5V	
Input OFF Voltage			No. of	Input Points	1 point	
Imput OFF Vortage			Input	ON Voltage	330Ω	
Input Delay	2 P	nase input	Input	OFF Voltage	DC4V or higher	
Input Delay			Input	Impedance	DC1V or lower	
Rated Output Voltage			Janua Dalau	OFF-ON	1.5ms or less	
Maximum Allowable Output Voltage			Input Delay	ON-OFF	1.5ms or less	
No. Of Output Points			Rated Output Voltage		DC24V	
Output Voltage S0mA or less			Maximum Allowable Output Voltage		DC24V(+/-10%)	
Short Circuit Protection			No. Of Output Points		1 point	
Voltage Drop (ON Voltage)			Output Voltage		50mA or less	
Voltage Drop (ON Voltage) DC1.5V or less	0		Short Circuit Protection		None	
Current Leakage	Con	troi Output	Voltage Drop (ON Voltage)		DC1.5V or less	
Output Delay			Clamp Voltage		DC39V +/-1V	
Time			Curre	ent Leakage	0.1mA or less	
Rated Output Voltage DC5V			Output Delay	OFF-ON	1ms or less	
Naximum Allowable Output Voltage DC4.5V to DC5.5V			Time	ON-OFF	1ms or less	
Pulse Output No. Of Output Points 2 points (CW/CCW) Output Voltage 50mA or less Shot Circuit Protection None Voltage Drop (ON Voltage) DC0.8V or less		Open Collector	Rated Output Voltage		DC5V	
Pulse Output Open Collector Output Voltage 50mA or less Short Circuit Protection None Voltage Drop (ON Voltage) DC0.8V or less			Maximum Allowable Output Voltage		DC4.5V to DC5.5V	
Output Output Voltage 50mA or less			No. Of Output Points		2 points (CW/CCW)	
Voltage Drop (ON Voltage) DC0.8V or less			Output Voltage		50mA or less	
0 1 (0 / 2000 0.1000			Short Circuit Protection		None	
			Voltage Drop (ON Voltage)		DC0.8V or less	
		Line Driver	Differential Output		Equivalent to TI Corp. SN75158	
(non-isolated) Short Circuit Protection None		(non-isolated)	Short Circuit Protection		None	

■ Flex Network Communication

No. of Monopolized Stations	4

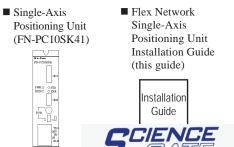
CAUTION

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

■ To Prevent Unit Damage

- · Do not store or operate this unit in direct sunlight or extremely dusty or dirty areas
- · Since this unit is a precision instrument, do not store or use it in locations where excessive shocks or vibration may occur.
- Do not block this unit's ventilation holes, or operate it where it may overheat.
- Do not operate 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

Package Contents

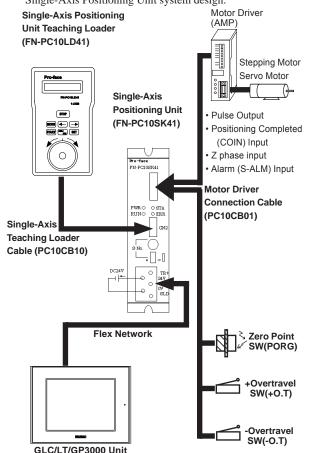


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Flex Network System Design

The following diagram shows a standard Flex Network Single-Axis Positioning Unit system design.



Optional Items (sold separately)

■ Single-Axis Positioning Unit Teaching Loader (FN-PC10LD41)

■ Motor Driver Connection Cable (PC10CB01)





Safety Standards

UL/c-UL (CSA)

The FN-PC10SK41 is a UL/c-UL (CSA) listed product. (UL file No. E220851)

This unit conforms to the following standards:

■ UL 508 Industrial Control Equipment

■ CAN/CSA C22.2 No.1010-1 MEASUREMENT AND CONTROL EQUIPMENT (Safety requirements for electrical equipment for measurement and laboratory use)

$FN-PC10SK41 \ \ (\textbf{UL Registration Model: 2980051-02})$ <Cautions>

- The FN-PC must be a built-in component of an end-use product.
- The power unit attached to the FN-PC should be a UL/c-UL (CSA) approved Class 2 power unit, or a Class 2 transformer. *

If a single power supply is used to power the GLC/LT/GP3000, or multiple Flex Network units, design the wiring so the sum of the Flex Network unit's consumption current and the total load current does not exceed the Class 2 power unit or the Class 2 transformer's rating.

*1 A Class 2 power unit/Class 2 transformer provides 30V output at 8A or less, at 100VA or less.

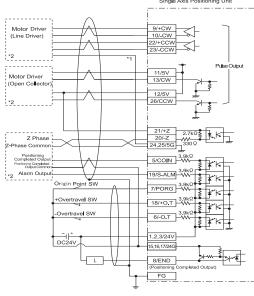
CE Marking

The FN-PC10SK41 is a CE marked product that conform to EMC directives EN55011 class A and EN61000-6-2. For detailed CE Marking information, please contact your Flex Network distributor.

4 Connection Drawing

The following drawing shows a connection example and provides terminal names.

■ Z Phase (with Open Collector)



■ Z Phase (with Line Driver)



- *1 The FN-PC unit's live line is not isolated. If it is connected to a non isolated servo driver, be sure to connect the signal ground (5G) to prevent an over-current accident
- *2 For motor driver connection details, refer to "Flex Network Single Axis Positioning Unit User Manual appendix1".

Driver & Manual

the unit

For GLC2000 Series and LT Series,

You can select the Flex Network Driver via GP-PRO/PBIII C-Package (Pro-Control Editor) or LT Editor

If the selection of the appropriate unit's name does not appear in the [I/O Configuration] - [I/O Unit Settings] area, you will need to update the driver file.

You can download the latest driver from Pro-face's Home Page. For GP3000 Series,

You can select the Flex Network Driver via GP-Pro EX as an I/O driver.

Also, you can download the driver and the Flex Network Single Axix Positioning Unit User Manual from Pro-face's web site. (http://www.pro-face.com/)

External Dimensions / Part Names

Pin No.

Signa No.

24V

+5V

Installation

1.3N•m.

6 Wiring

Type

nput Voltag

Control Input

ulse Output

tput Voltage

Pulse Output

Phase Input

ulse Output

tput Voltage

Create screw holes with M4 size screws.

Screw torque should be from 1.0Nom to

to 0.5 N·m. Up to 2 terminals can be attached.

■ Communication Cable

Distributor

26 CCW Pulse Output CCW direction pulse output (non-logical Open Collector

This section describes both the cables and crimp terminals used for

wiring each type of cable. The terminal screw torque should be 0.3

The Flex Network interface and the Flex Network unit, or all

distributed Flex Network units, are connected using a cross

Order Code

FN-CABLE2010-31-MS

FN-CABLE2050-31-MS

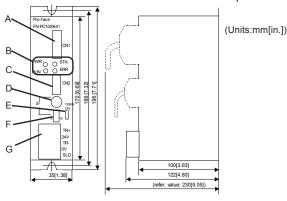
FN-CABLE2200-31-MS

wiring system. (T-type systems cannot be used.)

Pro-face suggests the following communication cables

*1 PORG should be used for a transistor output's sensor (proximity switch, etc.)

This section shows the FN-PC unit's dimensions and part names.



Description

Controller Input Voltage DC24V

CW direction pulse output (Line Driver

Pulse output voltage (for Open collector

Encoder origin point signal

CCW direction pulse output (Line Driver

Pulse output voltage (for Open collector

- 2-M4

Length

10m

50m

200m

ction pulse output (non-logical Open Colle

The driver for the Flex Network Unit is required in order to use

Set communication speeds and S-No. (first

D: S-No. (station no.) Switch Sets the S-No. (last digit).

A: Control Input Connector

C: Teaching Loader Connector ..

B: Status LED

G: Flex Network Communication .. Connects the Comm. cable and power supply. Terminals/Power Terminals



◆Examples of S-No. (station no.) settings (Setting Range:1-60)

+ Examples of 5 110. (station no.) setting				
S-No.	Dip Switches		S-No.(Sta.)	₹ Note:
	SW3	SW4	Switch	Note:
	OFF(0)	ON(1)	0	
Oh(16)	6 0 ~ 12 - 0 - 1			
Ch(60)	ON(1)	ON(1)	С	
	6 0 × 12			

One Single-Axis Posi tioning unit uses 4 stations. Thus, the next unit will start 4 stations higher (+4). Be sure to confirm all station numbers prior to use, to prevent operation mistakes.

. Connects the Motor Driver Connection Cable

Switches termination ON/OFF. Turns ON the

. Indicates the unit's current operation status.

.. Connects the Teaching loader Cable

units at both ends of the commi

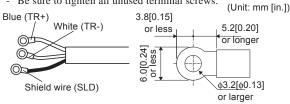
2 Specifications

■ Electrical (Control Section)

Rated Voltage	DC24V DC20.4 to DC28.8V Up to 10ms (power supply: DC24V) 15A or less 2.5W or less	
Rated Voltage Range		
Allowable Voltage Drop		
In-Rush Current		
Power Consumption		
Voltage Endurance	AC500V 20mA 1 minute	
voltage Endurance	(between input/output and FG terminals)	
Insulation Resistance	10MΩ or more at DC500V	
(via noise simulator)	(between input/output and FG terminals)	

When preparing the cable wire ends:

- Cover shielded wires with shield tape or with an insulation tube.
- Use insulated crimp terminal.
- If you use a pressure connection terminal without insulation, cover it with a shield tape or an insulation tube. Cover uninsulated crimp termials with shield tape or a tube-type insulation.
- Be sure to tighten all unused terminal screws.



■ Power Cable

- \bullet Cable diameter can be up to 1.25 $mm^2(AWG18)$. Be sure to twist all wire ends before attaching crimp terminals. All wiring should be UL1015 or UL1007 compliant.
- · Use the same type crimp terminals as used for the communication cable.

■ Motor Driver Connection Cable

This cable connects the Motor Driver to the Flex Single Axis Positioning unit, and to the Flex Network I/O units. The following Motor Driver cable is available from Digital.

Distributor	Model No.	Length
Pro-face	FN-PC10CB01	1m

When creating your own cable, the thickness should be from 0.75 to 1.25mm²

Connector :10226-5202JL (FN-PC side)<Sumitomo/3M Corp.> :10126-3000VE (Cable side)<Sumitomo/3M Corp.>

:10326-50A0-008 <Sumitomo/3M Corp.> Cover

Note 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 use

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