OMRON

Data Flow Controller

DX-series

CPU Unit

User's Manual

DX100-0010

CPU Unit
Power Suppy Unit

V241-E1-03

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Introduction

Thank you for purchasing our DX-series Data Flow Controller.
This manual contains information that is necessary to use the DX-series Data Flow Controller. Please read this manual and make sure that you understand the functionality and performance of the product before you attempt to use it in a control system.

Intended Audience

This manual is intended for the following personnel, who must also have knowledge of electrical systems (electrical engineers or the equivalent).

- Personnel in charge of designing and operating data utilization systems on a production site.
- Personnel in charge of designing and operating maintenance systems on a production site.

Applicable Products

This manual covers the following product.

- DX-series Data Flow Controller
  DX100-□□□□

Part of the specifications and restrictions for the product may be given in other manuals. Refer to *Relevant Manuals* on page 2 and *Related Manuals* on page 24.

Relevant Manuals

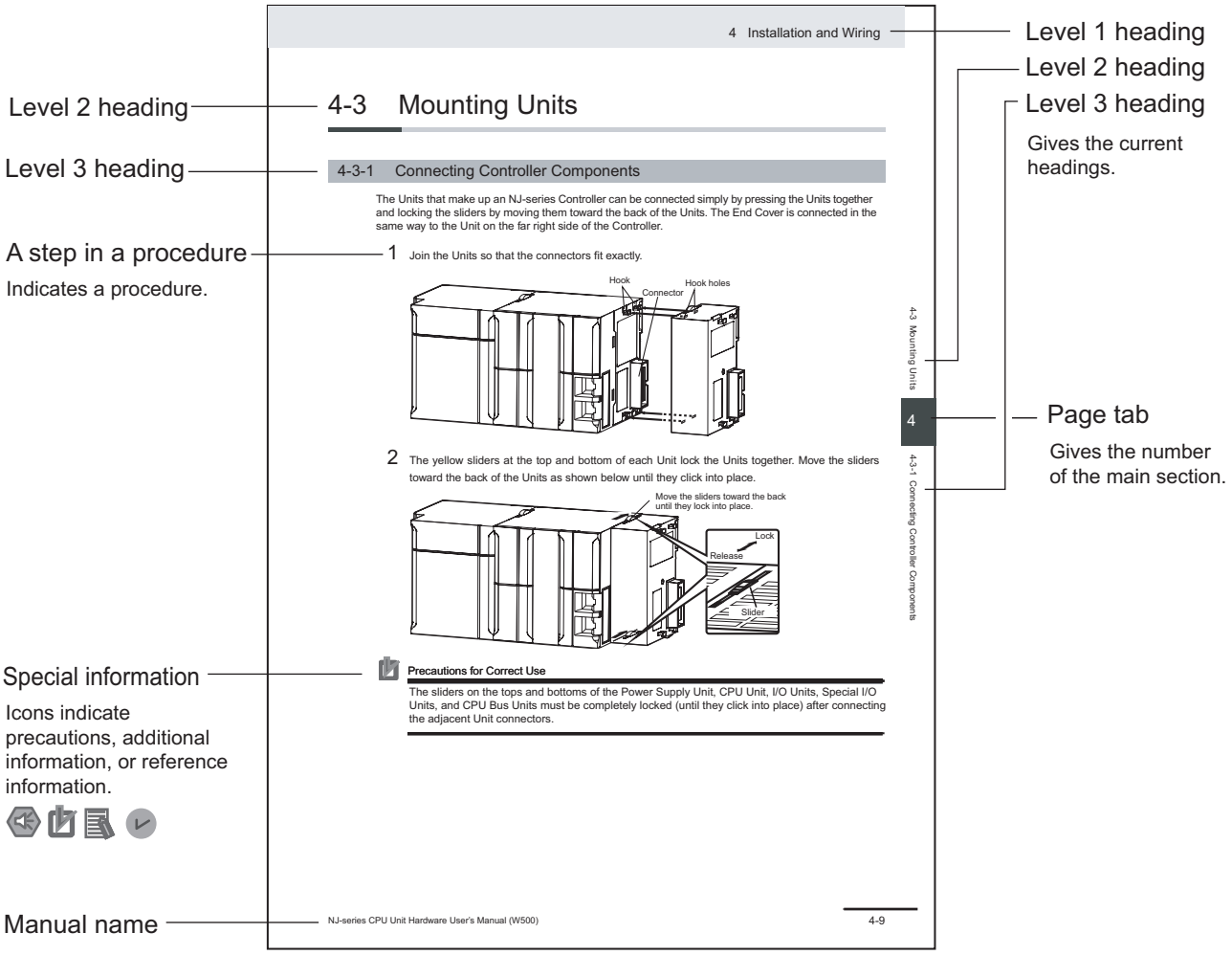
The following table provides the relevant manuals for this product. Read all of the manuals that are relevant to your system configuration and application before you use the product.

Purpose of use	Manuals							
				Package-related				
	DX-series CPU Unit User's Manual	DX-series Web UI Operation Manual	DX-series SpeeDBee Synapse User's Manual	DX-series Dashboard Generator User's Manual	DX-series User's Manual Equipment Monitoring Package Edition	DX-series User's Manual Factory Monitoring Package Edition	DX-series User's Manual Condition Monitoring Package Edition	DX Series User's Manual Event-triggered Video Logging Package Edition
Introduction to the DX-series Data Flow Controller	✓							
Overall operating procedure	✓							
Installation and hardware setup	✓							
Initial setup	✓							
Software setup		✓						
Data monitoring using the Data Flow Controller		✓						
Data collection and utilization			✓					
Data visualization and analysis								
Data visualization and analysis functions	✓							
Data visualization and analysis using Packages				✓	✓	✓	✓	✓
Troubleshooting for errors								
Troubleshooting for hardware errors and other problems	✓							
Troubleshooting for Controller setup errors		✓						
Troubleshooting for data collection and utilization errors			✓					
Troubleshooting for Package errors				✓	✓	✓	✓	✓
Maintenance of Data Flow Controllers	✓							

Manual Structure

Page Structure

The following page structure is used in this manual.



This illustration is provided only as a sample. It may not literally appear in this manual.

Special Information

Special information in this manual is classified as follows:

Precautions for Safe Use

Precautions on what to do and what not to do to ensure safe usage of the product.

Precautions for Correct Use

Precautions on what to do and what not to do to ensure proper operation and performance.

Additional Information

Additional information to read as required.
This information is provided to increase understanding and make operation easier.

Version Information

Differences in the performance and functionality of the Data Flow Controller with different unit versions are given.

Sections in this Manual

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Section 7 Data Collection and Visualization

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Section 9 Troubleshooting

Section 10 Maintenance and Inspection

Appendices

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Terms and Conditions Agreement

Warranty, Limitations of Liability

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Change in Specifications

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

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Safety Precautions

Definition of Precautionary Information

The following notation is used in this manual to provide precautions required to ensure safe usage of the Data Flow Controller.
The safety precautions that are provided are extremely important for safety. Always read and heed the information provided in all safety precautions.
The following notation is used.

⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. Additionally, there may be severe property damage.
⚠ Caution	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

Symbols

	The circle and slash symbol indicates operations that you must not do. The specific operation is shown in the circle and explained in text. This example indicates that disassembly is prohibited.
	The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a precaution for electric shock.
	The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a general precaution.
	The filled circle symbol indicates operations that you must do. The specific operation is shown in the circle and explained in text. This example shows a general precaution for something that you must do.

WARNING

⚠ WARNING

During Power Supply

Do not touch the terminal section while power is ON.
Electrical shock may occur.

Do not disassemble the product.
In particular, high-voltage parts are present in the Power Supply Unit while power is supplied or immediately after power is turned OFF. Touching any of these parts may result in electric shock. There are also sharp internal parts that may cause injury.

Fail-safe Measures

Provide safety measures in external circuits to ensure safety in the system if an abnormality occurs due to malfunction of the product or due to other external factors affecting operation. Not doing so may result in serious accidents due to incorrect operation.

Emergency stop circuits, interlock circuits, limit circuits, and similar safety measures must be provided in external control circuits.

You must take fail-safe measures to ensure safety in the event of incorrect, missing, or abnormal signals caused by broken signal lines, momentary power interruptions, or other causes.

Unintended behavior may occur if an error occurs in the internal memory of the product. As a countermeasure for these problems, external safety measures must be provided to ensure safe operation of the system.

Security Measures

Anti-virus protection
Install the latest commercial-quality antivirus software on the computer connected to the control system and maintain to keep the software up-to-date.

Security measures to prevent unauthorized access

Take the following measures to prevent unauthorized access to our products.

- Install physical controls so that only authorized personnel can access control systems and equipment.
- Reduce connections to control systems and equipment via networks to prevent access from untrusted devices.
- Install firewalls to shut down unused communications ports and limit communications hosts and isolate control systems and equipment from the IT network.
- Use a virtual private network (VPN) for remote access to control systems and equipment.
- Adopt multifactor authentication to devices with remote access to control systems and equipment.
- Set strong passwords and change them frequently.
- Scan virus to ensure safety of USB drives or other external storages before connecting them to control systems and equipment.

Data input and output protection

Validate backups and ranges to cope with unintentional modification of input/output data to control systems and equipment.

- Checking the scope of data
- Checking validity of backups and preparing data for restore in case of falsification and abnormalities
- Safety design, such as emergency shutdown and fail-soft operation in case of data tampering and abnormalities

Data recovery

Backup data and keep the data up-to-date periodically to prepare for data loss.

When using an intranet environment through a global address, connecting to a SCADA or an unauthorized terminal such as an HMI or to an unauthorized server may result in network security issues such as spoofing and tampering. You must take sufficient measures such as restricting access to the terminal, using a terminal equipped with a secure function, and locking the installation area by yourself.

When constructing an intranet, communication failure may occur due to cable disconnection or the influence of unauthorized network equipment. Take adequate measures, such as restricting physical access to network devices, by means such as locking the installation area.

When using a device equipped with the SD Memory Card function, there is a security risk that a third party may acquire, alter, or replace the files and data in the removable media by removing the removable media or unmounting the removable media. Please take sufficient measures, such as restricting physical access to the Controller or taking appropriate management measures for removable media, by means of locking the installation area, entrance management, etc., by yourself.

Precautions for Safe Use

Transportation and Disassembly

- Do not attempt to disassemble, repair, or modify the product. Doing so may result in a malfunction or fire.
- Do not drop the product or subject it to abnormal vibration or shock. Doing so may result in product malfunction or burning.

Voltage and Current Inputs

- In the system, only use a power supply within the rated supply capacity range specified in this manual.
- If the full dielectric strength voltage is applied or turned OFF using the switch on the tester, the generated impulse voltage may damage the Power Supply Unit in the worst case. Change the applied voltage gradually using the adjuster on the tester.
- Apply the voltage between the Power Supply Unit's L1 or L2 terminal and the GR terminal when testing insulation and dielectric strength. The tests can also be performed with the LG terminal and GR terminal connected to each other.
- Do not supply inverter output to an AC power supply. Internal temperature rise may result in smoking or burning.
- Surge current occurs when the power supply is turned ON, as shown in "Power Supply Unit Specifications." When selecting fuses or breakers for external circuits, consider their shut-off/detection characteristics as well as the above precautions and allow sufficient margin in the circuit design.

Installation

- Always connect the product to a ground of 100 Ω or less when installing it.

Wiring

- Follow the instructions in this manual to correctly perform terminal block and connector wiring and insertion. Confirm the wiring order and connector orientation carefully before turning ON the power supply.
- Use crimp terminals for wiring the M3 screw terminal blocks. Do not connect bare stranded wires directly to the M3 screw terminal blocks.
- Be sure that the terminal blocks and communications cables with tightening screws or locking devices are properly tightened and locked into place.
- Do not pull on the cables or bend the cables beyond their natural limit.
- Do not place heavy objects on top of the cables or other wiring lines. Doing so may break the cables.

- Always use power supply wires with sufficient wire diameters to prevent voltage drop and burning. Make sure that the current capacity of the wire is sufficient. Otherwise, excessive heat may be generated. When cross-wiring terminals, the total current for all the terminals will flow in the wire. When wiring cross-overs, make sure that the current capacity of each of the wires is not exceeded.

Fail-safe Measures

- It takes several tens of seconds to enter the operating state after the power supply is turned ON. During that time, external communications are not performed. Implement fail-safe circuits so that external devices do not operate incorrectly.

Power Supply Design

- For the Power Supply Unit used in the system, only use Power Supply Units that are specified in this manual. Using a different Power Supply Unit may cause operation stop or malfunctions, or failure to back up necessary data correctly during power interruptions.

Turning ON the Power Supply

- Confirm that the system will not be affected before you turn ON the power supply to the Unit.

Actual Operation

- When you make control instructions or provide feedback based on data collected by this product, perform a thorough operation check before proceeding to actual operation.

Turning OFF the Power Supply

- Always turn OFF the power supply before you attempt any of the following.
  a) Connecting cables or wiring the system
  b) Connecting or disconnecting the connectors
  c) Setting the DIP switches
     The Power Supply Unit may continue to supply power to the Data Flow Controller for a few seconds after the power supply is turned OFF. During this period, the PWR indicator is lit. Confirm that the PWR indicator is not lit before you perform any of the above.

Operation

- Check the safety of the product before you change any product settings.
  After you change the settings, perform a thorough operation check before you proceed to actual operation.

Cleaning

- Do not use corrosive chemicals to clean the product. Doing so may result in a failure or malfunction of the product.

USB Devices

- Do not turn OFF the power supply or remove the USB memory device while the product is accessing the USB memory device. Data may become corrupted, and the product will not operate correctly if it uses corrupted data.

Precautions for Correct Use

Storage and Installation

- Do not install or store the product in the following locations. Doing so may result in burning, operation stop, or malfunction.
  a) Locations subject to direct sunlight
  b) Locations subject to ambient temperatures or relative humidity outside the range specified in the specifications
  c) Locations subject to condensation as the result of severe changes in temperature
  d) Locations subject to corrosive or flammable gases
  e) Locations subject to dust (especially iron dust) or salts
  f) Locations subject to splashes of water, oil, or chemicals
  g) Locations subject to direct vibration or shock to the product
- Take appropriate and sufficient countermeasures when installing the product in the following locations.
  a) Locations subject to strong, high-frequency noise
  b) Locations subject to static electricity or other forms of noise
  c) Locations subject to strong electromagnetic fields
  d) Locations subject to possible exposure to radioactivity
  e) Locations close to power lines
- Before touching a Unit, be sure to first touch a grounded metallic object in order to discharge any static build-up.
- Install the product away from sources of heat and ensure proper ventilation. Not doing so may result in malfunction, in operation stopping, or in burning.

Wiring

- Do not allow wire clippings, shavings, or other foreign material to enter any Unit. Otherwise, Unit burning, failure, or malfunction may occur. Install a protective covering or take other suitable countermeasures, in particular when carrying out wiring work.
- Use the rated power supply voltage for the Power Supply Units. Take appropriate measures to ensure that the specified power with the rated voltage and frequency is supplied in places where the power supply is unstable.

Communications

- Do not disconnect the communications cable while the system is running. Doing so may result in a failure or malfunction of the system.

USB Devices

- Use USB memory devices that comply with the USB standards.

Operation

- If you forget your user name or password, check the user authentication settings as a user with administrator rights. If you forget the user name and password for the user with administrator rights, perform a factory reset and reconfigure the factory default settings.

Firmware Update

- When the firmware is updated, the existing settings, log information (except security-related logs), and other data in the product are initialized.
- Never turn OFF the power supply to the product while the firmware is being updated. If the power supply is turned OFF, the firmware will not be updated normally.

Regulations and Standards

Conformance to EMC and Electrical Safety Regulations

Concepts

OMRON products are industrial electrical devices that are incorporated into various types of machines and manufacturing equipment. The products conform to relevant standards so that the machines and equipment incorporating the OMRON products can comply with EMC and Electrical Safety Regulations more easily.

Refer to the OMRON website (http://www.ia.omron.com/) or consult your OMRON representative for the applicable standards.

● Conformance to EMC regulations

This product conforms to EMC regulations. However, for the radiated emission requirements, in particular, please note that the actual emission varies depending on the configuration of the control panel to be used, the connected devices, and wiring methods. Therefore, customers themselves must confirm that the entire machine or equipment conforms to EMC regulations, even if you are using a device that conforms to EMC regulations.

Caution:

- To conform to EMC standards, attach a clamp core at the root of the cable connected to the Ethernet port.
- This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

● Conformance to Electrical Safety Regulations

The DX-series Units conform to Electrical Safety regulations required by specific laws and regulations such as the EU Directive and UKCA.
For precautions for each product, refer to the instruction manual included with the product.

● Precautions for DX-series Units

For the conformance to EMC and Electrical Safety regulations of the DX-series Units, the following precautions must also be observed.

- The DX-series Units must be installed within a control panel.
- Use a power supply that meets SELV specifications for the DC power supply connected to the Power Supply Unit. We recommend that you use the OMRON S8VK-S series DC Power Supplies. EMC standard compliance was confirmed for the recommended Power Supplies.
- For the DC power supply connected to the Power Supply Unit, use a power supply with an output hold time of 10 ms or more.

Conformance to UL and CSA Standards

The DX-series Units conform to UL and CSA standards.

For how to make your machine or equipment compliant with these standards using a model that complies with UL and CSA standards, refer to the *INSTRUCTION SHEET* included with the product. The *INSTRUCTION SHEET* provides usage conditions to make it compliant with the standards.

Conformance to KC Certification

When you use this product in South Korea, observe the following precautions.

사 용 자 안 내 문
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

This product meets the electromagnetic compatibility requirements for business use. There is a risk of radio interference when this product is used in home.

Software Licenses and Copyrights

This product incorporates certain third party software. The license and copyright information associated with this software is available at https://www.fa.omron.co.jp/product/tool/dx-info/index_en.html.

Versions

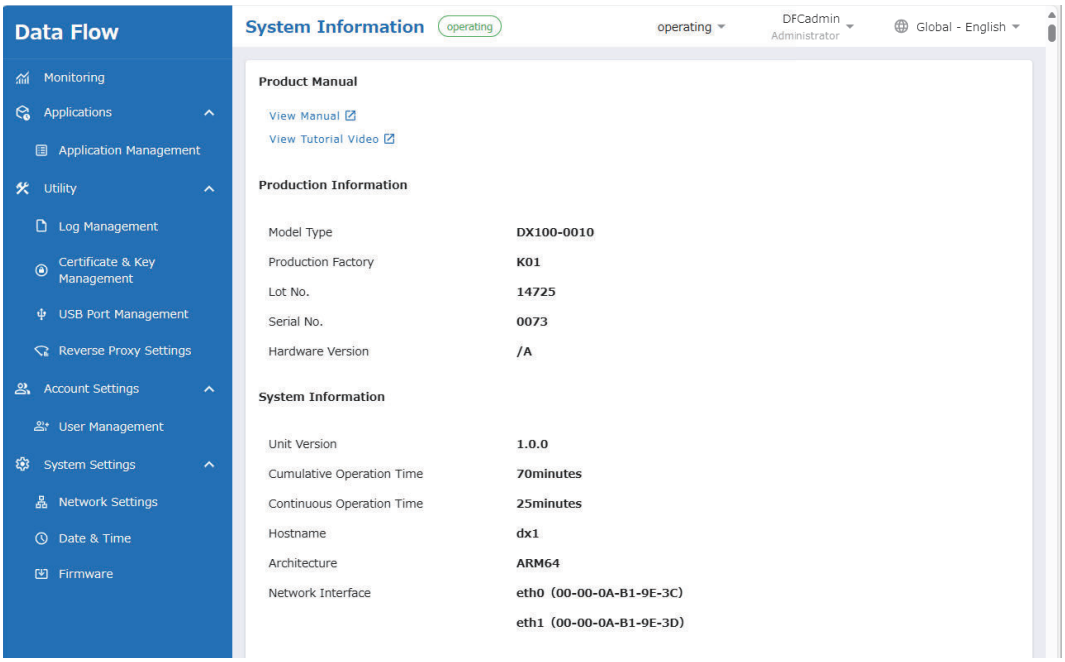
Hardware version and unit version are used to manage the hardware and software of the DX-series Units.
The hardware version or unit version is updated each time there is a change in hardware or software specifications. Even when two Units have the same model number, they will have functional or performance differences if their hardware versions or unit versions are different.

Checking Versions

You can check the versions in the Web UI.

Checking Version Information

1. Log in to the Data Flow Controller.
2. Select **System Information** in the Web UI.
   System information including the version information is displayed.



Related Manuals

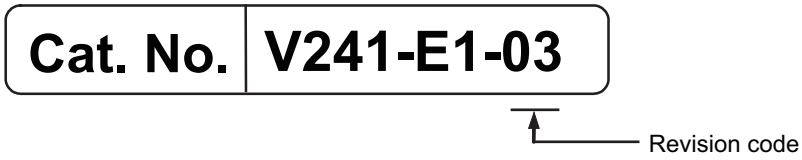
The following manuals are related. Use these manuals for reference.

Manual name	Cat. No.	Model	Application	Description
DX-series Data Flow Controller User's Manual	V241	DX100-0010	Learning the overview, installation, troubleshooting, and maintenance of the DX-series Data Flow Controller.	The following information is provided on the DX-series Data Flow Controller. • Features and system configuration • Overview • Part names and functions • General specifications • Overview of functions • Initial setup • Installation and wiring • Maintenance and inspection
DX-series Web UI Operation Manual	V242	DX100-0010	Learning the settings and operation details of the DX-series Data Flow Controller.	The following information is provided on the DX-series Data Flow Controller. • Settings • Operation method
DX-series SpeeDBee Synapse User's Manual	V243	DX100-0010	Learning how to collect and utilize data with the DX-series Data Flow Controller.	The following information is provided on the data collection and utilization functions of the DX-series Data Flow Controller. • Functions • Setting method
DX-series Dashboard Generator User's Manual	N700	DX100-0010	Learning the common usage of Packages with the DX-series Data Flow Controller.	The following information is provided on Packages for the DX-series Data Flow Controller. • Common functions • Common usage
DX Series User's Manual Equipment Monitoring Package Edition	N701	DX100-0010	Learning how to use the Equipment Monitoring Package with the DX-series Data Flow Controller.	The following information is provided on the Equipment Monitoring Package for the DX-series Data Flow Controller. • Functions • Usage
DX Series User's Manual Factory Monitoring Package Edition	N702	DX100-0010	Learning how to use the Factory Monitoring Package with the DX-series Data Flow Controller.	The following information is provided on the Factory Monitoring Package for the DX-series Data Flow Controller. • Functions • Usage
DX Series User's Manual Condition Monitoring Package Edition	N703	DX100-0010	Learning how to use the Condition Monitoring Package with the DX-series Data Flow Controller.	The following information is provided on the Condition Monitoring Package for the DX-series Data Flow Controller. • Functions • Usage

Manual name	Cat. No.	Model	Application	Description
DX Series User's Manual Event-triggered Video Logging Package Edition	N704	DX100-0010	Learning how to use the Event-triggered Video Logging Package with the DX-series Data Flow Controller.	The following information is provided on the Event-triggered Video Logging Package for the DX-series Data Flow Controller. • Functions • Usage

Revision History

A manual revision code appears as a suffix to the catalog number on the front and back covers of the manual.



Revision code	Date	Revised content
01	September 2025	Original production
02	February 2026	Corrected mistakes.
03	May 2026	Made changes accompanying release of unit version 1.1 of the CPU Unit.

1

Features and System Configuration

This section describes the features and system configuration of the DX-series Data Flow Controller.

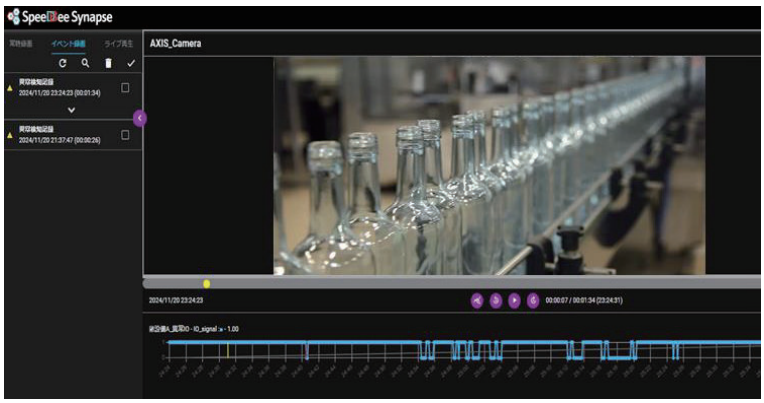
1-1 Features of the DX-series Data Flow Controller

The DX-series Data Flow Controller is designed to enable anyone to start utilizing data on manufacturing sites.

Data collection by connecting to equipment and devices without programming

Analysis by visualizing the collected data in real time on the spot

Support for identification of equipment conditions and issues through time-series data and images



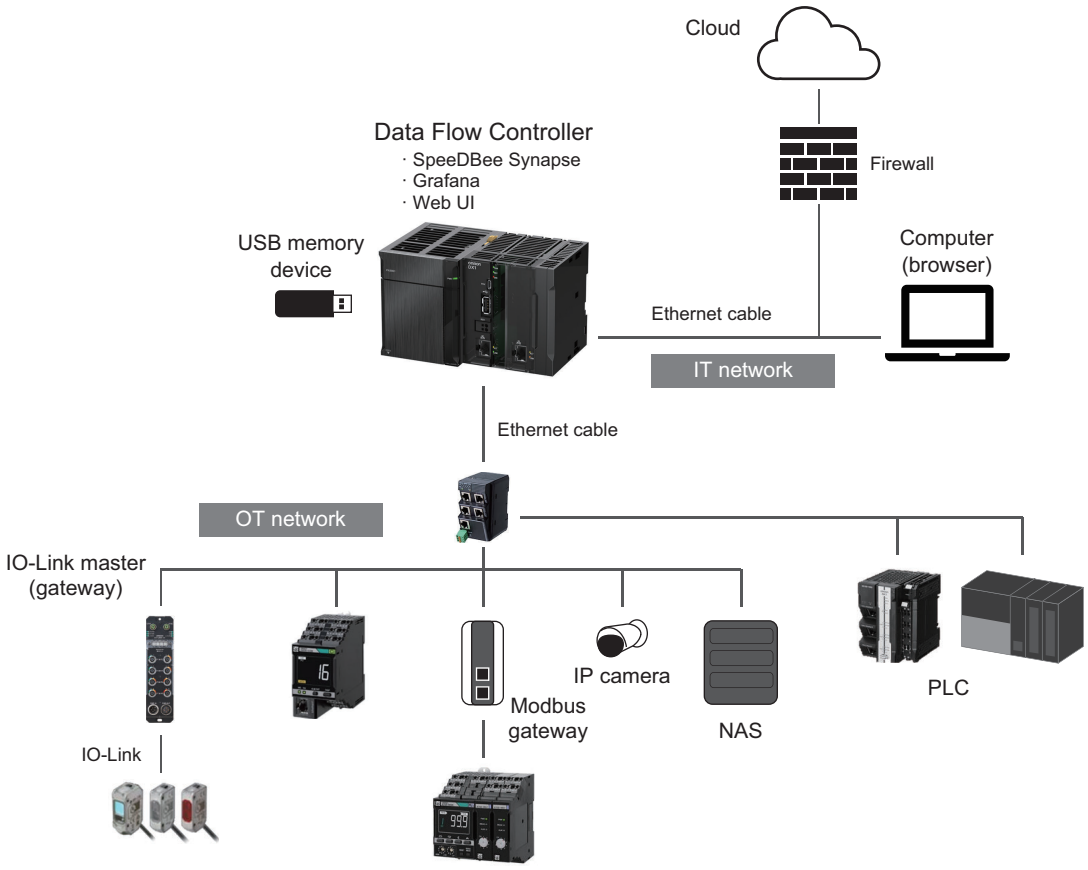
The above features contribute to solving issues on production sites such as the following.

- Reduction of man-hours for building data utilization systems
- Improvement of maintenance efficiency

1-2 System Configuration

A system using the DX-series Data Flow Controller consists of a computer, IT devices, OT devices, etc. that are connected via Ethernet.
For example, you can use the Data Flow Controller to collect and process data from an OT network and send it to a server or system on an IT network. Also, you can use a computer connected to the Data Flow Controller to visualize and check the collected and processed data.
The Data Flow Controller is equipped with SpeeDBee Synapse as data collection software and Grafana as data visualization software.

Connect your computer to the Web UI on the Data Flow Controller via a browser, and then use the Web UI to set up the Data Flow Controller, SpeeDBee Synapse, and Grafana and visualize data in Grafana.



Precautions for Correct Use

The Data Flow Controller does not support wireless LAN.

Precautions for Correct Use

- For networks of equipment and devices, install firewalls and packet filtering.
- For secure operation, implement access control, physical locking, etc. for the installation area of the Data Flow Controller.
- Operate the following protocols, if used, in a network environment that ensures their secure use.
  NTP, DNS, mDNS, and DHCP

2

Data Flow Controller Configuration Devices

This section describes DX-series Data Flow Controller configuration devices. The configuration devices include the Data Flow Controller and the Power Supply Unit.

2-1 Data Flow Controller

This section shows the Data Flow Controller model and the names and functions of its parts.

2-1-1 Model

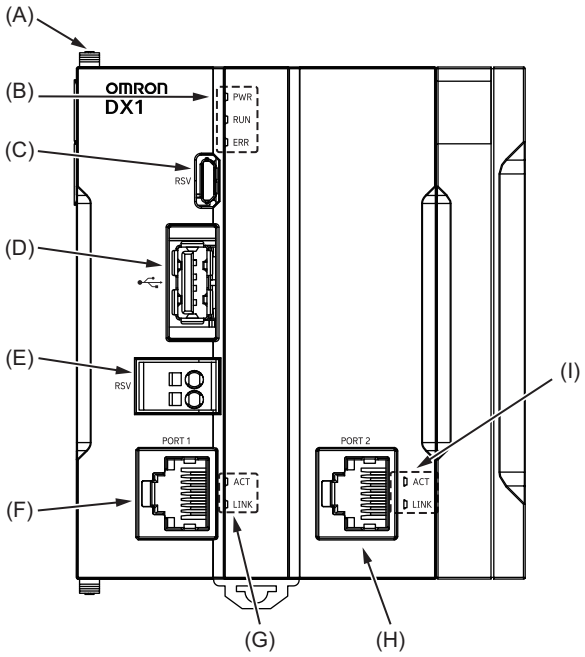
The available model of the Data Flow Controller is shown below.

Model	Built-in data collection and visualization software	Built-in Packages
DX100-0010	• SpeeDBee Synapse • Grafana	• Equipment Monitoring Package • Factory Monitoring Package • Condition Monitoring Package (4 types) • Event-triggered Video Logging Package

2-1-2 Part Names and Functions

The name and function of each part of the Data Flow Controller are shown below.

Front view



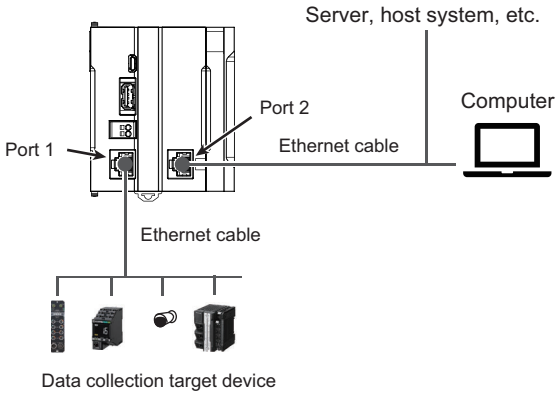
Sym-bol	Name	Function
A	Slider	Locks the adjacent Unit in place. This part is used to mount the Power Supply Unit.
B	Operation Indicators	Show the operation status by the combination of multiple indicators.
C	RSV (Reserve)	Do not use this.
D	USB 2.0 connector	USB 2.0 interface connector. Connects a USB memory device.

Sym-bol	Name	Function
E	RSV (Reserve)	Do not use this.
F	Ethernet communications connector (Port 1)	Connects an Ethernet communications cable. 1 Gbps Default IP address: 192.168.250.100
G	Ethernet communications port (Port 1) operation indicator	Shows the operation status of Ethernet.
H	Ethernet communications connector (Port 2)	Connects an Ethernet communications cable. 100 Mbps Default IP address: 192.168.251.100
I	Ethernet communications port (Port 2) operation indicator	Shows the operation status of Ethernet.

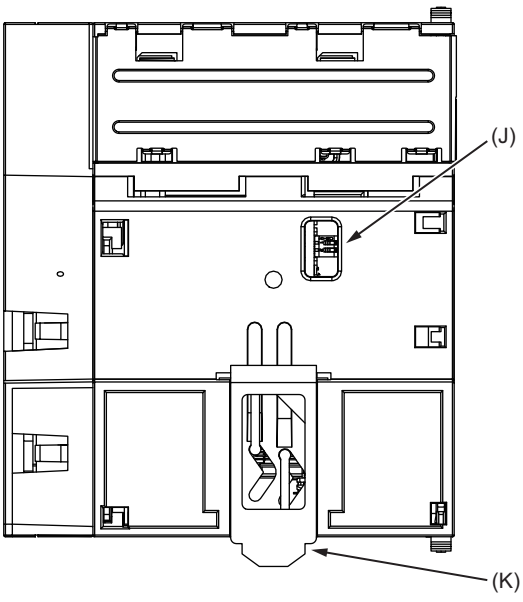
Note The Data Flow Controller does not support wireless LAN.

Additional Information

If the data collection target device supports a communications speed of 1 Gbps, connecting it to Port 1 ensures high-speed communications.



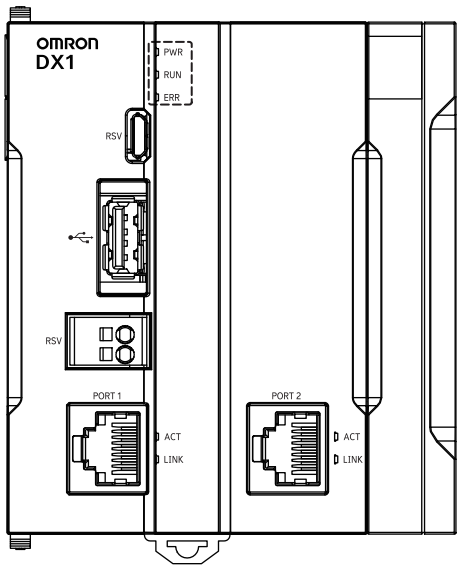
Rear view



Sym-bol	Name	Function
J	DIP switch	Use this in such a case where the computer cannot be connected.
K	DIN Track mounting hook	Use this to mount the Data Flow Controller to a DIN Track.

Operation Indicators

The Data Flow Controller has three operation indicators: PWR, RUN, and ERR.



The meaning of these indicators varies depending on the situation: during initial startup, during normal operation, during firmware update, and during factory reset.

● Indication during Initial Startup

The indication of the indicators during the initial startup and powering on following a factory reset is as follows. Refer to *Section 5 Login and Initial Setup* on page 5-1 to perform the initial setup at the initial startup.

LED			Status
PWR (Green)	RUN (Green)	ERR (Red)	
ON	Flashing	OFF	Booting
ON	Flashing	Flashing	Startup completed, waiting for initial setup

● Indication during Normal Operation

Indicators			Status
PWR (Green)	RUN (Green)	ERR (Red)	
ON	Flashing	*1	Booting
ON	ON	*1	Startup completed, operating state
ON	Flashing	*1	Settings being changed by Web UI

Indicators			Status
PWR (Green)	RUN (Green)	ERR (Red)	
ON	ON or flashing → OFF	*1 → OFF	Shutting down

*1. For the indication of the ERR indicator, refer to the table below.

The indication of the indicators based on the error status is as follows.

PWR indicator (Green)	RUN indicator (Green)	ERR indicator (Red)	Status	Description	Corresponding log level*1
ON	As shown in above table	OFF	No error	Normal operation	---
ON	As shown in above table	Flashing	Warning	A minor error that allows the application to continue operating has occurred.	WARNING ERROR
ON	Flashing or OFF	Flashing	Error	An error that does not allow the application to continue operating has occurred.	WARNING ERROR
ON	OFF	ON	Fatal error*2	A critical error that does not allow the Data Flow Controller to continue operating has occurred.	CRITICAL ALERT EMERGENCY

*1. Refer to *6-6-2 Log Levels* on page 6-9 for the log levels.

*2. Fatal error includes CPU Unit Error in addition to the errors listed in this table. Even if this error occurs, you cannot determine whether it is CPU Unit Error because the indication of the indicators are not defined. Refer to *9-2 Troubleshooting for Errors* on page 9-3 for CPU Unit Error.

● Indication during Firmware Update

Indicators			Status
PWR (Green)	RUN (Green)	ERR (Red)	
--- (Repeats turning ON and OFF several times.)	Flashing	Flashing	Firmware writing
ON	ON	OFF	Firmware writing successful
ON	OFF	ON	Firmware writing failed

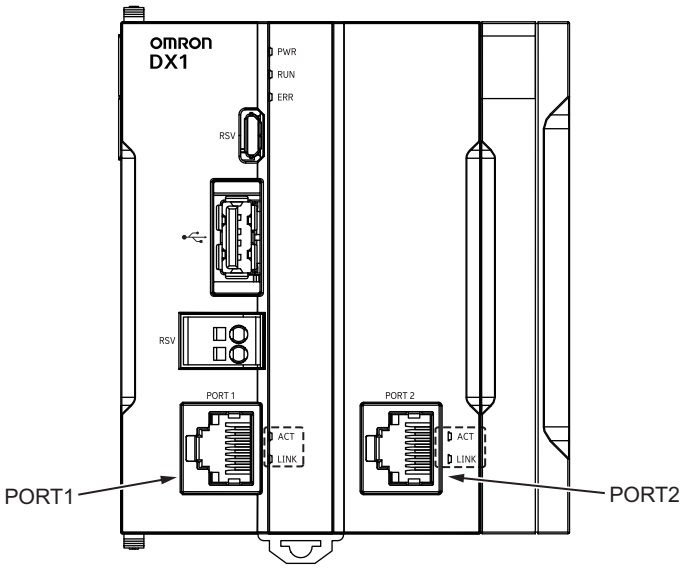
● Indicators during Initialization (Factory Reset)

Indicators			Status
PWR (Green)	RUN (Green)	ERR (Red)	
--- (Repeats turning ON and OFF several times.)	Flashing	Flashing	Initialization (Factory reset) in progress
ON	ON	OFF	Initialization (Factory reset) successful

Indicators			Status
PWR (Green)	RUN (Green)	ERR (Red)	
ON	OFF	ON	Initialization (Factory reset) failed

Ethernet Communications Port Operation Indicators

The Ethernet communications ports (Port 1 and Port 2) have the ACT and LINK operation indicators.

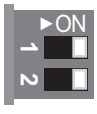


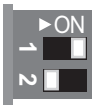
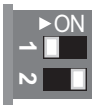
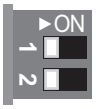
Indicator name	Color	Status	Description
ACT	Yellow	ON	Link established
		Flashing	Sending or receiving data (Flashes every time data is sent or received.)
		OFF	Link not established
LINK	Green	ON	Link established at 1 Gbps (Port 1 only)
	Orange	ON	Link established at 100 Mbps
	Green/Orange	OFF	Link not established

DIP Switches

The Data Flow Controller has DIP switches on the back. Use them when your browser on the computer cannot connect to the Data Flow Controller's Web UI. The functions of the DIP switches are shown below.

Normally, use DIP switches 1 and 2 in the ON position.

Function	Description	DIP switches		
		1	2	Appearance
Normal startup	Starts up the Data Flow Controller in a normal state when the power is turned ON.	ON	ON	

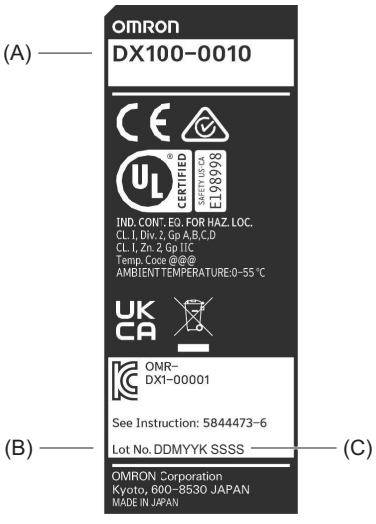
Function	Description	DIP switches		
		1	2	Appearance
Startup using default IP address	Starts up the Data Flow Controller using the factory default IP address when the power is turned ON using this setting. Use this function when you have forgotten the set IP address and cannot connect to the computer.	ON	OFF	
Factory reset	Resets the Data Flow Controller to the factory default settings. Use this function when you encounter an error that prevents the operation of the Data Flow Controller. Refer to *6-11-1 Initialization (Factory Reset) Procedure Using DIP Switches* on page 6-18 for the factory reset procedure.	OFF	ON	
Pre-factory reset	Resets the Data Flow Controller to the factory default settings. Use this function before you reset the DIP switches to the factory reset settings. Refer to *6-11-1 Initialization (Factory Reset) Procedure Using DIP Switches* on page 6-18 for the factory reset procedure.	OFF	OFF	

Precautions for Correct Use

For secure operation, take measures to prevent unauthorized operation of the DIP switches. For example, implement access control, physical locking, etc.

Nameplates

The overall view of the nameplate and the ID information that can be confirmed on the nameplate are shown below.



Sym-bol	Description
A	Model
B	Lot number
C	Serial number

2-2 Power Supply Unit

The Data Flow Controller does not have a built-in power supply. You must install a Power Supply Unit on it.
This section shows the available Power Supply Unit models and the names and functions of their parts.

2-2-1 Models

The available Power Supply Unit models are shown below.

Model	Power supply voltage	Power consumption
NJ-PA3001	100 to 240 VAC (wide-range) 50/60 Hz	120 VA max.
NJ-PD3001	24 VDC	60 W max.

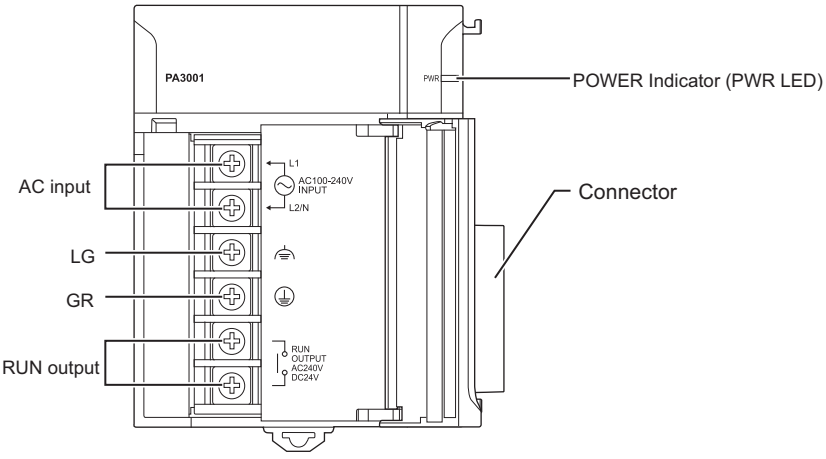
Precautions for Safe Use

For the Power Supply Unit used in the system, only use Power Supply Units that are specified in this manual. Using a different Power Supply Unit may cause operation stop or malfunctions, or failure to back up necessary data correctly during power interruptions.

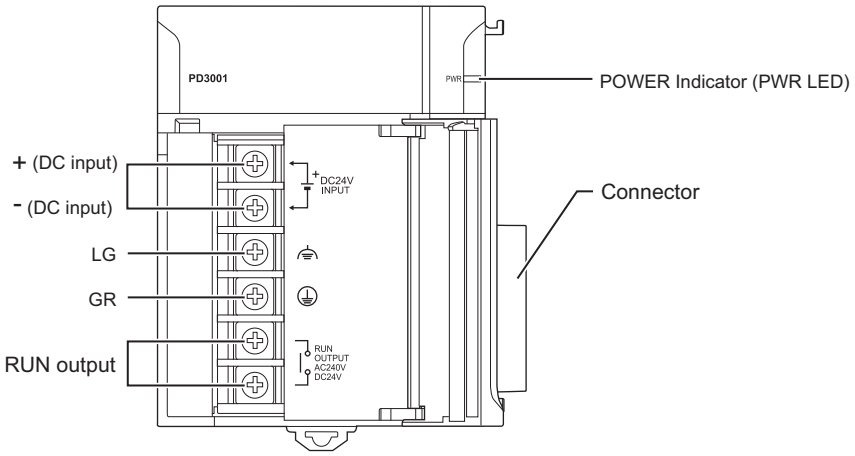
2-2-2 Part Names and Functions

The name and function of each part of the Power Supply Unit are shown below.

NJ-PA3001



NJ-PD3001



Name	Function
AC input	Supplies 100 to 240 VAC (allowable power supply voltage fluctuation range: 85 to 264 VAC). The Power Supply Unit has a wide input range, so it does not have voltage switching terminals.
DC Input	Supplies 24 VDC (allowable power supply voltage fluctuation range: 19.2 to 28.8 VDC).
LG	Noise-filtered neutral terminal to increase noise resistance.
GR	Ground terminal to prevent electrical shock.
RUN output	Turns ON the internal contacts for the RUN output when the Data Flow Controller is in normal operation. The following operation occurs. **ON** • Normal operation **OFF** • Power OFF • Startup state • Setup state • Shutting down • Critical error state • Firmware update in progress • Factory reset in progress

2-3 USB Memory Device

You can use a USB memory device for the following applications.

- Saving collected data
- Saving Firmware Updater data

The following shows the recommended USB memory device.
OMRON is not responsible for the operation of any other USB memory devices.

Recommended USB memory device	Description
FZ-MEM2G	OMRON USB memory device (2 GB)

Note FZ-MEM16G is not supported.

Precautions for Correct Use

- Use USB memory devices that comply with the USB standards.
- Use USB memory devices formatted in FAT32.

3

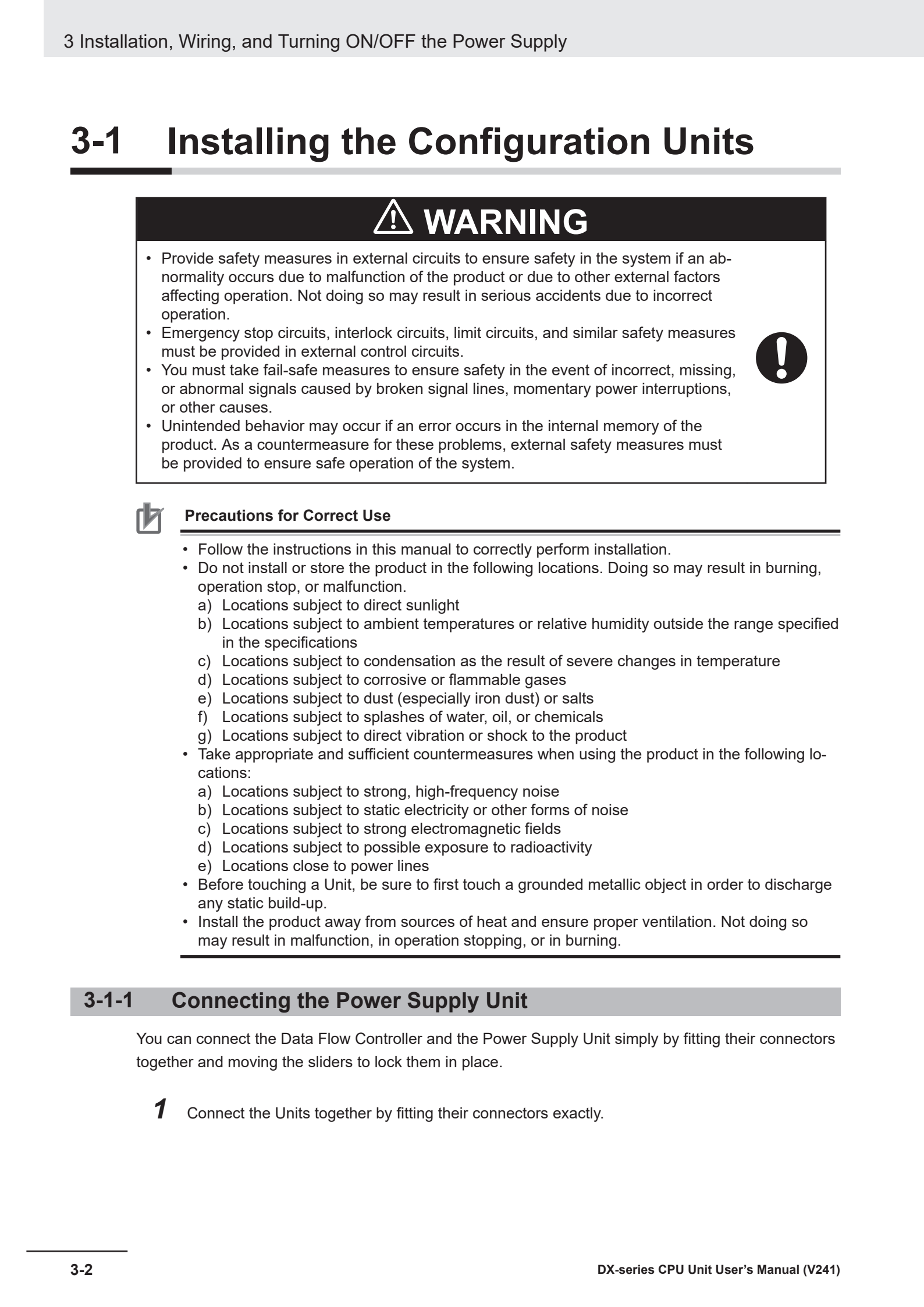
Installation, Wiring, and Turning ON/OFF the Power Supply

This section describes the installation and wiring procedures for the Data Flow Controller and configuration Units, as well as their installation locations.

3-1 Installing the Configuration Units

⚠ WARNING

- Provide safety measures in external circuits to ensure safety in the system if an abnormality occurs due to malfunction of the product or due to other external factors affecting operation. Not doing so may result in serious accidents due to incorrect operation.
- Emergency stop circuits, interlock circuits, limit circuits, and similar safety measures must be provided in external control circuits.
- You must take fail-safe measures to ensure safety in the event of incorrect, missing, or abnormal signals caused by broken signal lines, momentary power interruptions, or other causes.
- Unintended behavior may occur if an error occurs in the internal memory of the product. As a countermeasure for these problems, external safety measures must be provided to ensure safe operation of the system.



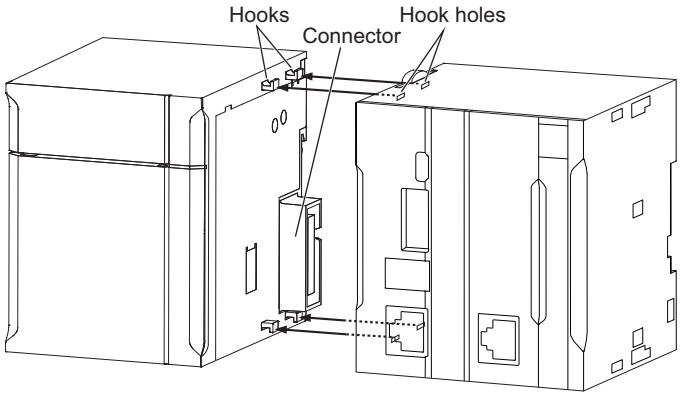
Precautions for Correct Use

- Follow the instructions in this manual to correctly perform installation.
- Do not install or store the product in the following locations. Doing so may result in burning, operation stop, or malfunction.
  a) Locations subject to direct sunlight
  b) Locations subject to ambient temperatures or relative humidity outside the range specified in the specifications
  c) Locations subject to condensation as the result of severe changes in temperature
  d) Locations subject to corrosive or flammable gases
  e) Locations subject to dust (especially iron dust) or salts
  f) Locations subject to splashes of water, oil, or chemicals
  g) Locations subject to direct vibration or shock to the product
- Take appropriate and sufficient countermeasures when using the product in the following locations:
  a) Locations subject to strong, high-frequency noise
  b) Locations subject to static electricity or other forms of noise
  c) Locations subject to strong electromagnetic fields
  d) Locations subject to possible exposure to radioactivity
  e) Locations close to power lines
- Before touching a Unit, be sure to first touch a grounded metallic object in order to discharge any static build-up.
- Install the product away from sources of heat and ensure proper ventilation. Not doing so may result in malfunction, in operation stopping, or in burning.

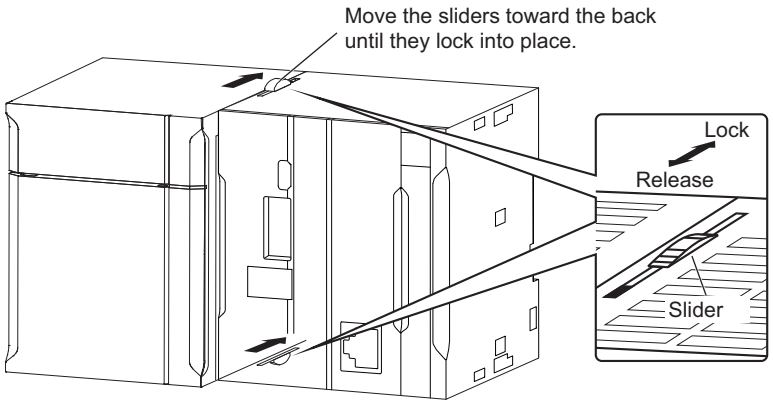
3-1-1 Connecting the Power Supply Unit

You can connect the Data Flow Controller and the Power Supply Unit simply by fitting their connectors together and moving the sliders to lock them in place.

1 Connect the Units together by fitting their connectors exactly.



2 Move the yellow sliders on the top and bottom of the Unit to connect until they click to lock them in place.



Precautions for Safe Use

When connecting the Units, fit their Unit connectors together and then move the sliders on the top and bottom of the Unit to connect until they click to lock them in place.

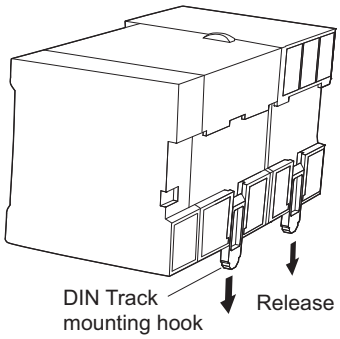
Precautions for Correct Use

- Always turn OFF the power supply before connecting Units to each other.
- During maintenance, always turn OFF the power supply to the entire system before replacing a Unit.

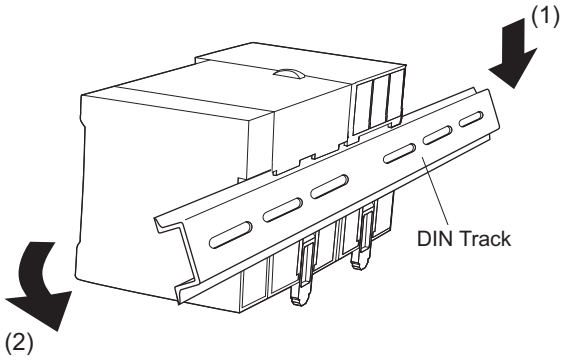
3-1-2 Mounting the Data Flow Controller on a DIN Track

Use the following procedure to mount the Data Flow Controller on a DIN Track.

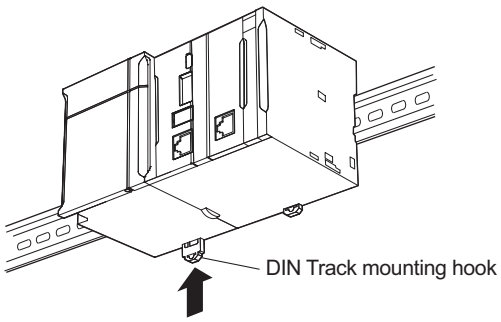
1 Release the DIN Track mounting hooks on the back of the configuration Units.



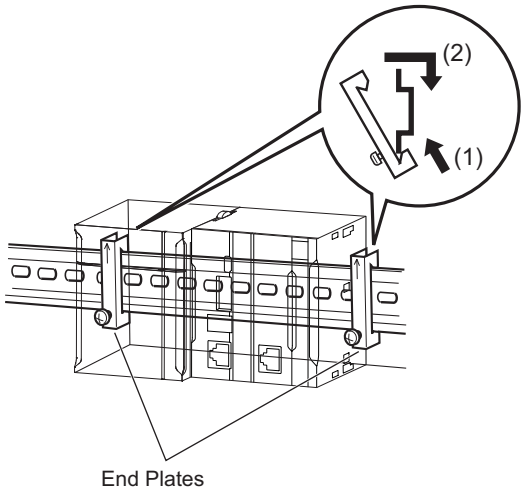
2 Hook the Data Flow Controller on the upper side of the DIN Track (1) and insert it all the way to the back (2) to mount it.



3 Lock all the DIN Track mounting hooks.



4 Install two End Plates on both ends of the Data Flow Controller to secure it in place.
To install an End Plate: (1) Hook the bottom of it on the lower side of the DIN Track. (2) Hook the top of it on the upper side of the DIN Track and pull it down.
Then, tighten the screw on the End Plate to secure it.



To remove the Data Flow Controller, follow the above steps in reverse order.

Precautions for Safe Use

Always turn OFF the power supply to the Data Flow Controller before attempting any of the following.

- Mounting or removing the configuration Units
- Assembling equipment
- Setting the DIP switches
- Connecting cables or wiring the system
- Connecting or disconnecting the connectors

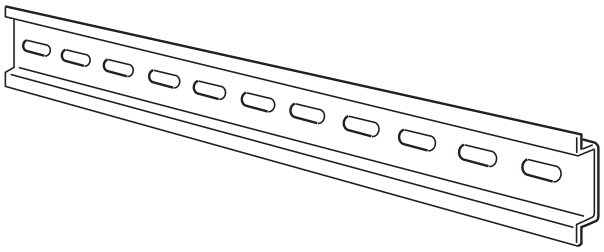
The Power Supply Unit may continue to supply power to the Data Flow Controller for a few seconds after the power supply is turned OFF. During this period, the PWR indicator is lit. Make sure that the PWR indicator is not lit before you perform any of the above operations.

DIN Track and Accessories

Mount the DX-series Units on a DIN Track.

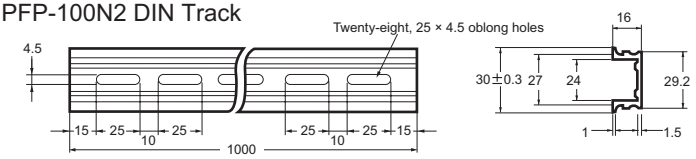
Secure each DIN Track inside a control panel with at least three screws.

- DIN Track Model numbers: PFP-50N (50 cm), PFP-100N (100 cm), PFP-100N2 (100 cm)

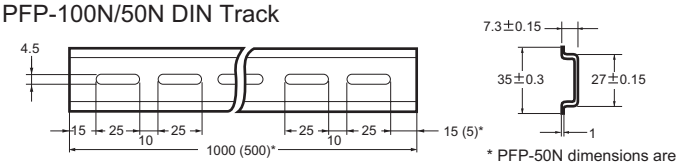


Secure the DIN Track inside the control panel using M4 screws spaced 210 mm or less (at least every 6 holes). Use at least 3 screws per system. The tightening torque is 1.2 N·m.

PFP-100N2 DIN Track

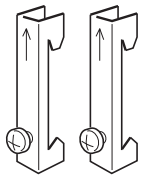


PFP-100N/50N DIN Track



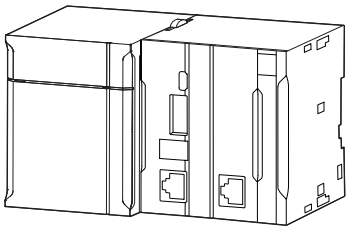
* PFP-50N dimensions are given in parentheses.

- PFP-M DIN Track End Plate (2 required)



3-1-3 Appearance and Dimensions When Assembled

The figure below shows the Data Flow Controller with a Power Supply Unit mounted.



Dimensions

The width W of the Data Flow Controller with the Power Supply Unit connected is as follows.

W = 70 + 78.8 = 148.8 mm

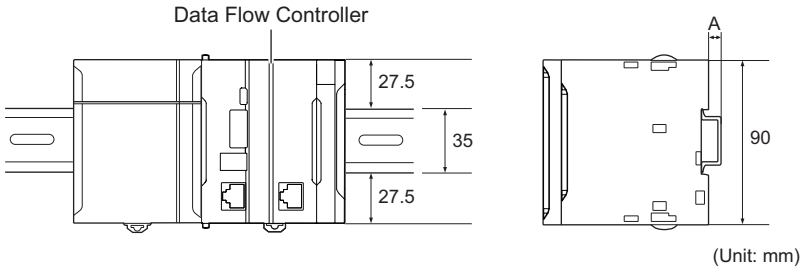
Width of the Power Supply Unit

Model	Unit width [mm]
NJ-PA3001	70
NJ-PD3001	

Width of the Data Flow Controller

Model	Unit width [mm]
DX100-0010	78.8

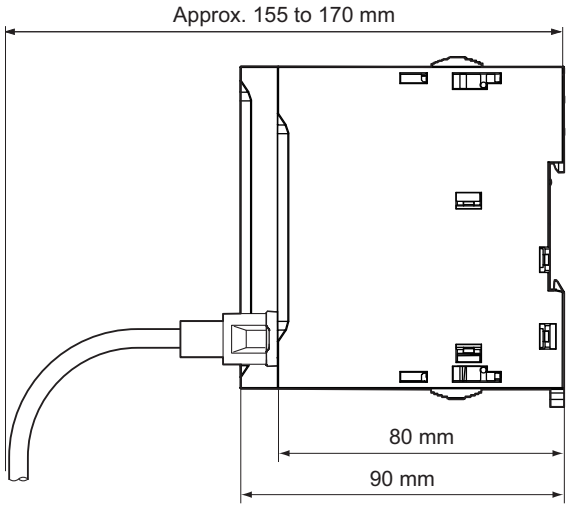
Installation Dimensions



DIN Track model	A (mm)
PFP-100N2	16
PFP-100N	7.3
PFP-50N	7.3

Installation Height

The installation height is 90.0 mm since the Power Supply Unit is taller than the Data Flow Controller. When a cable is connected, even greater height is required. Allow sufficient depth for the control board on which the Data Flow Controller is mounted.
Ensure that there is sufficient space for installing a USB memory device if you plan to use one, taking into account the height of the USB memory device.



3-1-4 Mounting the Data Flow Controller In Control Panels

Precautions for Safe Use

Always connect the product to a ground of 100 Ω or less when installing it.

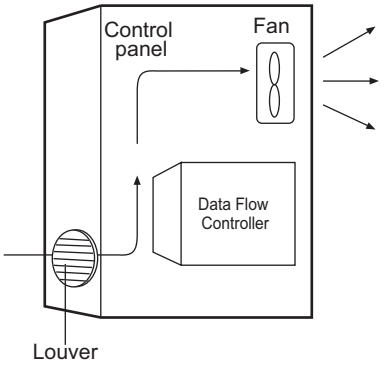
Installation in Control Panels

When you install the Data Flow Controller in a control panel, consider operability, maintainability, and environmental resistance.

● Consideration for Ambient Temperature

The ambient temperature for using the Data Flow Controller must be 0 to 55°C. When necessary, take the following measures to maintain the proper temperature.

- Provide enough ventilation space.
- Avoid installing the Data Flow Controller directly above equipment that generates a large amount of heat such as heaters, transformers, or high-capacity resistors.
- If the ambient temperature exceeds 55°C, install a cooling fan or air conditioner.

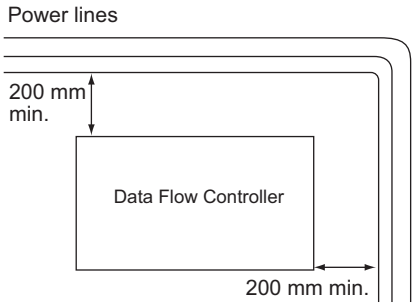


● Accessibility for Operation and Maintenance

- To ensure safe access for operation and maintenance, separate the Controller as much as possible from high-voltage equipment and power machinery.
- It will be easy to operate the Controller if it is mounted at a height of 1,000 to 1,600 mm above the floor.

● Improving Noise Resistance

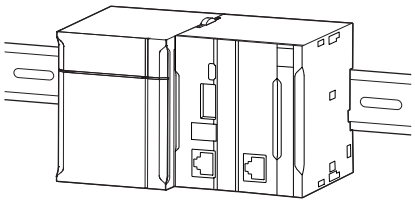
- Do not mount the Data Flow Controller in a control panel containing high-voltage equipment.
- Install the Data Flow Controller at least 200 mm away from power lines.



- Completely ground the mounting plate between the Data Flow Controller and the mounting surface.

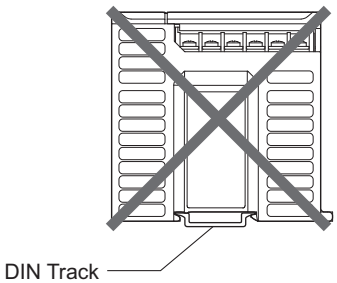
● Data Flow Controller Orientation in Control Panels

- Since the Data Flow Controller dissipates heat, use only the installation method shown in the figure below.

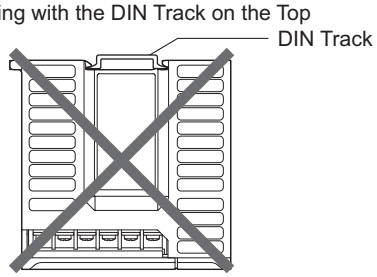


- Do not install the Data Flow Controller in any of the following positions.

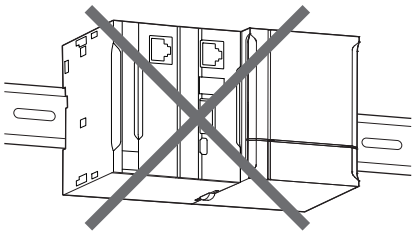
Mounting with the DIN Track on the Bottom



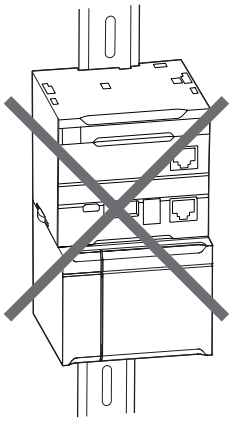
Mounting with the DIN Track on the Top



Mounting with the Data Flow Controller Upside Down



Mounting with the DIN Track Installed Vertically



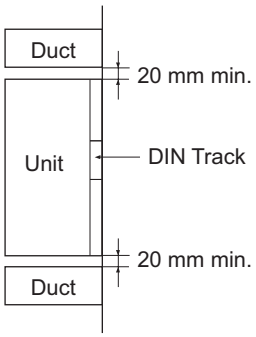
Installation Method in Control Panels

The Data Flow Controller must be mounted only on a DIN Track. It cannot be directly mounted using screws.

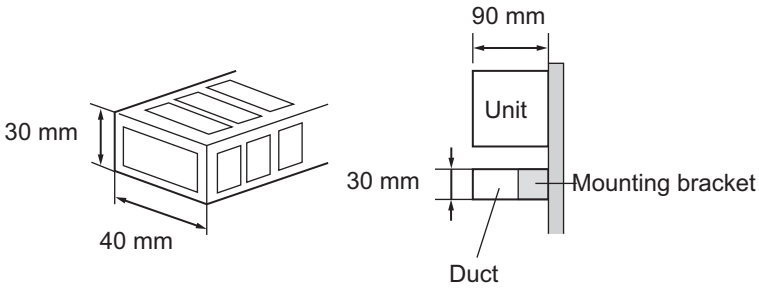
Wiring Ducts

It is recommended to use wiring ducts for I/O wiring.

Install a mounting bracket for the wiring ducts to facilitate wiring. It is handy to have the ducts at the same height as the Unit.

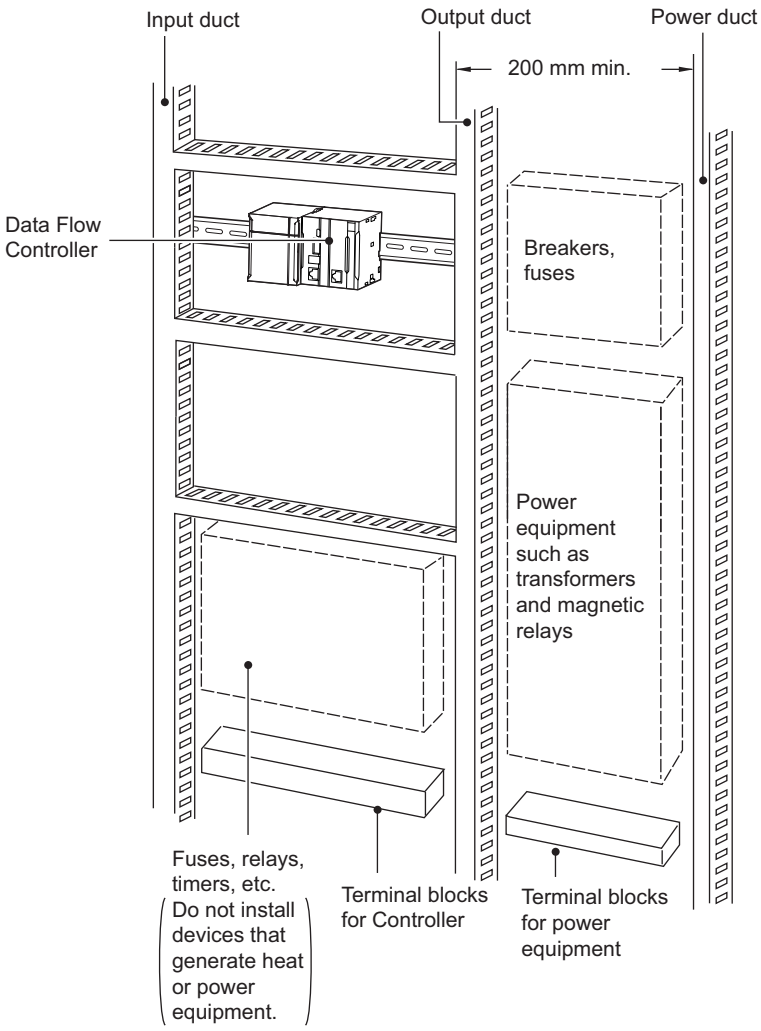


Wiring Duct Example



Application of Wiring Ducts

Install wiring ducts at least 20 mm away from the top of the Data Flow Controller, ceiling of control panels, wiring ducts, structural supports, and other parts to provide enough space for ventilation and replacement of the Data Flow Controller.


Input duct
Output duct
Power duct
200 mm min.
Data Flow Controller
Breakers, fuses
Power equipment such as transformers and magnetic relays
Fuses, relays, timers, etc.
Do not install devices that generate heat or power equipment.
Terminal blocks for Controller
Terminal blocks for power equipment

3-2 Wiring

Precautions for Safe Use

- Follow the instructions in this manual to correctly perform terminal block and connector wiring and insertion. Confirm the wiring order and connector orientation carefully before turning ON the power supply.
- Use crimp terminals for wiring the M3 screw terminal blocks. Do not connect bare stranded wires directly to the M3 screw terminal blocks.
- Be sure that the terminal blocks and communications cables with tightening screws or locking devices are properly tightened and locked into place.
- Do not pull on the cables or bend the cables beyond their natural limit.
- Do not place heavy objects on top of the cables or other wiring lines. Doing so may break the cables.
- Always turn OFF the power supply before you attempt any of the following.
  a) Connecting cables or wiring the system
  b) Connecting or disconnecting the connectors
  c) Setting the DIP switches
  The Power Supply Unit may continue to supply power to the Data Flow Controller for a few seconds after the power supply is turned OFF. During this period, the PWR indicator is lit. Confirm that the PWR indicator is not lit before you perform any of the above.

3-2-1 Wiring the Power Supply Unit

Precautions for Safe Use

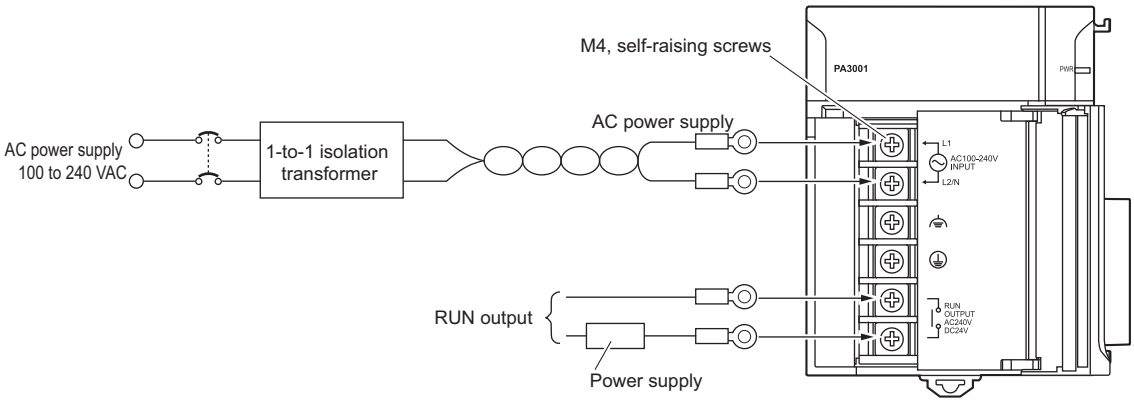
- Always use power supply wires with sufficient wire diameters to prevent voltage drop and burning. Make sure that the current capacity of the wire is sufficient. Otherwise, excessive heat may be generated. When cross-wiring terminals, the total current for all the terminals will flow in the wire. When wiring cross-overs, make sure that the current capacity of each of the wires is not exceeded.
- If the full dielectric strength voltage is applied or turned OFF using the switch on the tester, the generated impulse voltage may damage the Power Supply Unit in the worst case. Change the applied voltage gradually using the adjuster on the tester.
- Apply the voltage between the Power Supply Unit's L1 or L2 terminal and the GR terminal when testing insulation and dielectric strength. The tests can also be performed with the LG terminal and GR terminal connected to each other.
- Do not supply inverter output to an AC power supply. Internal temperature rise may result in smoking or burning.
- Surge current occurs when the power supply is turned ON, as shown in "Power Supply Unit Specifications." When selecting fuses or breakers for external circuits, consider their shut-off/detection characteristics as well as the above precautions and allow sufficient margin in the circuit design.

Precautions for Correct Use

Use the rated power supply voltage for the Power Supply Units. Take appropriate measures to ensure that the specified power with the rated voltage and frequency is supplied in places where the power supply is unstable.

AC Power Supply Units

● NJ-PA3001 AC Power Supply Unit



● AC Power Source

- Supply 100 to 240 VAC.
- Keep voltage fluctuations within the specified range:

Supply voltage	Allowable voltage fluctuations
100 to 240 VAC	85 to 264 VAC

- If one power supply phase of the equipment is grounded, connect the grounded phase side to the L2/N terminal.

● Isolation Transformer

The Controller's internal noise isolation circuits are sufficient to control typical noise in power supply lines. Noise between the Controller and ground can be significantly reduced by connecting a 1- to-1 isolation transformer. Do not ground the secondary coil of the transformer.

● Power Supply Capacity

The power consumption is 120 VA maximum (NJ-PA3001). When you select the power supply, consider that inrush current will flow when the power is turned ON.

● RUN Output

The RUN output can be used to control external systems, such as in an emergency stop circuit that allows the power supply to external systems only when the Data Flow Controller is in normal operation (i.e., the power supply to external systems will be turned OFF when the Data Flow Controller is not operating normally).

RUN output	Data Flow Controller operation status
ON	Normal operation
OFF	• Power OFF • Startup state • Setup state • Shutting down • Fatal error state • Firmware update in progress • Factory reset in progress

RUN output contact specifications

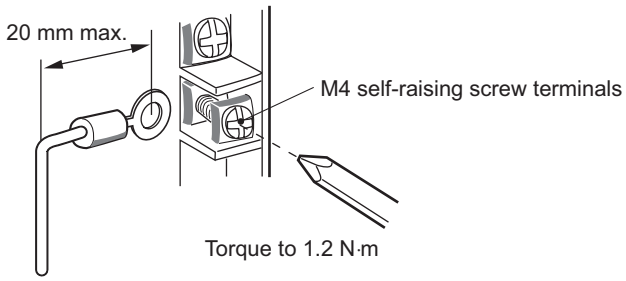
Item	Specification
Contact form	SPST-NO
Maximum switching capacity	240 VAC, 2 A (resistive load)
	120 VAC, 0.5 A (inductive load)
	24 VDC, 2A (resistive load)

● Terminal Screws and Crimp Terminals

The terminals on the Power Supply Unit are M4 self-raising terminals with screws.

Precautions for Safe Use

- Use crimp terminals for wiring.
- Do not connect bare stranded wires directly to the terminal blocks.
- Tighten the terminal block screws to the torque of 1.2 N·m.
- Use crimp terminals (M4) having the dimensions shown below.
  Crimp Terminals for AC Power Supplies

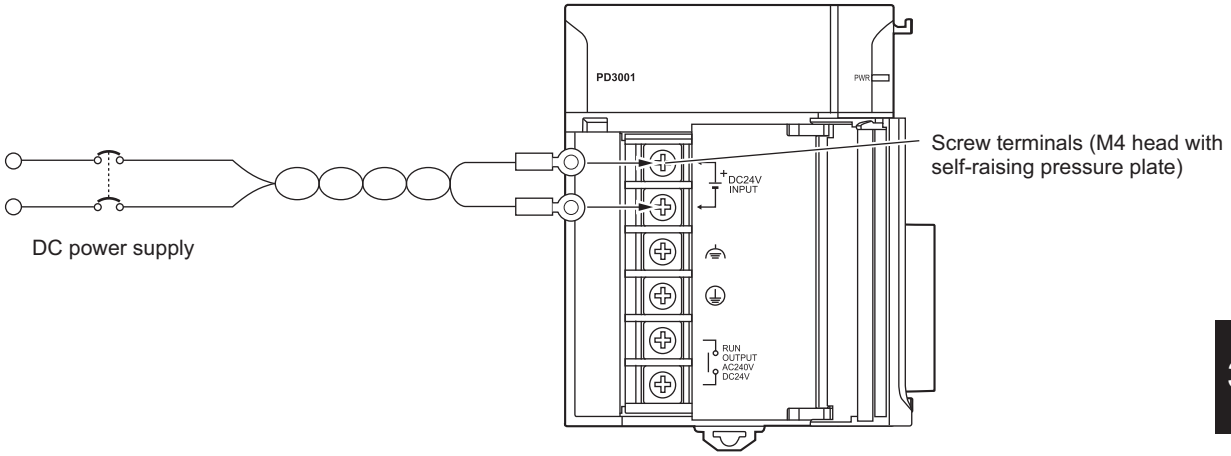


Precautions for Correct Use

Do not allow wire clippings, shavings, or other foreign material to enter any Unit. Otherwise, Unit burning, failure, or malfunction may occur. Install a protective covering or take other suitable countermeasures, in particular when carrying out wiring work.

DC Power Supply Unit

● NJ-PD3001 Power Supply Unit



● Power Supply Capacity

The maximum power consumption is 50 W (NJ-PD3001). When you select the power supply, consider that inrush current will flow when the power is turned ON.

● RUN Output

The RUN output can be used to control external systems, such as in an emergency stop circuit that allows the power supply to external systems only when the Data Flow Controller is in normal operation (i.e., the power supply to external systems will be turned OFF when the Data Flow Controller is not operating normally).

RUN output	Data Flow Controller operation status
ON	Normal operation
OFF	• Power OFF • Startup state • Setup state • Shutting down • Fatal error state • Firmware update in progress • Factory reset in progress

RUN output contact specifications

Item	Specification
Contact form	SPST-NO
Maximum switching capacity	240 VAC, 2 A (resistive load)
	120 VAC, 0.5 A (inductive load)
	24 VDC, 2A (resistive load)

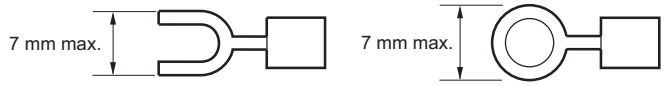
● Terminal Screws and Crimp Terminals

The terminals on the Power Supply Unit are M4 self-raising terminals with screws.

Precautions for Safe Use

- Use crimp terminals for wiring.
- Do not connect bare stranded wires directly to the terminal blocks.
- Tighten the terminal block screws to the torque of 1.2 N·m.
- Use crimp terminals (M4) having the dimensions shown below.

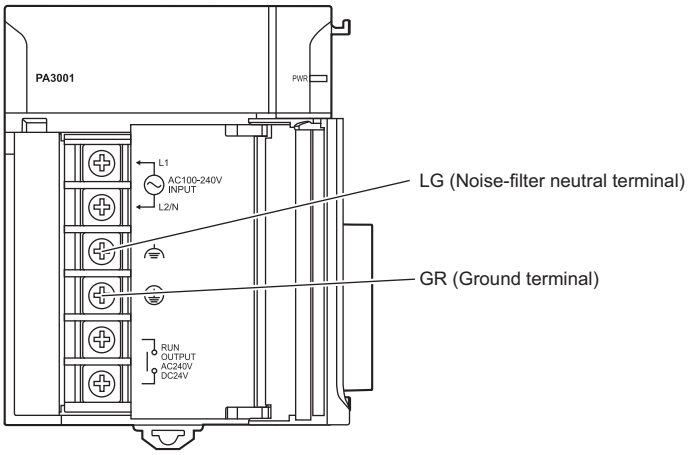
Crimp Terminals for DC Power Supplies



Precautions for Correct Use

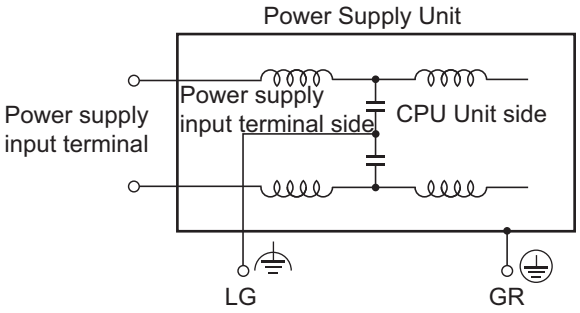
Do not allow wire clippings, shavings, or other foreign material to enter any Unit. Otherwise, Unit burning, failure, or malfunction may occur. Install a protective covering or take other suitable countermeasures, in particular when carrying out wiring work.

Grounding

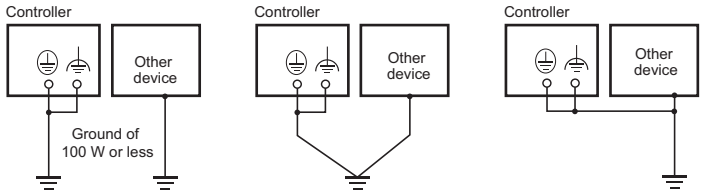


Terminal name	Grounding type	Symbol	Function
LG	Functional grounding		Functional grounding is done to protect device and system functions, including prevention of noise from external sources, or prevention of noise from devices or equipment that could have harmful effects on other devices or equipment.
GR	Protective grounding		Protective grounding is done to ensure safety. It is intended to prevent electrical shock by grounding the electrical potential that is generated by factors such as leakage, induction, or failure.

- GR is a ground terminal to prevent electrical shock. Always ground the terminal.
- LG is a noise-filtered neutral terminal to increase noise resistance, and it is effective in suppressing the common-mode noise in power supply. The internal circuit is shown in the following figure. Ground the LG terminal alone or short-circuit the LG terminal to the GR terminal.



- When you ground the LG terminal or short-circuit the LG terminal to the GR terminal, it may cause noise to enter devices or equipment. In this case, do not ground the LG terminal or short-circuit the LG terminal to the GR terminal.
- Ground the GR and LG terminals with a ground resistance of 100 Ω or less using a 14-gauge wire (minimum cross-sectional area of 2 mm^2).
- The ground wire should not be more than 20 m long.
- The DX-series Data Flow Controller is designed to be mounted so that it is isolated (separated) from the mounting surface to protect it from the effects of noise in the installation environment (e.g., the control panel).
- Do not share the Data Flow Controller's ground with other equipment or ground the Data Flow Controller to the metal structure of a building. Doing so may worsen operation. Whenever possible, use an independent ground (with the ground pole separated by a minimum of 10 m from any other ground pole).
- Ground the Data Flow Controller with 100 Ω or less and, if possible use an independent ground separated from those of other devices. (Refer to figure (a) in the diagram below.)
- If using an independent ground is not possible, then use a common ground as shown in figure (b). Connect to the ground pole of the other device.



(a) Independent grounds: Best **(b) Common ground: Acceptable** **(c) Common ground: Incorrect**

Grounding Methods

Precautions for Safe Use

If the LG and GR terminals are short-circuited, make sure that they are grounded firmly. The LG terminal, which is a noise-filtered neutral terminal, has half the electrical potential of the input voltage. Therefore, if you touch the metallic part of the LG terminal, GR terminal, or Data Flow Controller with the GR terminal not grounded, it may result in electrical shock.

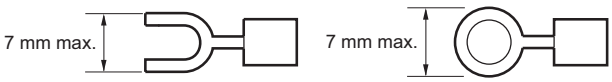
● Crimp Terminals

The terminals on the Power Supply Unit are M4, self-raising terminals with screws.

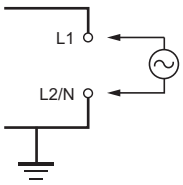
Precautions for Safe Use

- Use crimp terminals for wiring.
- Do not connect bare stranded wires directly to terminals.
- Tighten the terminal block screws to the torque of 1.2 N·m.
- Use crimp terminals (M4) having the dimensions shown below.

● Crimp Terminals for DC Power Supply



● When wiring an AC Power Supply Unit, if one power supply phase of the equipment is grounded, always connect the grounded phase to the L2/N terminal.



3-2-2 Wiring an Ethernet Network

Installation Precautions

Basic precautions for the installation of Ethernet networks are provided below.

● Precautions when Installing a Network

- When you install an Ethernet network, take sufficient safety precautions and follow the standards and specifications. (Refer to "JIS X 5252" or to electrical facility technical references.)
  An expert who is well trained in safety measures, standards, and specifications should be asked to perform the installation.
- Do not install Ethernet network equipment near sources of noise.
  If the network must be installed in an area subject to noise, take steps to address the noise, such as placing equipment in metal cases.

● Precautions when Installing Communications Cables

- Check the following items on the communications cables that are used in the network.
  a) Are there any breaks?
  b) Are there any shorts?
  c) Are there any connector problems?
- When you connect the cable to the communications connectors on devices, firmly insert the communications cable connector until it locks in place.
- Do not lay the communications cables together with high-voltage lines.
- Do not lay the communications cable near devices that generate noise.
- Do not lay the communications cables in locations subject to high temperatures or high humidity.

- Do not lay the communications cables in locations subject to excessive dirt and dust or to oil mist or other contaminants.
- There are limitations on the bending radius of communications cables. Check the specifications of the communications cable for the bending radius.

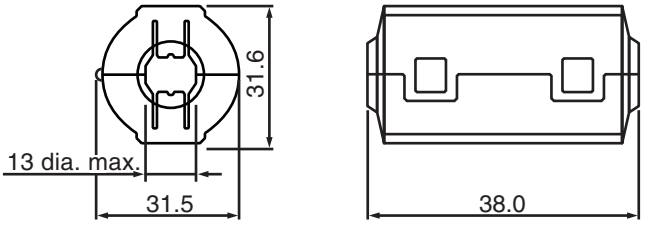
Recommended Clamp Core and Attachment Method

To conform to EMC standards, attach a clamp core at the root of the cable connected to the Ethernet port. The recommended clamp core and attachment method are given below.

● Recommended Clamp Core

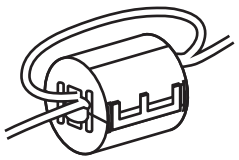
Manufacturer	Product	Model
NEC TOKIN	Clamp core	ESD-SR-250

ESD-SR-250 dimensions



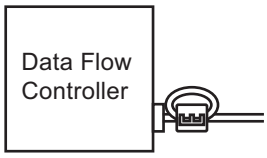
● Recommended Attachment Method

- Attaching a clamp core to the communications cable



Make two loops with the cable as shown.

- Connecting the communications cable



Attach it to the root of the communications cable, as shown in the figure.

Installing Ethernet Networks

The following products are recommended as devices to be used to configure an Ethernet network.

● Ethernet Switches

Manufacturer	Model	Description
OMRON	W4S1-05D	Packet priority control (QoS): EtherNet/IP control data priority Ethernet standard: IEEE 802.3 10Base-T, 100Base-TX Auto-negotiation: Supported Broadcast storm detection function: Supported Number of ports: 5
Cisco Systems, Inc.	Consult the manufacturer. http://www.cisco.com/	
Contec USA, Inc.	Consult the manufacturer. http://www.contec.com/	
Phoenix Contact USA	Consult the manufacturer. https://www.phoenixcontact.com	

● Twisted-pair Cables and Connectors

Applicable EtherNet/IP communications cables and connectors vary depending on the used baud rate.

For 100Base-TX and 10Base-T, use an STP (shielded twisted-pair) cable of category 5 or higher. You can use either straight or cross cable.

For 1000Base-T, use an STP (shielded twisted-pair) cable (double shielding with aluminum tape and braiding) of category 5e or higher. You can use either straight or cross cable.

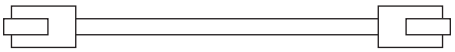
Cabling materials used for EtherNet/IP communication cables are shown in the table below. "100Base-TX" in the "Product" column of the table below indicates that either 100Base-TX or 10Base-T can be used.

Product			Manufacturer	Model
For 1000Base-T and 100Base-TX	Size and conductor pairs: AWG24 × 4 pairs *1	Cable	Hitachi Metals, Ltd.	NETSTAR-C5E SAB 0.5 × 4P CP
			Kuramo Electric Co.	KETH-SB
			JMACS Japan Co., Ltd.	IETP-SB
		RJ45 Connectors	Panduit Corporation	MPS588
For 100Base-TX	Size and conductor pairs: AWG22 × 2 pairs *1	Cable	Kuramo Electric Co., Ltd.	KETH-PSB-OMR
			JMACS Japan Co., Ltd.	PNET/B
		RJ45 Assembly Connectors 	OMRON	XS6G-T421-1

*1. We recommend that you use cables and connectors in above combinations.

● Attaching the Connectors to the Cable and Pin Assignments

Use straight wiring to attach the connectors to the communications cable, as shown below.



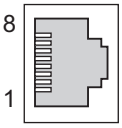
Pin No.	Wire color		Wire color	Pin No.
1	White-Green		White-Green	1
2	Green		Green	2
3	White-Orange		White-Orange	3
4	Blue		Blue	4
5	White-Blue		White-Blue	5
6	Orange		Orange	6
7	White-Brown		White-Brown	7
8	Brown		Brown	8
Hood	Shield		Shield	Hood

Note 1. Connect the cable shield to the connector hood at both ends of the cable.
Note 2. There are two connection methods for Ethernet: T568A and T568B. The T568A connection method is shown above, but the T568B connection method can also be used.

The connector specifications are as follows.

Item	Specification
Electrical characteristics	Conforms to IEEE 802.3 standards.
Connector structure	RJ45 8-pin modular connector (Conforms to ISO 8877)

The pin assignments are as follows.



Pin No.	100BASE-TX			1000BASE-T		
	Signal name	Abbreviation	Signal direction	Signal name	Abbreviation	Signal direction
1	Transmission data +	TD+	Output	Communication data DA +	BI_DA+	Input/output
2	Transmission data −	TD−	Output	Communication data DA-	BI_DA-	Input/output
3	Reception data +	RD+	Input	Communication data DB +	BI_DB+	Input/output
4	Not used.	---	---	Communication data DC +	BI_DC+	Input/output
5	Not used.	---	---	Communication data DC-	BI_DC-	Input/output
6	Reception data −	RD−	Input	Communication data DB-	BI_DB-	Input/output
7	Not used.	---	---	Communication data DD +	BI_DD+	Input/output
8	Not used.	---	---	Communication data DD-	BI_DD-	Input/output
Hood	Frame ground	FG	---	Frame ground	FG	---

● Connecting an Ethernet Cable

Precautions for Correct Use

- Turn OFF the Data Flow Controller's power supply before connecting or disconnecting an Ethernet communications cable.
- Allow extra space for the bending radius of the Ethernet communications cable. The required space depends on the communications cable and connector that are used. Consult the manufacturer or sales agent.

1 Install a twisted-pair cable.

2 Connect the twisted-pair cable to the Ethernet switch.

3 Connect the twisted-pair cable to the connector on the Ethernet port.
Firmly insert the connector until it locks into place when you connect the Ethernet communications cable to the Ethernet switch and the Ethernet port.

3-3 Turning ON/OFF the Power Supply

⚠ WARNING

- Do not touch the terminal section while power is ON. Electrical shock may occur.
- Do not disassemble the product. Particularly the Power Supply Unit contains parts with high voltages when power is ON or immediately after power is turned OFF. Electrical shock may occur. There are also sharp internal parts that may cause injury.

Precautions for Correct Use

Do not disconnect the communications cable while the system is running. Doing so may result in a failure or malfunction of the system.

3-3-1 Turning ON the Power Supply

The Data Flow Controller and the Power Supply Unit do not have a power button. To turn ON the power supply, turn ON the main power supply to which they are connected.

Precautions for Safe Use

- It takes several tens of seconds to enter the operating state after the power supply is turned ON. During that time, external communications are not performed. Implement fail-safe circuits so that external devices do not operate incorrectly.
- Confirm that the system will not be affected before you turn ON the power supply to the Unit.

3-3-2 Turning OFF the Power Supply

The Data Flow Controller and the Power Supply Unit do not have a power button. To turn OFF the power supply, turn OFF the main power supply to which they are connected.

If you need to retain logs at or below the Error level, follow the shutdown procedure below and then turn OFF the main power supply.

1 Shut down the Data Flow Controller.
Perform the shutdown operation via the Web UI*1 or REST API.

2 Wait until the RUN indicator on the Data Flow Controller goes out.
If shutdown is performed using the Web UI, you will be notified in the window that the shutdown is completed.

3 Turn OFF the power supply.

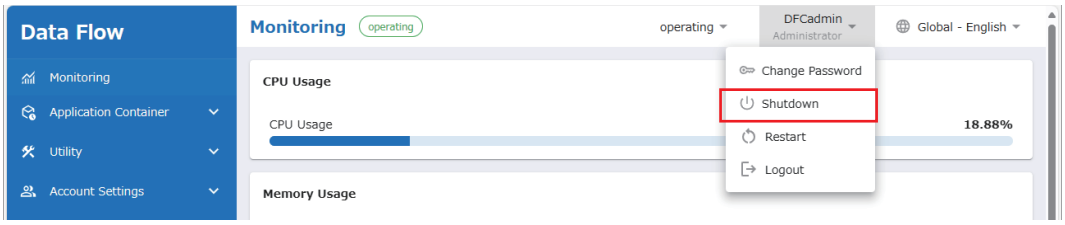
*1. The Web UI is installed on the Data Flow Controller. It is an interface for setting up and managing the Data Flow Controller.

Precautions for Correct Use

Do not turn OFF the power supply while settings are being changed or data is being written to a USB memory device. Doing so may cause corruption of the settings or data on the USB memory device.

Shutdown via the Web UI

Shut down the Web UI using the drop-down menu in the header of the Web UI.



Refer to *Section 5 Login and Initial Setup* on page 5-1 and *Section 6 Data Flow Controller Setup and Management* on page 6-1 for details on the Web UI.

Shutdown via the REST API

Include the access token linked to the user account in an HTTP POST request and send it to the following address.

http(s)://<hostname>/api/v1/shutdownStart

<hostname> is the host name set in the Data Flow Controller.

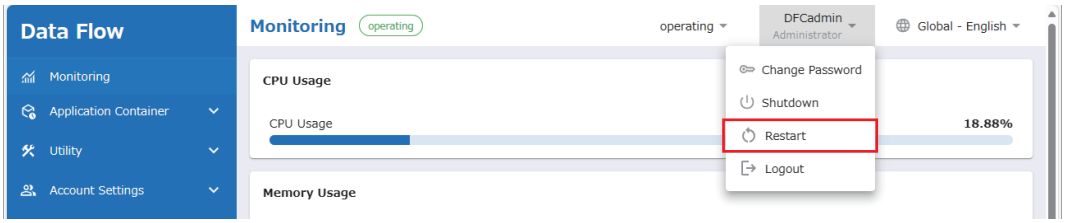
The following is an example using the curl command of Linux.

```
$ curl -X "POST" "http://<hostname>/api/v1/shutdownStart"
       -H "accept: application/json" -H "X-API-Token: <access token>"
```

For <access token>, use the access token linked to the user account.
You can check the access token in the User Management window of the Web UI.
Refer to the *DX-series Web UI Operation Manual (Cat. No. V242)* for details on the REST API access tokens.

3-3-3 Restarting the Data Flow Controller

You can restart the Data Flow Controller from the drop-down menu in the header of the Web UI.


Data Flow
Monitoring
Application Container
Utility
Account Settings
Monitoring
operating
operating
DFCadmin
Administrator
Global - English
Change Password
Shutdown
Restart
Logout
CPU Usage
CPU Usage
18.88%
Memory Usage

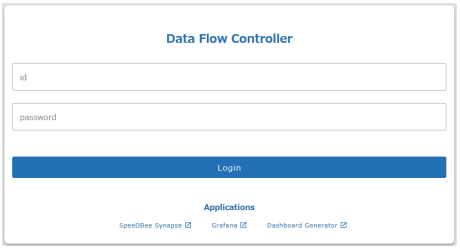
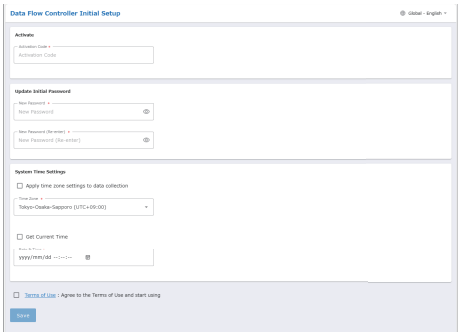
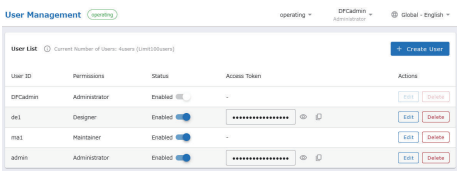
4

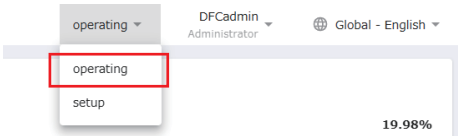
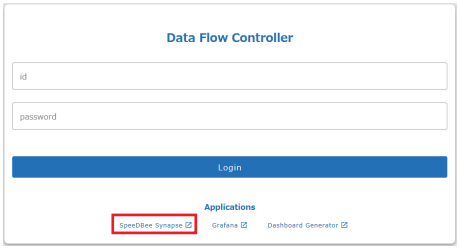
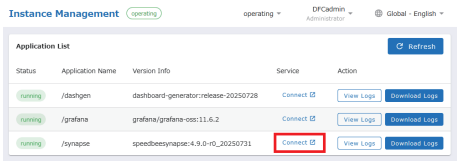
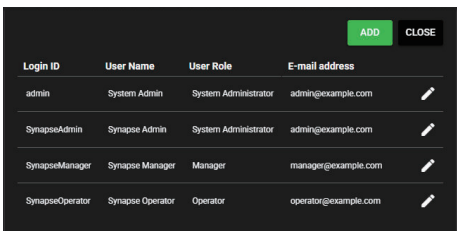
Operating Procedures

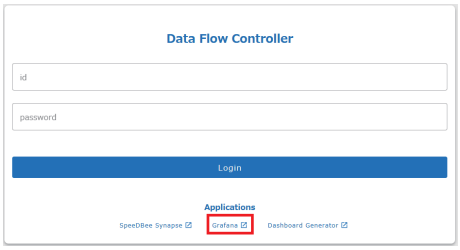
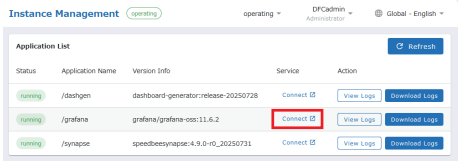
This section describes the operating procedures for the DX-series Data Flow Controller.

4-1 Operating Procedure from the First Login to User Registration

The operating procedure from the first login to the Data Flow Controller to user registration is shown below. User registration is required for each of the Data Flow Controller, SpeeDBee Synapse, and Grafana.

No.	Step	Overview	Reference
1	First login	Connect the Data Flow Controller to your computer and log in to it using the Data Flow Controller Administrator account. 	*5-1 Logging in to the Data Flow Controller* on page 5-2
2	Initial setup of the Data Flow Controller	Perform the initial setup of the Data Flow Controller. In the initial setup, activate the product, update the default Administrator password, and set the system time. 	*5-2 Performing the Initial Setup* on page 5-6
3	User registration for the Data Flow Controller	Register the users who are permitted to use the Data Flow Controller. 	*6-2 Managing Accounts* on page 6-3

No.	Step	Overview	Reference
4	Start of the operation of the Data Flow Controller	Select **operating** from the state selection pull-down menu in the header of the Web UI to change the state to operating state.  **Note** Selecting the operating state for the first time executes application initialization. Since this initialization takes about several tens of seconds, wait until it is complete. During application initialization, you cannot open login windows for applications such as SpeeDBee Synapse. If you restart the Controller or stop an application during initialization, the initialization will remain incomplete, making the applications unusable. In such cases, initialization will be re-executed when you select the operating state the next time.	*5-1-1 Web UI Main Window* on page 5-3
5	User registration for SpeeDBee Synapse	This step is performed by the user who will become the SpeeDBee Synapse Administrator after logging in to the SpeeDBee Synapse. 1. Open the SpeeDBee Synapse application window. To open the SpeeDBee Synapse login window from the Data Flow Controller login window:  To open the SpeeDBee Synapse login window from the Web UI Application Management window:  2. Log in to the application using the SpeeDBee Synapse Administrator account and register SpeeDBee Synapse users. 	• *7-1-2 Opening the SpeeDBee Synapse Application Window* on page 7-3 • *Initial Setting* in the *DX-series SpeeDBee Synapse User's Manual (Cat. No. V243)*

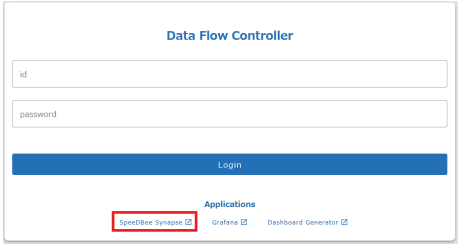
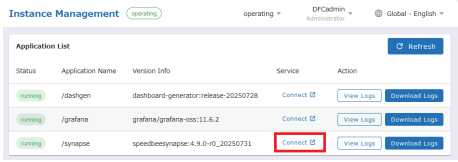
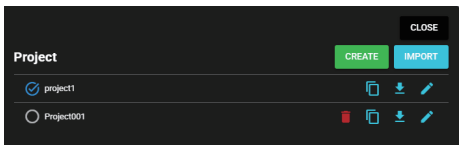
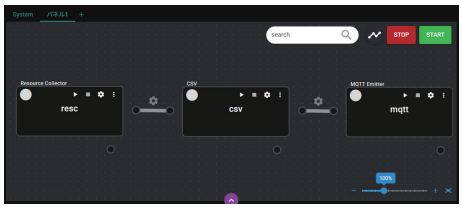
No.	Step	Overview	Reference
6	User registration for Grafana	This step is performed by the user who will become the Grafana Administrator after logging in to the Grafana. 1. Open the Grafana application window. To open the Grafana login window from the Data Flow Controller login window:  To open the Grafana login window from the Web UI Application Management window:  2. Log in to the application using the Grafana Administrator account and register Grafana users.	• *7-2-2 Opening the Grafana Application Window* on page 7-5 • Refer to the manual for Grafana.*1

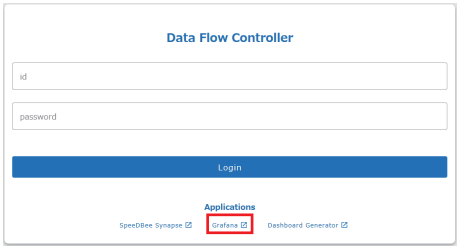
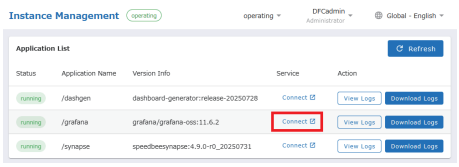
*1. URL of the English manual for Grafana (as of August 2025)
- General information: https://grafana.com/docs/grafana/latest/
- Logging in as administrator: https://grafana.com/docs/grafana/latest/setup-grafana/sign-in-to-grafana/
- User registration: https://grafana.com/docs/grafana/latest/administration/user-management/

4-2 Operating Procedure for Collecting, Outputting, and Visualizing Desired Data

This section describes the operating procedure for a user to collect, output, and visualize the desired data. The user determines what data to collect and how to utilize it based on the system configuration, and then configure the settings accordingly.
The procedure is performed after user registration for the Data Flow Controller, SpeeDBee Synapse, and Grafana is completed, and a registered user should log in to each of them and configure the settings.

No.	Step	Overview	Reference
1	Consideration of the data utilization method	Consider how to utilize system data for the intended purpose. For example, consider the following items. • Required source data • Data processing method • Data output destination and send destination • Data visualization method	

No.	Step	Overview	Reference
2	Setup for data collection, processing, output, etc.	1. Log in to SpeeDBee Synapse. To open the SpeeDBee Synapse login window from the Data Flow Controller login window:  To open the SpeeDBee Synapse login window from the Web UI Application Management window:  2. Create a project in which to save settings.  3. Configure various settings.  • Use the Collector component*1 to configure data collection settings. • If necessary, use the Logic component and Action component to configure the data processing, analysis, and action execution settings. • Use the Serializer component to configure the data output format settings. • Use the Emitter component to configure the data output settings. 4. Check the operation of each component and make corrections and adjustments as needed.	• *7-1-2 Opening the SpeeDBee Synapse Application Window* on page 7-3 • *DX-series SpeeDBee Synapse User's Manual (Cat. No. V243)*
3	Setup for linked systems	Perform the following operations as needed. 1. Implement data processing in the data output destination system. 2. Check the data processing operation and make corrections and adjustments as needed.	

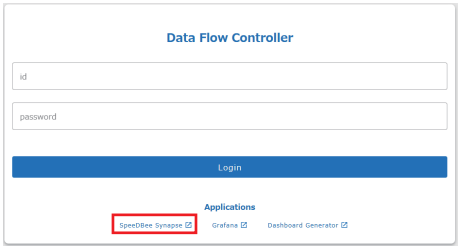
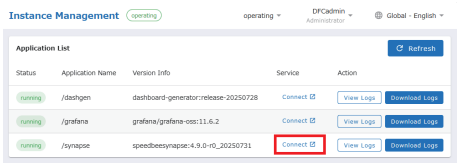
No.	Step	Overview	Reference
4	Configuration for linking data collection and visualization	To visualize data collected using SpeeDBee Synapse in Grafana for the first time, configure the settings for linking SpeeDBee Synapse and Grafana. This step is unnecessary if the linking configuration is already completed.	*6.4.3 Grafana Setup* and *6.4.4 Creating a Graph* in the *DX-series SpeeDBee Synapse User's Manual (Cat. No. V243)*
5	Setup for data visualization	1. Log in to Grafana. To open the Grafana login window from the Data Flow Controller login window:  To open the Grafana login window from the Web UI Application Management window:  2. Set the data source. 3. Create a dashboard. • Add panels to display. • Set the data and type of graphs to display for each panel. 4. Check the operation of each panel and make corrections and adjustments as needed.	• *7-2-2 Opening the Grafana Application Window* on page 7-5 • Refer to the manual for Grafana.*2
6	Operation	Start actual operation. • Utilization of data in linked systems • Data visualization and monitoring using the dashboard on the computer connected to the Data Flow Controller	

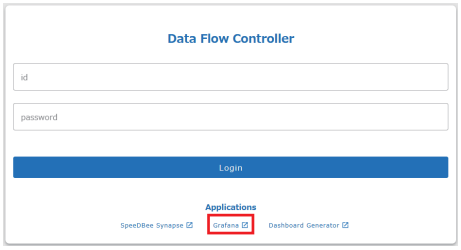
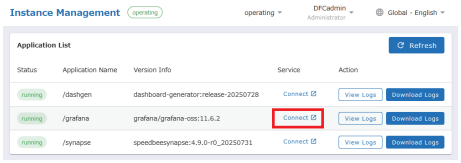
*1. This component is a module with specific functions designed for use with SpeeDBee Synapse.

*2. URL of the English manual for Grafana (as of August 2025)
- General information: https://grafana.com/docs/grafana/latest/
- Dashboard creation: https://grafana.com/docs/grafana/latest/getting-started/build-first-dashboard/

4-3 Procedure for Collecting and Visualizing Data Using Packages

You can use the pre-installed Packages to immediately start collecting and visualizing data.
The operating procedure for the Packages is shown below.

No.	Step	Overview	Reference
1	Determination of the Package to use	Determine the Package to use based on the purpose and the information that you want to visualize.	Manual for each Package
2	System building	Wire and set up the configuration devices specified for the Package.	Manual for the Package to use
3	Log in to the SpeeDBee Synapse.	Log in to SpeeDBee Synapse. • To open the SpeeDBee Synapse login window from the Data Flow Controller login window:  • To open the SpeeDBee Synapse login window from the Web UI Application Management window: 	• *5-1 Logging in to the Data Flow Controller* on page 5-2 • *7-1-2 Opening the SpeeDBee Synapse Application Window* on page 7-3
4	Configuration for linking SpeeDBee Synapse and Grafana	To visualize data collected using SpeeDBee Synapse in Grafana for the first time, configure the settings for linking SpeeDBee Synapse and Grafana. This step is unnecessary if the linking configuration is already completed.	*6.4.3 Grafana Setup* and *6.4.4 Creating a Graph* in the *DX-series SpeeDBee Synapse User's Manual (Cat. No. V243)*

No.	Step	Overview	Reference
5	Log in to the Grafana.	Log in to Grafana. • To open the Grafana login window from the Data Flow Controller login window:  • To open the SpeeDBee Synapse login window from the Web UI Application Management window:  	• *5-1 Logging in to the Data Flow Controller* on page 5-2 • *7-2-2 Opening the Grafana Application Window* on page 7-5
6	Initial setup of the Dashboard Generator	Perform the initial setup of the Dashboard Generator.	*DX-series Dashboard Generator User's Manual (Cat. No. N700)*
7	Dashboard generation	Select the Package to use in the Dashboard Generator and generate a dashboard.	*DX-series Dashboard Generator User's Manual (Cat. No. N700)*
8	Dashboard configuration	Configure judgment criteria and other settings for the generated dashboard.	Manual for the Package to use
9	Operation	Start actual operation.	Manual for the Package to use

5

Login and Initial Setup

Set up the Data Flow Controller and visualize data using a browser installed on your computer. This section describes how to log in to the Data Flow Controller, initial setup required for the first login, and the main window of the Web UI.

5-1 Logging in to the Data Flow Controller

Log in to the Data Flow Controller application from your browser. Then, you can set up and manage the Data Flow Controller and use the data collection and visualization functions.

1. Connect the Ethernet communications connectors on the Data Flow Controller to the computer using an Ethernet communications cable.
2. Start your browser on the computer.
3. Enter the URL of the Web UI in the browser and press the Enter key.
   By default, the URL is as follows.

   When connected via the Ethernet communications connector (Port 1): http://192.168.250.100/
   When connected via the Ethernet communications connector (Port 2): http://192.168.251.100/

   or

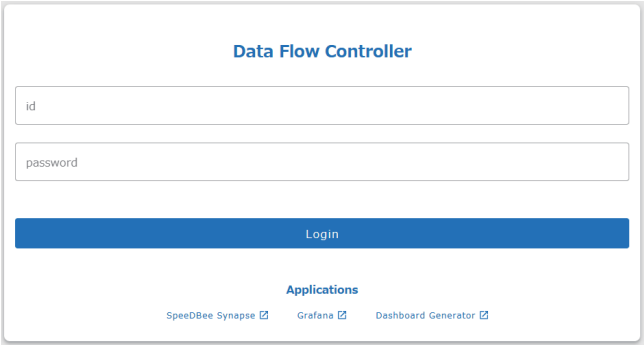
   http://dx1.local/

   If you have changed the IP address and/or host name, specify the URL according to the changed settings.

Precautions for Correct Use

Before you connect the computer, change the IP address of the computer to an IP address in the same segment as the IP address of the Ethernet communications port on the Data Flow Controller to which it is to be connected.
For example, when connecting the computer to the Ethernet communications connector (Port 1) with the default IP address (192.168.250.100), set the IP address of the computer to 192.168.250.10, 192.168.250.11, or another address that is not the same as the IP address of the Ethernet communications connector (Port 1) or other devices.

The login window appears.



Additional Information

To open the SpeeDBee Synapse, Grafana, Dashboard Generator, or other application window without opening the Data Flow Controller setup or management window, click the application link text located at the bottom of the Data Flow Controller login window.
To open the application window, the Data Flow Controller must be in operating state.

4 Enter your user name (user ID) and password.

For the first login, use the following built-in Administrator account.

User name (user ID): DFCadmin, Password: omron

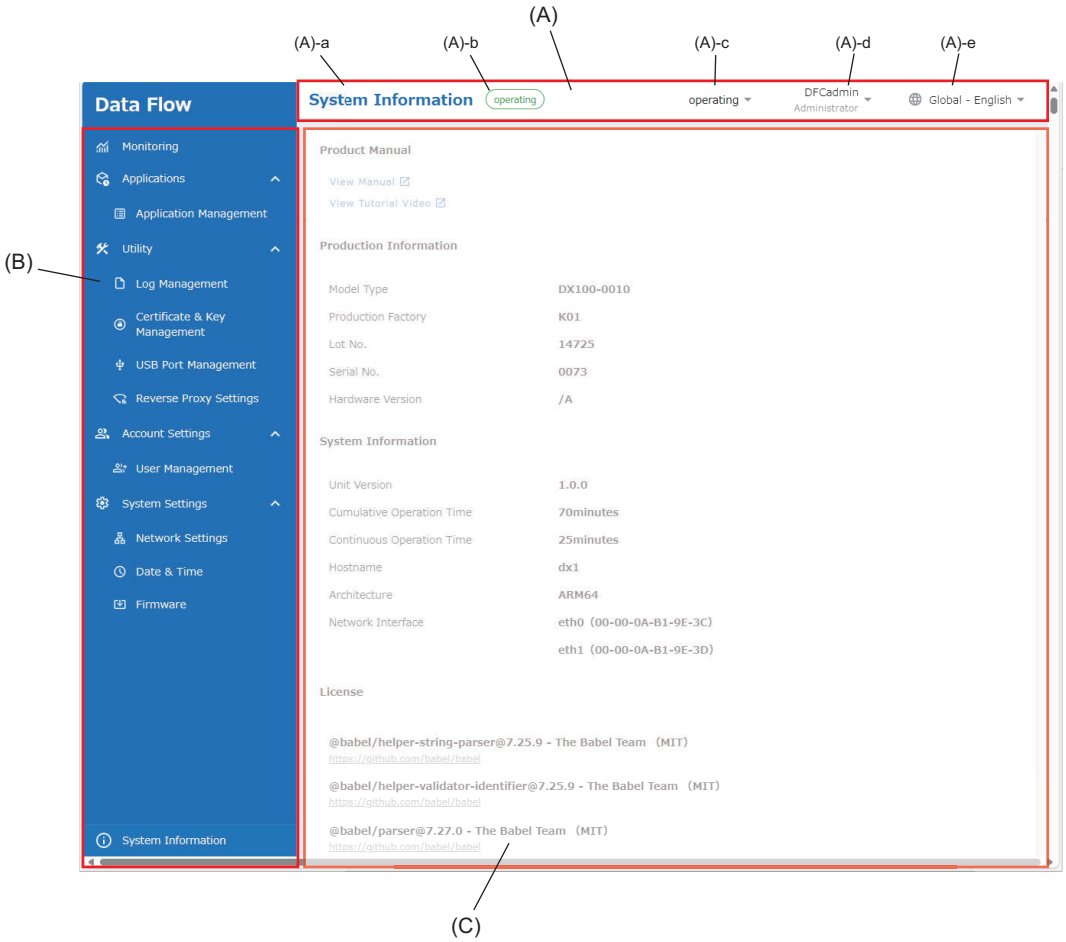
- When you log in for the first time, the initial setting window appears.
- If the initial setting is already done, the main window of the Web UI will be displayed after you log in.

Precautions for Correct Use

- If you enter wrong user names or passwords five times in a row during login, your account will be locked for 10 minutes.
- For security reasons, we recommend the following practices.
  a) Do not save your password in your browser, etc.
  b) Do not set a password that is easy to guess.
  c) To ensure that the log shows who performed the operation, we recommend that you create and use accounts with user names (user IDs) including the user's name, and disable the built-in administrator account.
- If you forget your user name or password, check the user authentication settings as a user with administrator rights. If you forget the user name and password for the user with administrator rights, perform a factory reset and reconfigure the factory default settings.

5-1-1 Web UI Main Window

The main window of the Web UI is made up of the following components.



Sym-bol	Component	Description
A	Header	Displays the following information. a. Name of the selected item b. State of Data Flow Controller c. State selection drop-down menu. You can select one of the following states. • operating • setup: Operation is stopped. Select this state to change the setup. d. Logged-in user name You can click this to perform the following operations. • Password change*1 • Shutdown • Restart • Logout e. Display language You can select Japanese or English.
B	Navigation bar	Displays functions. Select the function to use by clicking it.
C	Display window	Displays the details of the selected function.

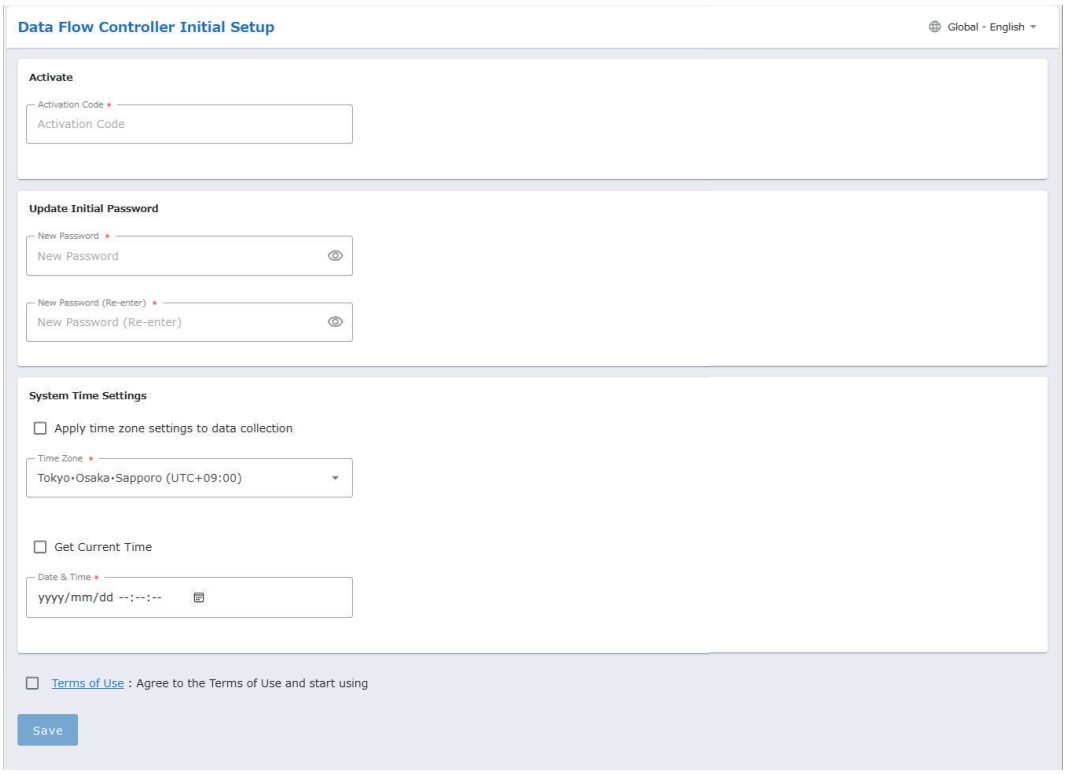
*1. The conditions for the password that can be set are as follows. Set a string that is difficult to guess.
- Number of characters: 8 to 32
- Usable characters: 0 to 9, A to Z, a to z, ' - ! " # $ % & ( ) * , . / : ; ? @ [ ] ^ _ ` { | } ~ + < = >
- The password is case sensitive.

5-1-2 Supported Browsers

Refer to *A-4-1 Browsers That Have Been Tested and Working* on page A-9 for browsers supported by the Data Flow Controller.

5-2 Performing the Initial Setup

If you have not performed the initial setup of the Data Flow Controller, for example, when you log in for the first time, the initial setup window appears. Perform the initial setup.



1 Set each item.

- Refer to the *DX-series Web UI Operation Manual (Cat. No. V242)* for the description of each item.
- The activation code required for activation is "0010".
- The conditions for the password that can be set are as follows. Set a string that is difficult to guess.
  Number of characters: 8 to 32
  Usable characters:
  0 to 9, A to Z, a to z, ' - ! " # $ % & ( ) * , . / : ; ? @ [ ] ^ _ ` { | } ~ + < = >
  The password is case sensitive.
- For unit version 1.1 and later, you can select whether to apply the time zone settings to the data collection time. To do so, select the **Apply time zone settings to data collection** check box.
  If you apply the time zone settings to data collection, the time information for collected data will be shown according to the time zone settings. If you do not apply the time zone settings, UTC will apply.

2 Click the **terms and conditions** link text at the lower left of the window to display and confirm the terms and conditions, and then select the **I agree to the terms and conditions and start using the product** check box.

3 Click the **Save** button.
Once the initial setup is done, the main window of the Web UI appears.

6

Data Flow Controller Setup and Management

This section describes the setup and management of the Data Flow Controller.
To set up and manage the Data Flow Controller, use the Web UI installed on the Data Flow Controller.
Refer to the *DX-series Web UI Operation Manual (Cat. No. V242)* for details on each Web UI function.

6-1 Configuring the Basic Settings

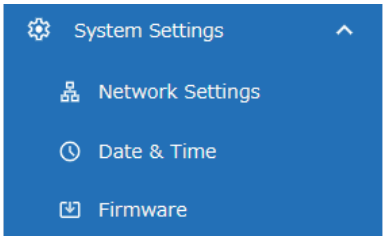
Configure the network settings and date and time settings.
To change the settings, set the Data Flow Controller to the setup state in advance. Refer to *5-1-1 Web UI Main Window* on page 5-3 for how to change the Data Flow Controller to the setup state.

Precautions for Correct Use

- Configuring the clock settings when the Data Flow Controller is in the operating state may cause data corruption in SpeeDBee Synapse.
- If the date and time of the Data Flow Controller do not match the clock of the computer connected to the Web UI, an error will occur in SpeeDBee Synapse. Set the date and time to match the clock of the computer.

Item	Description
Network Settings	Configure the network settings. You can set the following items. • TCP/IP • DNS • mDNS • Proxy
Date & Time	Configure the system time settings of the Data Flow Controller. These settings are used for recording data acquisition and log occurrence times. You can set the following items. • Time zone • Date and time, or NTP The NTP, when enabled, synchronizes the time at the following opportunities. a) Configuring the Data Flow Controller to use an NTP server b) Starting or restarting the Data Flow Controller that is configured to use an NTP server

Configure the above settings in **System Settings** in the Web UI.



Version Information

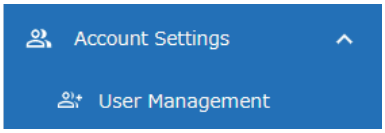
- For unit version 1.1 and later, you can select whether to apply the time zone settings to the data collection time. To do so, select the **Apply time zone settings to data collection** check box.
  If you apply the time zone settings to data collection, the time information for collected data will be shown according to the time zone settings. If you do not apply the time zone settings, UTC will apply.
- For unit version 1.0, UTC applies to data collection.

6-2 Managing Accounts

Manage accounts for users who log in to the Data Flow Controller. Set a role for each account to enable access control.
The following functions are available.

Item	Description
View user list	Displays a list of registered users.
Add users	Adds users.
Change user information	Changes user account information.
Delete user information	Deletes user accounts.
Change user status	Change user accounts between enabled and disabled.

In the Web UI, set user account in **User Management** under **Account Settings**.



The conditions for user names (user IDs) that can be set are as follows.

- Number of characters: 3 to 32
- Usable characters: 0 to 9, A to Z, and a to z
- The names (user IDs) are case sensitive.

The conditions for the password that can be set are as follows. Set a string that is difficult to guess.

- Number of characters: 8 to 32
- Usable characters: 0 to 9, A to Z, a to z, ' - ! " # $ % & ( ) * , . / : ; ? @ [ ] ^ _ ` { | } ~ + < = >
- The password is case sensitive.

6-2-1 Roles

Roles define the scope of permissions that users have in the Web UI. You can use roles to limit the scope of permissions for each user.
The following roles are available.

Role	Permission
Administrator	Has permissions to access the entire Web UI, including the Administrator UI.
Designer	Has permissions to access the Designer UI and Maintenance UI.
Maintainer	Has permissions to access only the Maintenance UI.

The permissions assigned to these roles are as follows.

Role	Permission
Administrator	Product activation
	Account setup
	Firmware update
	Initialization (Factory reset)
Designer	Network setup
	Date and time setting

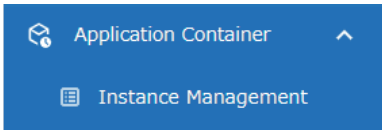
Role			Permission
			Secure communication setting (certificate and key management, reverse proxy setting)
			Log setup
		Maintainer	Status change (operation, setup)
			Shutdown and restart
			Resource monitoring
			Viewing of system information
			Application management (viewing information, connection, obtaining logs)
			USB port management (enabling, disabling)
			Viewing logs, obtaining logs

6-3 Managing Applications

Manage applications installed on the Data Flow Controller. You can check the status of applications, connect to applications, manage logs, and so on.
The following functions are available.

Item	Description
Application list	Displays a list of installed applications.
Application management	• Displays information on applications. • Opens the window for using applications. (Connect to applications.)
Log management	Displays and downloads application logs. Use this item to check the status of applications and the content of errors that have occurred.

You can manage applications in **Application Management** under **Applications** in the Web UI.



6-4 Using USB Memory Devices

To use USB memory devices in applications or for firmware updates, configure the settings to use them.

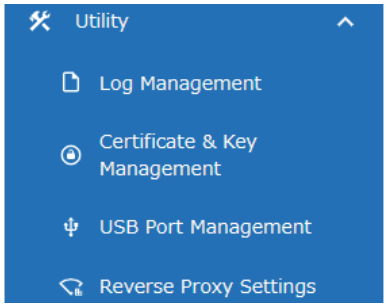
Precautions for Safe Use

Do not turn OFF the power supply or remove the USB memory device while the product is accessing the USB memory device. Data may become corrupted, and the product will not operate correctly if it uses corrupted data.

6-4-1 Procedure for Using USB Memory Devices

To use a USB memory device, you must enable the USB port in advance.

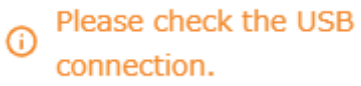
1. Before you turn ON the power supply, insert the USB memory device into the USB port of the Data Flow Controller.
2. Start the Data Flow Controller.
3. Set the Data Flow Controller to the setup state.
   To do so, select **setup** from the state selection pull-down menu in the header of the Web UI.
4. Enable the USB port.
   Configure the USB port settings in **USB** under **Utility Management** in the Web UI.



5. Restart the Data Flow Controller.

Precautions for Correct Use

When the USB port is enabled, starting the Data Flow Controller with no USB memory device inserted results in an error, with the message "Please check the USB connection." displayed in the Web UI header.

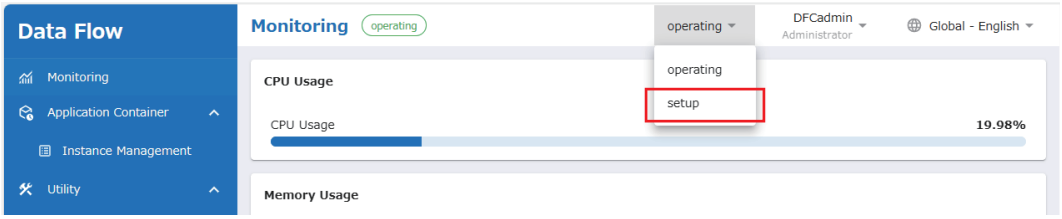


In this case, insert the USB memory device and restart the Data Flow Controller. If you are not using USB memory devices, disable the USB port afterward.

6-4-2 Procedure for Replacing USB Memory Devices

Use the following procedure to replace a USB memory device while the Data Flow Controller is running.

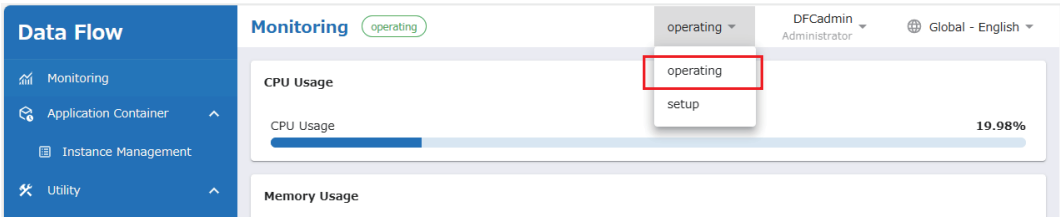
1 Set the Data Flow Controller to the setup state.
To do so, select **setup** from the state selection pull-down menu in the header of the Web UI.



2 After confirming that the state indicated in the header of the Web UI is **setup**, remove the USB memory device.

3 Insert another USB memory.

4 Set the Data Flow Controller to the operating state.
To do so, select **operating** from the state selection pull-down menu in the header of the Web UI.



6-5 Monitoring Resource Usage

You can monitor the resource usage of the Data Flow Controller. Use this function to check the usage of resources when you are considering to add data and applications to achieve data collection and visualization.
For example, when the CPU usage and memory usage are sufficient, you can increase the amount of data collection and the number of calculations. When there is sufficient free space on the storage, you can increase the amount of data storage. If the free space on the USB memory device is insufficient, replace it.

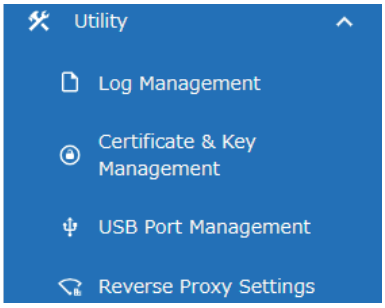
You can monitor the following items.

Item	Description
CPU usage	Shows the CPU usage.
Memory usage	Shows the memory usage.
Storage usage	Shows the storage status. You can also check the usage of the USB memory device. **/dev/mmcblk0** Built-in storage. You can check the status of the built-in storage. • normal: Normal • warning: Life warning (minor) • critical: Life warning (major) If a life warning appears, replace the Data Flow Controller. **/dev/sda** USB memory. You can check the usage. If the USB port is disabled or the USB memory is not inserted, it will not be displayed.
Network usage	Shows the network usage.

Display the monitored values in **Monitoring** in the Web UI.

6-6 Checking Events and Errors That Have Occurred

The Data Flow Controller records and stores events that have occurred as logs. You can check what happened in the Data Flow Controller and who performed what operations.
To do so, select **Logs** under **Utility Management** in the Web UI.



Additional Information

Refer to *6-3 Managing Applications* on page 6-5 for the logs recorded by each application.

Precautions for Correct Use

If the logs are deleted, you cannot prevent repudiation. If the number of events exceeds the number of records permitted, the log will be deleted from older information. It is recommended to download logs periodically based on your environment and the log retention period for your operation, and store them for a certain period of time.

6-6-1 Log Types

The Data Flow Controller has the following types of logs.

Log	Description
System log	Records events that have occurred in the system.
Operation log	Records operations that users have performed.

You can download these logs as files.

Additional Information

Operation logs include security-related logs. Security-related logs are not deleted even after you perform initialization (factory reset) or firmware updates.

6-6-2 Log Levels

Events recorded in the system log are assigned log levels according to their importance. You can use them to improve efficiency in identifying the cause when a failure occurs.
Operation logs do not have log levels.

Level	Log level	Description	ERR indicator (status)
High	EMERGENCY	A critical error that will cause an outage of the entire system. • USB memory device removed in the operating state	ON*1 (Critical error)
	ALERT	A serious issue that requires immediate response. • Firmware internal error	ON*1 (Critical error)
	CRITICAL	A critical error that results in the loss of essential functionality. • Hash check error • Firmware internal error	ON*1 (Critical error)
	ERROR	A general error. It is a failure or error in processing.	Flashing (Error or Warning)
	WARNING	A warning of an error, or an event that requires attention.	Flashing (Error or Warning)
	NOTICE	Important information that is not an error.	OFF
	INFO	Information such as normal operating status and progress.	OFF
Low	DEBUG	Detailed information mainly for development and debugging.	OFF

*1. You cannot check the log when the ERR indicator is lit because the Data Flow Controller is stopped. Follow the steps below to handle the errors.

1. If the Data Flow Controller has no USB memory device inserted, insert a USB memory device and then turn ON the power supply.
2. If the error persists, perform initialization (factory reset) on the Data Flow Controller.
3. If the error still persists, replace the Data Flow Controller.

Precautions for Correct Use

Turning OFF the power supply without performing the shutdown operation deletes logs at or below the ERROR level. If you need to check logs at or below the ERROR level after turning OFF the power supply, be sure to perform the shutdown operation before turning OFF the power supply. Refer to *3-3-2 Turning OFF the Power Supply* on page 3-23 for the shutdown operation.

6-6-3 Log Formats

To check the operations performed by the user, check the operation log. The operation log has a fixed format, and you can check the date and time when the operation was performed, description of operation, ID of the user who performed the operation, and so on.

Operation Log Format

The structure of a record in the operation log is as follows.

<Basic Information> - {<Detailed Information>}

- Example of log:

```
2025-08-04 10:01:15.028 [INFO] GET /api/v1/fwGetStatus - 200 - 2830ms - User: DXCa
dmin -
{"userId":"DXCadmin","method":"GET","path":"/api/v1/fwGetStatus",
"statusCode":200,"duration":2830,"ip":"192.168.250.102",
"userAgent":"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"}
```

The contents of the <Basic Information> and <Detailed Information> sections are as follows.

<Basic Information>

- Format

```
<Time stamp> [INFO] <Description of operation> <API that executed operation> - <St
atus code> - <Elapsed time (ms)> - User:<User ID>
```

- Description of each item

Item	Description	Corresponding content in *Example of log*
Time stamp	Date and time when the operation was performed	2025-08-04 10:01:15.028
Description of operation	Name of the method executed	GET
API that executed operation	Path and name of the API that executed the operation	/api/v1/fwGetStatus
Status code	Execution result code of the operation	200
Elapsed Time (ms)	Time elapsed from request for the operation to completion of its processing	2830 ms
User ID	ID of the user who performed the operation	DXCadmin

<Detailed Information>

- Format

```
{"userID":<User ID>,"method":<Description of operation>,"path":<URL path name>, "s
tatusCode":<Status code>,"duration":<Elapsed time (ms)>, "ip":<IP address>, "userA
gent":<User agent>,"error":<Error message>}
```

- Description of each item

Item	Description	Corresponding content in *Example of log*
User ID	ID of the user who performed the operation	"DXCadmin"
Description of operation	Name of the method executed	"GET"
URL path name	Path and name of the API that executed the operation	"/api/v1/fwGetStatus"
Status code	Execution result code of the operation	200
Elapsed Time (ms)	Time elapsed from request for the operation to completion of its processing	2830
IP address	IP address of the computer that requested the operation	"192.168.250.102"

Item	Description	Corresponding content in *Example of log*
User agent	OS and browser information	"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
Error message (optional)	Error message	

6-6-4 Log Filter

You can filter logs. The filtered results are available for viewing and downloading.

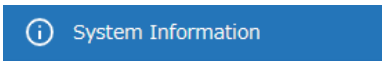
Log type	Filter settings	Remarks
System log	• Log level • Start date and time • End date and time	You cannot select more than one log level at the same time. To check logs for two or more log levels at the same time, download the logs at each log level and then check them together.
Operation log	• Start date and time • End date and time	

6-7 Checking the System Information

You can refer to the system information and product manual for the Data Flow Controller.

Item	Description
Product Manual	Displays the *DX-series Web UI Operation Manual (Cat. No. V242)*. It also opens the web page containing videos for the manual.
Production Information	Displays the production information of the Data Flow Controller. You can check the model, lot number, serial number, hardware version, etc.
System Information	You can check the unit version, operating hours, host name, network interface, etc.
License	Displays information about the OSS (Open Source Software) that the Data Flow Controller uses.

Select **System Information** in the Web UI to display these items.



6-8 Enhancing Security for Communications with Your Browser

You can enable the secure communication function to encrypt communications between the Data Flow Controller and your browser on the computer for enhanced security.

6-8-1 Procedure for Enabling Secure Communication

By generating and setting up a certificate, you can establish an HTTPS connection between the Data Flow Controller and your browser.
Use the following procedure to establish an HTTPS connection.

1 Create a signed certificate.

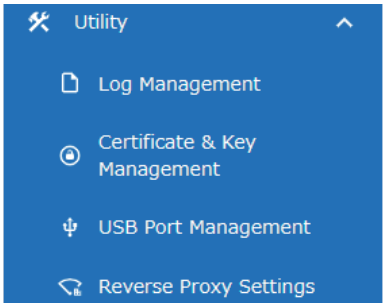
1) Generate and download a key from the Web UI, or create a key separately using Open SSL.
2) Create a certificate.
3) Sign the certificate.
4) Import the key and signed certificate into the Web UI.

To do so, select **Certificates & Keys** under **Utility Management** in the Web UI.
You can register up to 10 certificates and 10 keys. However, you cannot register certificates or keys with the same name.

2 Enable HTTPS.
To do so, select **Reverse Proxy Settings** under **Utility** in the Web UI and enable TLS.

3 Log out of the Web UI.

4 Connect again to the Web UI from your browser.



Precautions for Correct Use

- The operation to enable or disable certificates or keys can only be performed when TLS is disabled.
- Security issues such as unauthorized data acquisition, data tampering, and loss of communications may occur due to theft, information leaks, and tampering of server certificates or private keys related to secure communications by third parties. Take adequate measures for the management of certificates and private keys and for the prevention of theft, information leaks, and tampering. Especially, use an encrypted safe communications path, etc. when obtaining the private key to avoid information leaks. Furthermore, store the private key in a safe location where the risk of information leakage is extremely low.

6-9 Operating the Data Flow Controller from External Systems

You can operate the Data Flow Controller from external systems.

6-9-1 Operating the Data Flow Controller Using the REST API

The Data Flow Controller provides a REST API to allow Data Flow Controller operations from external systems.
Refer to the *DX-series Web UI Operation Manual (Cat. No. V242)* for details on the REST API.

Item	Description
Get Controller information	Gets the status of the Data Flow Controller.
Update Controller information	Updates the status of the Data Flow Controller.
Shutdown	Shuts down the Data Flow Controller.
Restart	Restarts the Data Flow Controller.

6-10 Backing Up Data

Duplicate and restore data in the Data Flow Controller using the methods shown below.

Target data	Duplication method	Restoration method
System settings	Record the settings in the design document. • Network settings • Clock settings • USB port settings • Reverse proxy settings	Manually enter the settings recorded in the design document to reconfigure them.
SpeeDBee Synapse settings	Use the export function of SpeeDBee Synapse.*1	Use the import function of SpeeDBee Synapse.*1
Grafana settings	Use the export function of Grafana.*2	Use the import function of Grafana.*2
System log Operation log	Use the log export function. To do so, select **Logs** under **Utility Management** in the Web UI.	These logs cannot be imported into the Data Flow Controller.
Package	Package the dashboards created by users using the Dashboard Generator and download them to the computer.*3	Upload the downloaded Package to the Dashboard Generator.*3

*1. Refer to the DX-series SpeeDBee Synapse User's Manual (Cat. No. V243) for the export and import methods.
*2. Refer to the Grafana manual for the export and import methods.
*3. Refer to the *DX-series Dashboard Generator User's Manual (Cat. No. N700)* for the download and upload methods.

Precautions for Correct Use

Keep the exported data strictly secure so that it is not leaked to third parties or tampered with.

6-11 Initializing the Data Flow Controller

Initialization resets the Data Flow Controller to the factory default settings. Use this function when you clear all settings at once or when you encounter an error that prevents the operation of the Data Flow Controller.

Precautions for Correct Use

- Initialization (factory reset) causes a loss of all user settings.
- Initialization also erases all logs, except for those related to security.
- Initialization (factory reset) causes a loss of updates to the firmware.
- For secure operation, take measures to prevent unauthorized operation of the DIP switches. For example, implement access control, physical locking, etc.

Version Information

For unit version 1.1 and later, performing initialization (factory reset) will be recorded in the operation log.

6-11-1 Initialization (Factory Reset) Procedure Using DIP Switches

If you encounter an error causing inoperability of the Data Flow Controller, you can perform initialization (factory reset) using the DIP switches.

1. Turn OFF the power supply to the Data Flow Controller.
2. Set DIP switch 1 to OFF and DIP switch 2 to OFF on the back of the Data Flow Controller.
3. Turn ON the power supply to the Data Flow Controller.
4. Wait until the operation status indicators on the Data Flow Controller are as follows.
   PWR: ON
   RUN: ON
   ERR: ON
5. Turn OFF the power supply to the Data Flow Controller.
6. Set DIP switch 1 to OFF and DIP switch 2 to ON on the back of the Data Flow Controller.
7. Turn ON the power supply to the Data Flow Controller.
   The Data Flow Controller restarts several times. This processing takes approximately 10 minutes.
8. Wait until the operation status indicators on the Data Flow Controller are as follows.
   PWR: ON
   RUN: ON
   ERR: OFF

9 Turn OFF the power supply to the Data Flow Controller.

10 Set DIP switch 1 to ON and DIP switch 2 to ON on the back of the Data Flow Controller.

11 Turn ON the power supply to the Data Flow Controller.
The Data Flow Controller starts with the factory default settings. The operation status indicators on the controller will be as follows.
PWR: ON
RUN: Flashing
ERR: Flashing

Precautions for Correct Use

If the initialization (factory reset) fails, try again. If the initialization still fails, contact your OMRON representative.

7

Data Collection and Visualization

This section describes data collection and utilization, as well as data visualization and analysis, using the the Data Flow Controller.

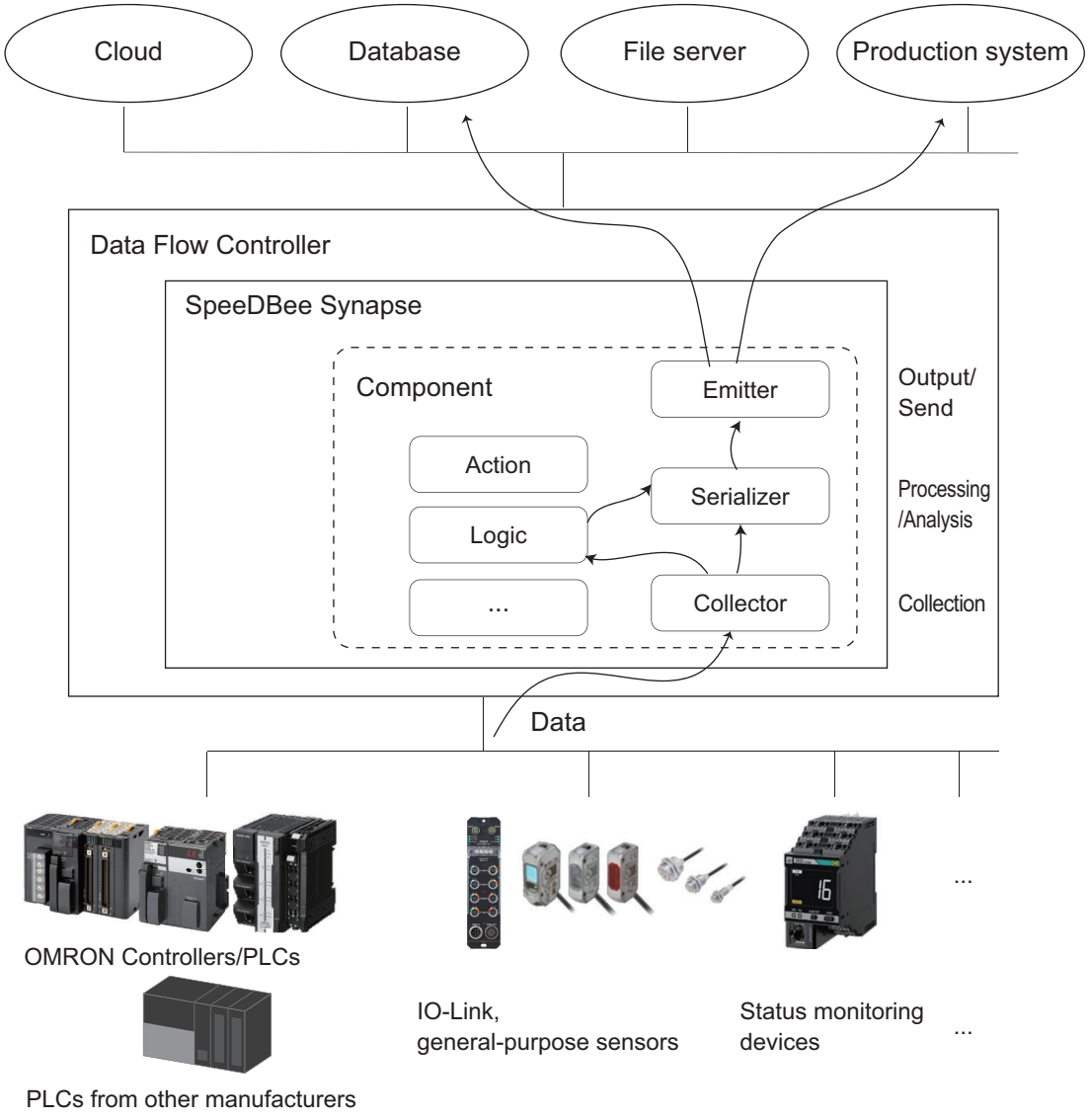
7-1 Data Collection and Utilization

This section describes data collection and utilization using the Data Flow Controller.

7-1-1 Overview of Data Collection and Utilization

The Data Flow Controller features SpeeDBee Synapse to provide functions to collect and utilize data.

SpeeDBee Synapse is able to collect data from various devices (such as Controllers) that make up FA and IoT systems. By utilizing the various functions of SpeeDBee Synapse, it is possible to convert and analyze data, and link data with other systems. This enables you to build a system that achieves a series of processes from data collection to data utilization.



Precautions for Safe Use

When you make control instructions or provide feedback based on data collected by this product, perform a thorough operation check before proceeding to actual operation.

Precautions for Correct Use

If the storage space for saving collected data ran out, data collection will stop. In that case, follow the action for the problem, *Data collection is stopped due to running out of storage space.* described in the *9-3-3 Troubleshooting for SpeeDBee Synapse Problems* on page 9-6.

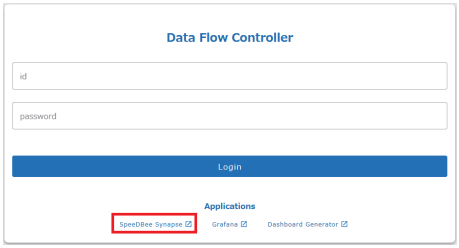
7-1-2 Opening the SpeeDBee Synapse Application Window

To use SpeeDBee Synapse, you must first open the SpeeDBee Synapse application window.

Precautions for Correct Use

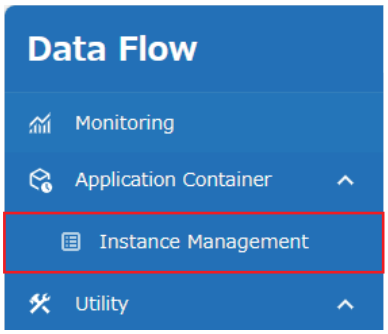
To open the SpeeDBee Synapse window, the Data Flow Controller must be in operating state. If it is not in operating state, an error will occur.

To open the SpeeDBee Synapse window, click the SpeeDBee Synapse link text located at the bottom of the Data Flow Controller login window.

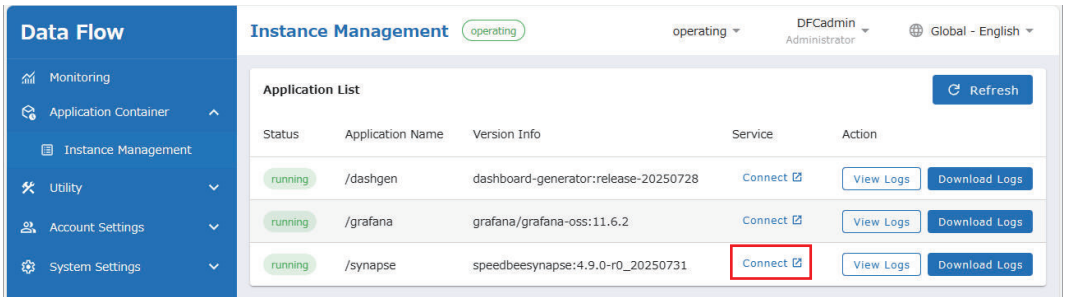


Or, perform the following procedure.

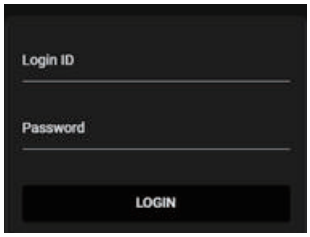
1. Log in to the Data Flow Controller as Administrator or Operator.
   The main screen of the Web UI appears.
2. Click **Application Management** on the navigation bar.



   The Application Management window opens.
3. Click the **Connect** link text for **/synapse** in the **Application List**.



The SpeeDBee Synapse login window appears in a new tab page.



7-1-3 Using SpeeDBee Synapse

For instructions on how to use SpeeDBee Synapse after the login window appears, refer to the *DX-series SpeeDBee Synapse User's Manual (Cat. No. V243)*.

Precautions for Correct Use

To log in to SpeeDBee Synapse, you need to set up an account separate from your Data Flow Controller account. Set up this account according to the instructions in the *DX-series SpeeDBee Synapse User's Manual (Cat. No. V243)*.

Precautions for Correct Use

For secure use of SpeeDBee Synapse, follow the guidelines for secure use in the *DX-series SpeeDBee Synapse User's Manual (Cat. No. V243)* to ensure security.

7-2 Data Visualization and Analysis

This section describes data visualization and analysis using the Data Flow Controller.

7-2-1 Overview of Data Visualization and Analysis

The Data Flow Controller features Grafana to provide functions to visualize and analyze data.

Grafana is an open source platform for data visualization and monitoring. It allows you to visually create dashboards and panels.

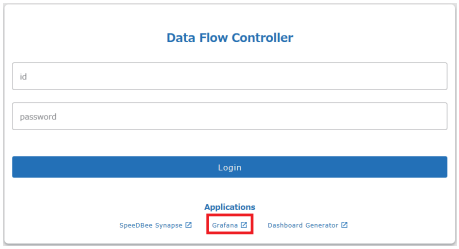
7-2-2 Opening the Grafana Application Window

To use Grafana, you must first open the Grafana application window.

Precautions for Correct Use

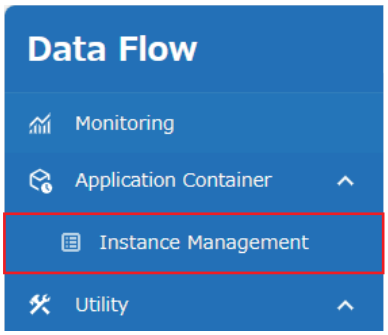
To open the Grafana window, the Data Flow Controller must be in operating state. If it is not in operating state, an error will occur.

To open the Grafana window, click the Grafana link text located at the bottom of the Data Flow Controller login window.



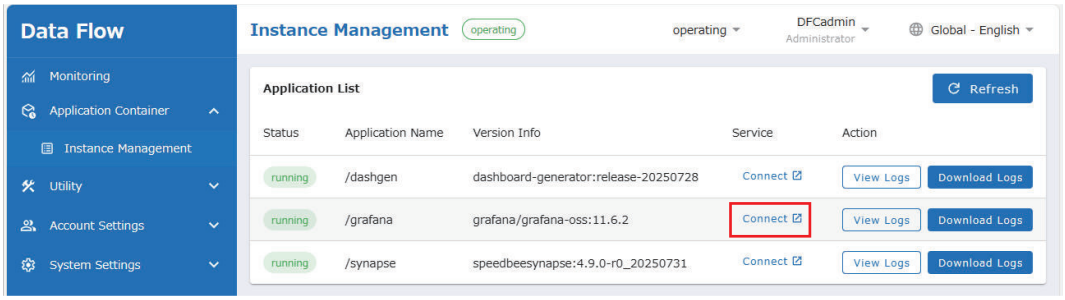
Or, perform the following procedure.

1. Log in to the Data Flow Controller as Administrator or Operator.
   The main screen of the Web UI appears.
2. Click **Application Management** on the navigation bar.



The Application Management window opens.

3 Click the **Connect** link text for **/grafana** in the **Application List**.



The Grafana login window appears in a new tab page.
The initial account for Grafanais as follows.

User name: admin
Password: admin

7-2-3 Using Grafana

Refer to the manual for Grafana[*1] for how to use Grafana.

*1. URL of the English manual for Grafana (as of August 2025)
https://grafana.com/docs/grafana/latest/

Precautions for Correct Use

- To log in to Grafana, you need to set up an account separate from your Data Flow Controller account. Set up this account according to the instruction manual in the above URL.
- You cannot add plugs-ins for Grafana.

Precautions for Correct Use

For secure use of Grafana, follow the manual for Grafana to ensure security.

8

Using Packages

This section provides information on using Packages.
By using Packages, you can easily collect and visualize data.

8-1 Overview of Packages

A Package is a collection of configuration files that automatically generate dashboards for collecting and visualizing data. By using Packages, you can automatically set up SpeeDBee Synapse and Grafana, and start collecting and visualizing data immediately.

8-1-1 Pre-installed Packages

The Data Flow Controller has the following pre-installed Package that you can use immediately.

Package	Description
Equipment Monitoring Package	Visualizes the KPIs (Key Performance Indicators) of a single piece of equipment.
Factory Monitoring Package	Visualizes the KPIs of multiple pieces of equipment.
Condition Monitoring Package (for variable speed motors)	Visualizes the status of variable speed motors.
Condition Monitoring Package (for induction motors, current type)	Visualizes the status of induction motor current.
Condition Monitoring Package (for induction motors, vibration type)	Visualizes the status of induction motor vibration.
Condition Monitoring Package (for temperature inside control panels)	Visualizes the temperature inside control panels.
Event-triggered Video Logging Package	Enables video confirmation of equipment operation status when equipment errors occur.

You can use the Packages as-is for the system configurations specified in each Package.
If your system configuration differs from that specified in the Package, you can customize settings for the different configuration parts to make it usable. This is more efficient than configuring all the settings from scratch.

8-2 Using Packages

For how to use the common parts of the Packages, refer to the *DX-series Dashboard Generator User's Manual (Cat. No. N700)*. For how to use each Package, refer to the manual for the Package.

Precautions for Correct Use

For operations where data is stored in the Data Flow Controller instead of being saved to an external device, a USB memory device is required. Prepare a USB memory device.

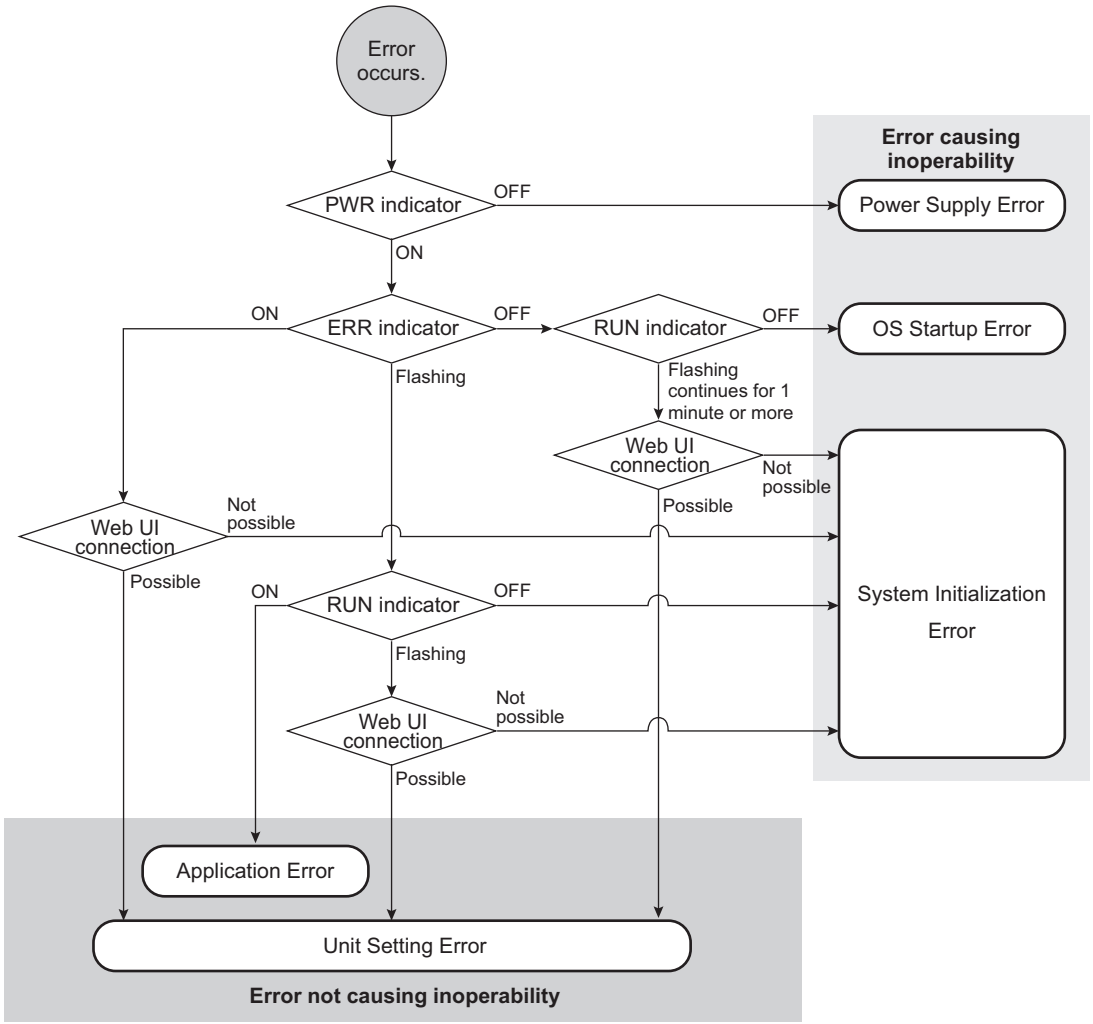
9

Troubleshooting

This section describes what you should do when an error occurs.

9-1 How to Identify Errors

You can identify what type of error has occurred in the Data Flow Controller based on the operation indicators and whether or not your browser can connect to the Web UI.



For how to identify errors that may occur in each application, refer to the manual for the application.

9-2 Troubleshooting for Errors

The table below shows how to deal with errors that you identified based on the operation indicators of the Data Flow Controller and whether or not your browser can connect to the Web UI.

Error type	Error	Cause	Action
Error causing inoperability	Power Supply Error	a. Power is not being supplied. b. The voltage is out of allowable range. c. The power supply or connection to the configuration Units is faulty. d. The configuration Units are faulty.	a. Make sure that power is being supplied. b. Make sure that the correct voltage is being supplied. c. Make sure that the power supply and the Power Supply Unit are wired correctly and that the Power Supply Unit and the Data Flow Controller are connected correctly. Make sure that the power cable is not broken. d. If the POWER indicator on the Power Supply Unit is OFF, replace the Power Supply Unit. If the POWER indicator on the Power Supply Unit is ON, replace the Data Flow Controller.
	OS Startup Error	The OS has not started up normally.	Perform a factory reset. If the error persists, replace the Data Flow Controller.
	System Initialization Error	The firmware or application has not started up normally.	
	CPU Unit Error	This error is caused by CPU runaway due to hardware failure or temporary data corruption in the Data Flow Controller. This error cannot be identified via the indicators. a. Contamination with conductive object b. Noise c. Unit failure	a. If there is a conductive foreign object nearby, blow air inside the Data Flow Controller. b. If the error did not result from the above causes, cycle the power to the Data Flow Controller and see if that resets the error. If the error occurs frequently, check the FG and power supply lines to see if noise is entering on them. Implement noise countermeasures as required. c. If the error persists even after you make the above actions, replace the Data Flow Controller.
Error not causing inoperability	Unit Setting Error	There is an error in the Data Flow Controller settings.	Check the logs, identify any incorrect settings, and correct them. After the correction, cycle the power supply or change the state from setup to operating to reset the error status.
	Application Error	An error has occurred in an application.	Check the log of the application in Application Management and deal with the error according to the manual for the application.

For how to deal with errors that may occur in each application, refer to the manual for the application.

9-3 Troubleshooting for Problems

The table below shows how to deal with typical problems.

9-3-1 Troubleshooting for Problems with the Startup of the Data Flow Controller

Problem	Assumed cause	Action
The PWR indicator does not light up.	• The voltage is out of allowable range. • The connection is faulty. • The Power Supply Unit is faulty. • The Data Flow Controller is faulty.	Use the rated power supply voltage for the Power Supply Units. Make sure that the power cable is not broken and is connected correctly. Make sure that the Power Supply Unit and Data Flow Controller are connected correctly. If the PWR indicator on the Power Supply Unit does not light up even after taking the above actions, replace the Power Supply Unit. If the PWR indicator on the Data Flow Controller still does not light up, the Data Flow Controller may be faulty. Replace it.
The RUN indicator does not light up.	The Data Flow Controller has a setting error or is faulty.	Perform initialization (factory reset) to restore the factory settings. If the RUN indicator still does not light up, the Data Flow Controller may be faulty. Replace the Data Flow Controller.
	After power OFF, the power supply is turned ON with power still being supplied from the Power Supply Unit.	Before you cycle the power supply after power OFF, wait a while and confirm that the PWR indicator has turned OFF.
The LINK indicator on the Ethernet port does not light up.	An Ethernet cable or network device failure has occurred.	Make sure that the Ethernet cables are connected correctly. If there is a problem with a network cable or network device, replace it.
USB memory devices cannot be used.	The USB port is disabled.	In the USB port management window of the Web UI, enable the USB port and restart the Data Flow Controller.
	USB memory devices are not recognized.	Use USB memory devices that comply with the USB standards. Or, use recommended USB memory devices. Use USB memory devices that are formatted with the FAT32 file system.
The time is incorrect.	The date and time settings are not configured. Or, the power supply is left OFF for longer than the internal capacitor retention period, causing the clock data to be reset to the default values.	Manually set the current time in the date and time setting window of the Web UI. If an NTP server is available in your environment, enable synchronization with the NTP server.

9-3-2 Troubleshooting for Connection Problems

Problem	Assumed cause	Action
Your browser cannot connect to the Data Flow Controller's Web UI.	A network failure has occurred between the Data Flow Controller and the computer. • Broken Ethernet cable or faulty connection • Network device failure	Make sure the LINK indicator on the Data Flow Controller's Ethernet communications port is lit. If the LINK indicator is not lit, one of the problems listed on the left may be cause. Securely connect the Ethernet cable, or replace the cable or network device.
	DIP switch 1 is set to ON and DIP switch 2 is set to OFF.	In the case shown on the left, the Data Flow Controller starts using the default IP address. To use the set IP address, start the Data Flow Controller with both DIP switches 1 and 2 set to ON.
	The IP address (or host name) entered in the browser is incorrect.	Specify the IP address or host name set for the Data Flow Controller.
	There are multiple Units with the same IP address or host name on the same network.	Review the settings and make sure that the same IP address or host name is not used on the same network.
	It is not possible to establish a connection by host name because the DNS or mDNS cannot resolve the host name.	Check that the IP address setting for the DNS server and the proxy settings for the computer are correct, or that the mDNS setting is enabled.
	The network settings for the computer are not configured correctly. Or, the firewall function is enabled on your computer, which prevents communications with the Data Flow Controller.	Check that the network settings for your computer are correct. Review the firewall settings on the computer to ensure that communications with the Data Flow Controller are allowed.
	The TLS connection has failed because the certificate or key registered to enable HTTPS communications is invalid.	Perform initialization (factory reset) to restore the factory settings. Register the correct certificate and key again.
The URL for connecting to the Data Flow Controller is unknown.	DHCP is enabled on the Data Flow Controller to automatically obtain an IP address.	To enable DHCP, enable the mDNS function of the Data Flow Controller. Specify the connection destination by host name instead of IP address.
	DHCP is disabled on the Data Flow Controller, but the set IP address is unknown.	Set DIP switch 1 to ON and DIP switch 2 to OFF and start the Data Flow Controller using the default IP address. From a browser, connect to the Data Flow Controller using the default IP address and check the IP address in Network Settings. If necessary, set an IP address that can be connected to.
Login to the Data Flow Controller fails.	The entered user ID or password is incorrect.	If you forget your user ID and password, log in to the Data Flow Controller using the user ID of another user with Administrator rights and reset the account. If you forget the user ID and password for the user with Administrator rights, perform initialization (factory reset) to restore the factory default settings. Log in to the Data Flow Controller using the default account and reset the account.

Problem	Assumed cause	Action
	The account for the entered user ID is invalid.	Log in to the Data Flow Controller using the user ID of another user with Administrator rights and enable the target user ID.

9-3-3 Troubleshooting for SpeeDBee Synapse Problems

Problem	Assumed cause	Action
Communications with OMRON PLCs are not possible.	Ethernet communications with the destination PLC are not established.	Make sure that the Ethernet cable is connected correctly. Make sure that the IP address and port number settings are correct.
	PLC Collector: The destination PLC is not configured for FINS/TCP.	SpeeDBee Synapse does not support FINS/UDP. Review the settings for the connected PLCs so that they can be connected via FINS/TCP.
	PLC Collector: The FINS address of the destination PLC does not match.	You cannot connect to PLCs whose fourth digit of the IP address differs from the FINS node number. Review the settings for the connected PLCs so that the fourth digit of the IP address matches the FINS node number.
Data cannot be collected correctly.	PLC Collector: The address or data type settings for the collected data are incorrect.	Make sure that the address and data type of the collection target data are correct.
	PLC Collector: The destination PLC is operating in BCD mode.	Enable numerical conversion on the output port setting screen of the PLC Collector. Select **BCD (X digits)** → **INT** for the conversion details.
	EtherNet/IP Collector: The variable or data type settings for the collected data are incorrect.	Make sure that the variable name and data type of the collection target data are correct.
Data collection is stopped due to running out of storage space.	The database has become too large.	Review the settings to reduce the amount of data to be collected, for example, by increasing the collection interval for the collection target data of the PLC Collector or reducing the number of collection target data items. Review the settings for the maximum database storage size and storage period in the server settings, and reduce the maximum database size. If the collected data is stored on a USB memory device, replace it with one with a larger capacity. Or, remove the USB memory device from the Data Flow Controller and delete the data using a computer, etc. If the collected data is stored on the internal storage of the Data Flow Controller, delete the data on the internal storage. You can delete the data on the internal storage by restarting the Data Flow Controller.

Problem	Assumed cause	Action
	The number of files output by the File Emitter, Video Collector, and EventRecorder has become too large.	Shorten the data storage period for each component. Restarting the components after changing the storage period automatically deletes old files that exceed the storage period.
An error occurs during operation with the warning "The system time and PC time do not match." displayed.	The time of the Data Flow Controller does not match the clock of the computer connected to the Web UI.	Set the date and time on the Data Flow Controller to match the clock of the computer.

10

Maintenance and Inspection

This section describes the cleaning, inspection, and maintenance of the Data Flow Controller.

10-1 Cleaning and Inspection

This section describes cleaning and inspection for daily maintenance of devices.
Perform daily or periodic inspections in order to maintain the Data Flow Controller in peak operating condition.

10-1-1 Cleaning

Periodically clean the Data Flow Controller as shown below in order to use it in the best operating condition.
Always turn OFF the power supply to the Data Flow Controller before performing cleaning.

- Wipe off the dust or dirt on the front, top, or bottom of the configuration Units with a dry, soft cloth when doing daily cleaning.
- If dust or dirt remains even after wiping with a soft, dry cloth, wipe over with a cloth that has been wet with a sufficiently diluted detergent (2%) and wrung dry.
- Smudges may remain on the Data Flow Controller from rubber, vinyl, or tape that was left on for a long time. Remove the smudges when cleaning.

Precautions for Safe Use

Do not use corrosive chemicals to clean the product. Doing so may result in a failure or malfunction of the product.

Precautions for Correct Use

Do not use volatile solvents, such as paint thinner, benzene, or chemical wipes.

10-1-2 Periodic Inspection

Since Data Flow Controller elements can deteriorate under improper environmental conditions, periodic inspections are required to ensure that the required conditions are being maintained.
Inspection is recommended at least once every six months to a year, but more frequent inspections will be necessary in adverse environments.
Take immediate steps to correct the situation if any of the conditions in the following table are not met.

Inspection item	Description	Criteria	Action
External power supply	Check for voltage fluctuations at the power supply terminals.	Within allowable voltage fluctuation range	Use a voltage tester to check the power supply at the terminals. Take necessary steps to bring voltage of the supplied power to within the allowable voltage fluctuation range.
Ambient environment	Check the ambient temperature.*1	0 to 55°C	Use a thermometer to check the temperature and ensure that the ambient temperature remains within the allowed range of 0 to 55°C.

Inspection item	Description	Criteria	Action
	Check the ambient humidity.*2	10% to 90% RH No condensation	Use a hygrometer to check the humidity and ensure that the ambient humidity remains between 10% and 90%. Make sure that condensation does not occur due to rapid changes in temperature.
	Check that the Data Flow Controller is not in direct sunlight.	Not in direct sunlight	Shield the Data Flow Controller from direct sunlight.
	Check for accumulation of dirt, dust, salt, metal powder, etc.	No accumulation	Remove it and shield the Data Flow Controller.
	Check for water, oil, or chemical splashes on the Data Flow Controller.	No splashes	Remove it and shield the Data Flow Controller.
	Check for corrosive or flammable gases in the atmosphere.	No corrosive or flammable gases	Check this by smell or using a sensor.
	Check the level of vibration or shock.	Within specified vibration resistance or shock resistance range	Install cushioning, shock absorbing equipment, etc.
	Check for noise sources near the Data Flow Controller.	No noise sources	Move the noise source away or shield the Data Flow Controller.
Installation and wiring condition	Check that cable connectors are fully inserted and locked.	No looseness	Fully insert and lock the connectors.
	Check that the Unit connectors are fully fitted and locked.	No looseness	Fully fit the Unit connectors together and lock them with the sliders.
	Check for damaged external wiring cables.	No visible damage	Check visually and replace cables if necessary.

*1. If using a control panel, the temperature inside the control panel is the ambient temperature.
*2. If using a control panel, the humidity inside the control panel is the ambient humidity.

Tools Required for Inspections

● Required Tools

- Flat-blade screwdriver
- Phillips screwdriver
- Voltage tester or digital multimeter
- Industrial alcohol and pure cotton cloth
- Antistatic gas duster

● Tools Required Occasionally

- Oscilloscope
- Thermometer and hygrometer

10-2 Replacement Procedure

This section describes the procedure for replacing the Data Flow Controller.

10-2-1 Notes on Replacing Units

Note the following points when you replace any fault Units that were found during inspection.

- Turn OFF the power supply before you replace any Unit.
- After replacement, check the new Unit to ensure that there are no errors.
- If you return a faulty Unit for repair, describe the problem in as much detail as possible, enclose this description with the Unit, and request for repair.
- For poor contact, remove any lint with a clean cotton cloth moistened with industrial alcohol, and then mount the Unit.

10-2-2 Procedure for Replacing the Data Flow Controller

To prepare for replacement, back up the data in the Data Flow Controller in a timely manner.
Refer to *6-10 Backing Up Data* on page 6-17 for information on backing up data.

1 Turn OFF power supply to the Data Flow Controller.

2 Remove the cable and USB memory device connected to the Data Flow Controller.

3 Replace the Data Flow Controller with a new one, and then connect the cable and insert the USB memory device.

4 Start the Data Flow Controller.

5 Log in to the Data Flow Controller and configure the system settings that you recorded in the design document.

6 Use one of the following methods to restore the SpeeDBee Synapse and Grafana data that you backed up.

- Import the SpeeDBee Synapse data that you exported as a backup in SpeeDBee Synapse. Import the Grafana data that you exported as a backup in Grafana.
- Upload the Packages that you downloaded as a backup to the Dashboard Generator.

10-3 Firmware Update

This section describes the procedure for updating the firmware of the Data Flow Controller.
Contact your OMRON representative for how to obtain the firmware update image.

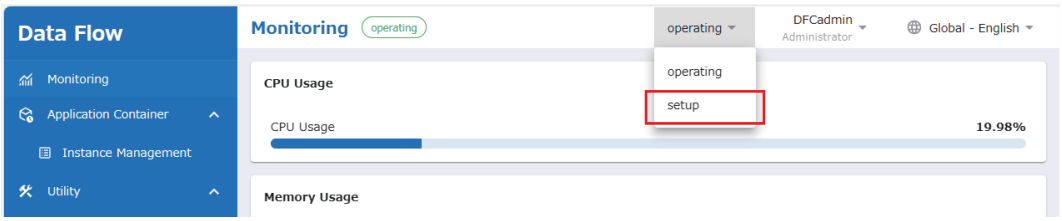
If the firmware update fails, turn OFF and then ON the power supply to the Data Flow Controller. Then, the Data Flow Controller will start with the firmware version before the update.

Precautions for Correct Use

- Updating the firmware retains the existing settings and log information stored in the Unit. Therefore, if you roll back to an older version of the firmware, the settings may not be applied as-is. If the settings cannot be applied, address the issue according to the message that appears. You cannot roll back from version 1.1 or later to version 1.0. The oldest version to which you can roll back is version 1.1.
- Never turn OFF the power supply to the product while the firmware is being updated. If the power supply is turned OFF, the firmware will not be updated normally.

10-3-1 Updating the Firmware

1. Save the update image in the root folder of the partition on a USB memory device.
2. Insert the USB memory containing the saved update image into the Data Flow Controller with the power supply turned OFF.
3. Start the Data Flow Controller.
4. Log in to the Data Flow Controller.
5. If the USB port is disabled, enable it and restart the Data Flow Controller.
6. If you did step 5, log in to the Data Flow Controller again.
7. Set the Data Flow Controller to the setup state.
   To do so, select **setup** from the state selection pull-down menu in the header of the Web UI.



8. Select **Firmware** under **System Settings** in the Web UI to open update windows.
9. Perform a firmware update.

10 Confirm that firmware update is complete by operation indicators.
Refer to *Indication during Firmware Update* on page 2-5 for the indication during firmware update.

11 Turn OFF and then ON the power supply to the Data Flow Controller to restart.

12 If you did step 5, log in to the Data Flow Controller and disable the USB port as before.

A

Appendices

A-1 Data Flow Controller Specifications

A-1-1 General Specifications

The general specifications of the DX-series Data Flow Controller are shown below.
There are items for which restrictions on the operating environment of the Power Supply Unit are greater than those listed here. Also check the specifications of the Power Supply Unit.

Item		Specification
Structure		Mounted in a panel
Installation method		Ground to less than 100 Ω.
Operating Environment	Ambient operating temperature	0 to 55°C
	Ambient operating humidity	10% to 90% RH (with no condensation or icing)
	Atmosphere	Must be free of corrosive gases.
	Ambient storage temperature	-25 to 70 °C (with no condensation or icing)
	Altitude	2,000 m max.
	Pollution degree	2 or less: Meets IEC 61010-2-201.
	Noise immunity	Conforms to IEC 61000-4-4. 2 kV on power supply line
	Overvoltage category	Category II: Meets IEC 61010-2-201.
	EMC immunity level	Zone B
	Vibration resistance	Conforms to IEC 60068-2-6. 5 to 8.4 Hz with 3.5-mm amplitude, 8.4 to 150 Hz, acceleration of 9.8 m/s^2 100 min each in X, Y, and Z directions (10 sweeps of 10 min each = 100 min total)
	Shock resistance	Conforms to IEC 60068-2-27. 147 m/s^2, 3 times each in X, Y, and Z directions
Insulation Resistance		20 MΩ min. between isolated circuits (at 100 VDC)
Dielectric strength		510 VAC between isolated circuits for 1 minute with a leakage current of 5 mA max.
Applicable standards		Refer to the OMRON website (http://www.ia.omron.com/) or consult your OMRON representative for the applicable standards.

A-1-2 Functional Specifications

The functional specifications of the Data Flow Controller are shown below.

Item			Specification
Hardware	Communications		2 Ethernet ports and 1 USB port
	User interface	Indicators	PWR, RUN, and ERR
	Supported power supply		NJ-PA3001 and NJ-PD3001
	Clock		Built-in RTC • Monthly fluctuation of power supply At ambient temperature of 55°C: -4.5 to 4.5 min error per month At ambient temperature of 25°C: -3.5 to 3.5 min error per month At ambient temperature of 0°C: -4.5 to 4.5 min error per month
		Retention time of built-in capacitor	At ambient temperature of 40°C: 10 days
	Ethernet communications specifications	Baud rate	Port 1: 1 Gbps Port 2: 100 Mbps
		Physical layer	1000BASE-T, 100BASE-TX (IEEE 802.3)
		Frame length	1,514 bytes max.
		Media access method	CSMA/CD
		Transmission distance	100 m
		Transmission media	Twisted-pair cable of category 5, 5e, or higher (shielded cable)
		Communications protocol	TCP/IP, UDP/IP, HTTP(S), NTP, DHCP, DNS/mDNS
	USB port	Physical layer	USB 2.0 compliant, type A connector. Output voltage: 5 V, 0.5 A max.
		Transmission distance	3 m
	Dimensions [mm]		78.8 × 90 × 80 mm (W×H×D)
	Weight		250 g max.
Built-in software	Data collection		SpeeDBee Synapse
	Data monitoring		Grafana
	Built-in Package		Equipment Monitoring Package Factory Monitoring Package Condition Monitoring Package Event-triggered Video Logging Package

A-1-3 Port Number List

The Data Flow Controller uses the port numbers listed below.

Service, function, or protocol	Server or Client	UDP port number	TCP port number	Default port state	Application	How to change the factory default port to Close
DHCP	Client	68	---	Close	Used when IP address acquisition via DHCP is enabled.	---
DNS	Client	53	---	Close	Used when the DNS client is enabled.	---

Service, function, or protocol	Server or Client	UDP port number	TCP port number	Default port state	Application	How to change the factory default port to Close
mDNS	Server	5353	---	Open	Used for resolving names within the local network via multicast DNS.	---
NTP	Client	123	123	Close	Use when NTP time synchronization is enabled.	---
HTTP	Server	---	80	Open	Used for connecting to a browser (displaying the Web UI).	Enable secure communication. Refer to *6-8 Enhancing Security for Communications with Your Browser* on page 6-14 for details on how to enable secure communication.
HTTPS	Server	---	443	Close	Used for connecting to a browser (displaying the Web UI). (Only when HTTPS is enabled)	---
DB query service	Server	---	8081	Open	Reverse proxy. Used for DB query service.	---
HTTP	Server	---	8120	Open	Reverse proxy. Used for SpeeDBee Synapse.	---

A-2 Power Supply Unit Specifications

Use the NJ-series Power Supply Units.

Item	Specification	
Model	NJ-PA3001	NJ-PD3001
Power supply voltage	100 to 240 VAC (wide-range), 50/60 Hz	24 VDC
Operating voltage and frequency ranges	85 to 264 VAC, 47 to 63 Hz	19.2 to 28.8 VDC
Power consumption	120 VA max.	60 W max.
Inrush current*1	At 100 VAC: 20 A max. for cold start at room temperature 8 ms max. At 200 VAC: 40 A max. for cold start at room temperature 8 ms max.	At 24 VDC: 30 A max. for cold start 20 ms max.
Output capacity*2	5 VDC, 6.0 A (including supply to CPU Unit using CPU Rack) 5 VDC, 6.0 A (using Expansion Rack) 24 VDC, 1.0 A Total: 30 W max.	
Output terminal (service supply)	None	
RUN output	Contact configuration: SPST-NO Switch capacity: 250 VAC, 2 A (resistive load) 120 VAC, 0.5 A (inductive load) 24 VDC, 2A (resistive load)	
Replacement notification function	None	
Insulation resistance*3	Between AC external and GR terminals: 20 MΩ min. (500 VDC megger)	Between DC external and GR terminals: 20 MΩ min. (500 VDC megger)
Dielectric strength*3*4	Between AC external and GR terminals: 2,300 VAC 50/60 Hz for 1 minute at a leakage current of 10 mA max.	Between DC external and GR terminals: 1,000 VAC 50/60 Hz for 1 minute at a leakage current of 10 mA max.
Noise immunity	Conforms to IEC 61000-4-4. 2 kV on power supply line	
Vibration resistance	Conforms to IEC 60068-2-6. 5 to 8.4 Hz, 3.5-mm amplitude, 8.4 to 150 Hz Acceleration: 9.8 m/s^2 each in X, Y, and Z directions for 100 minutes (10 sweeps of 10 min each = 100 min total) Gravity acceleration is assumed to be G = 9.8 m/s^2.	
Shock resistance	Conforms to IEC 60068-2-27. 147 m/s^2 3 times each in X, Y, and Z directions (Relay Output Unit: 100 m/s^2) Gravity acceleration is assumed to be G = 9.8 m/s^2.	
Ambient operating temperature	0 to 55°C	

Item	Specification
Ambient operating humidity	10% to 90% (with no condensation)
Atmosphere	Must be free from corrosive gases.
Ambient storage temperature	-20 to 75°C

*1. The AC and DC values above are given for a cold start, and the AC values are at room temperature.
The AC inrush current control circuit uses a thermistor element with a low-temperature current control characteristic.
If the ambient temperature is high or the Data Flow Controller is hot-started, the thermistor will not be sufficiently cool, and the inrush current given in the table may be exceeded by up to twice the given value.
The DC inrush current control circuit uses a capacitor-charging delay circuit.
If the power is OFF for only a short time for a hot-start, the capacitor will not sufficiently discharge and the inrush current given in the table may be exceeded by up to twice the given value. An inrush current of approximately 4 A may occur and continue for 1 s when the power is turned ON.
When selecting fuses, breakers, and external DC power supply devices for external circuits, allow sufficient margin in shut-off performance.

*2. Internal components in the Power Supply Unit may deteriorate or be damaged if the Power Supply Unit is used for an extended period of time exceeding the power supply output capacity or used when the outputs are shorted.

*3. The tests can also be performed with the LG terminal and GR terminal connected to each other.

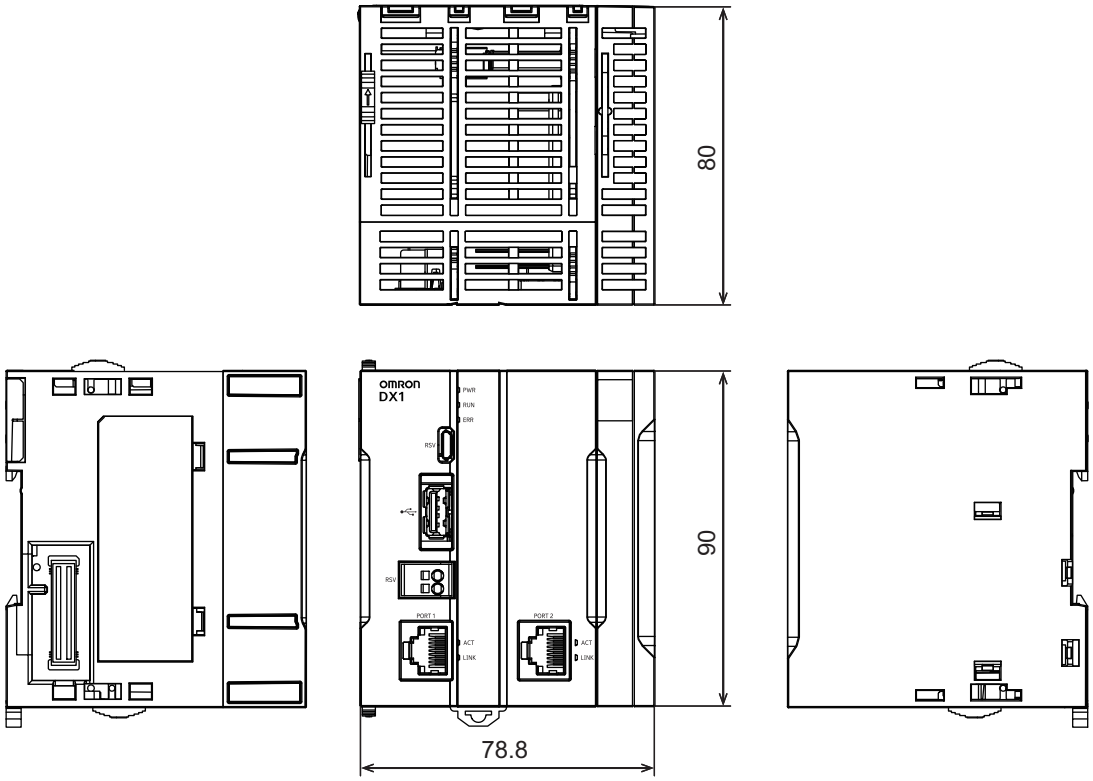
*4. If the full dielectric strength voltage is applied or turned OFF using the switch on the Tester, the generated impulse voltage may damage the Power Supply Unit. Change the applied voltage gradually using the adjuster on the Tester.

A-3 Dimensions

This section shows the external dimensions of the configuration Units.

A-3-1 DX-series Data Flow Controller

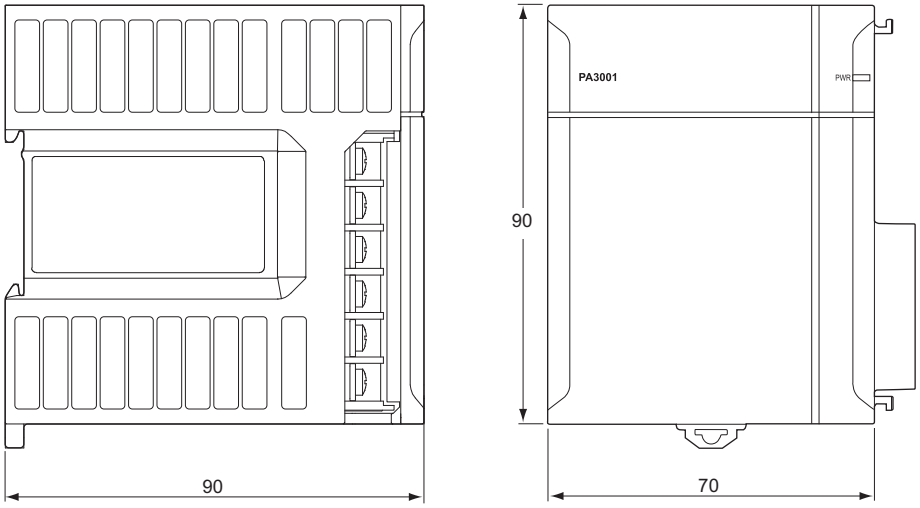
Unit: mm



A-3-2 NJ-series Power Supply Units

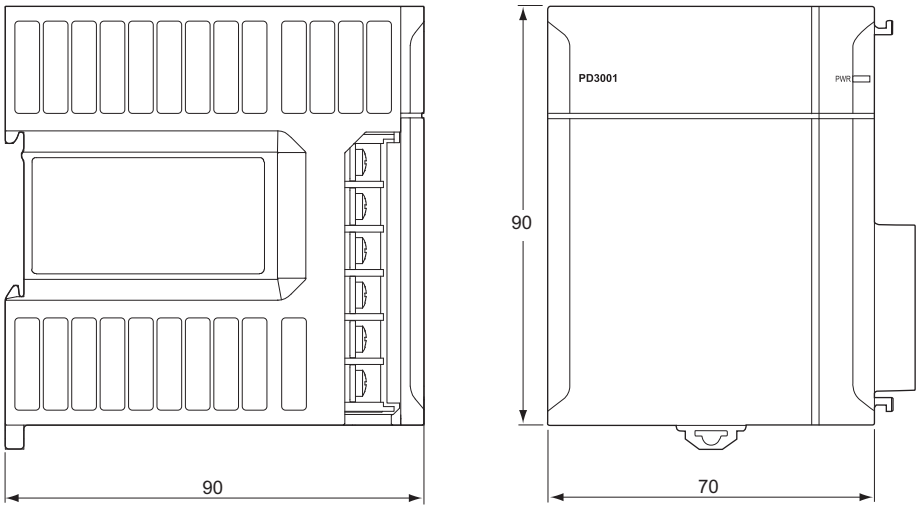
NJ-PA3001

Unit: mm



NJ-PD3001

Unit: mm



A-4 Version Information

A-4-1 Browsers That Have Been Tested and Working

The table below shows the browsers and their versions that have been tested and working with the Web UI of the Data Flow Controller.

Unit version	Browsers and their versions that have been tested and working
Version 1.0	Google Chrome version 139.0.7258.155 Microsoft Edge for Business version 138.0.3351.109
Version 1.1	Google Chrome version 147.0.7727.56 Microsoft Edge for Business version 145.0.3800.82

A-4-2 Functions That Were Added or Changed for Each Unit Version

The table below shows the added or changed functions due to the unit version update.

Function		Added or Changed	Unit version	Reference
Date & Time	Selection of whether to apply time zone settings to data collection	Added	Version 1.1	*6-1 Configuring the Basic Settings* on page 6-2
SpeeDBee Synapse	Version update (from 4.9 to 4.11)	Changed	Version 1.1	*DX-series SpeeDBee Synapse User's Manual (Cat. No. V243)*
	Additional function support	Added		
	Modbus RTU over TCP	Added		
	Little-endian data processing for PLC collector	Added		
	Decimal/Hexadecimal selection for address input specification	Added		
Grafana	Version update (from 11.6 to 12.3)	Changed	Version 1.1	Refer to the manual for Grafana.

A-5 Software: Terms of Use

Please read these terms of use before installing or beginning to use the Software (as defined below).

Chapter 1 General

Article 1 (Purpose)

These terms of use (hereinafter referred to as the “Terms”) are intended to set out the rights and obligations of customers (hereinafter referred to as the “Customer”) who use software provided by OMRON Corporation (hereinafter referred to as the “Company”). The software (hereinafter referred to as the “Software”) includes, regardless of the method of provision (i.e. in the form of installation on various OMRON-manufactured control devices, via download from the Company's designated portal sites, via recording media, or through any other method of provision), computer software; CAD data (including 2D/3D mechanical design CAD and electrical control CAD), programs, documents, technical materials, sample data, and all other files, as well as all improvements and updated versions of programs that may be provided by the Company.

Article 2 (Terms of Use)

1. The Terms set forth the conditions for using the Software, and the conditions specified herein shall apply to the use of the Software.
2. Any additional terms and conditions separately established by the Company in documents or screens relating to products and services descriptions, quotations, orders, etc. (hereinafter referred to as the “Additional Provisions”) shall each constitute part of the Terms (the Terms and Additional Provisions are hereinafter collectively referred to as the “Terms, etc.”). In the event of any discrepancy between the Terms and Additional Provisions, the Terms shall prevail.
3. The Software may include software of any third party other than the Company (including software, modules, libraries, other programs, and improved or updated versions thereof, which may include GNU General Public License, GNU Lesser General Public License, and other open-source software; hereinafter referred to as the “Third-Party Software”). In such cases, the Customer may be required to agree to the terms of use relating to the Third-Party Software in addition to the Terms, etc. When the Customer agrees to the terms of use relating to the Third-Party Software in using the Software, the Customer shall be bound by such terms of use relating to the Third-Party Software in addition to the Terms, etc..

Article 3 (Amendment of the Terms, etc.)

The Company may amend the Terms, etc. when it deems necessary due to the enactment or revision of laws and regulations, or for other reasons. The Company will notify the Customer of the amendment to the Terms, etc., the content of the amended Terms, etc. and the effective date of the amendment at least two (2) weeks prior to the effective date, by use of the notification method specified in Article 4. The Terms, etc. shall be amended upon the arrival of the effective date specified by the Company.

Article 4 (Notification Methods)

1. Notices from the Company to the Customer shall be made by posting on the designated webpage related to the Software, sending by email, or by any other method the Company deems appropriate, except as otherwise specified in the Terms.

2. The notices referred to in the preceding paragraph shall be deemed to have reached the Customer at the following times:
   1) In the case of posting on a webpage, when the information posted on such webpage becomes available for the Customer to view (regardless of whether the Customer actually viewed it).
   2) In the case of transmission by email, when the email is recorded on the email server of the email address registered by the Customer with the Company.

Chapter 2 Registration for Use

Article 5 (Application for Use)

1. When commencing use of the Software, the Customer shall, in accordance with the procedures specified by the Company, complete member registration, agree to the content of the Terms, etc., and download and use the Software.
2. The Company may immediately suspend the license to use the Software for any Customer whom the Company determines to be inappropriate as a member.

Article 6 (Changes to Registered Information)

1. The Customer shall promptly notify the Company of any changes to name, address, email address, credit card number or expiration date, or any other information provided to the Company, by use of the method specified by the Company.
2. The Company shall not be liable for any damages or other disadvantages incurred by the Customer as a result of the Customer's failure to provide the notification referred to in the preceding paragraph.

Article 7 (Prohibition of Assignment of Rights and Obligations)

The Customer does not have any rights to and may not assign, change the name of, transfer, or otherwise dispose of, or provide as security, any rights or obligations related to the use of the Software, to any third party.

Chapter 3 Conditions for Software Use

Article 8 (Grant of License)

1. The Company hereby grants the Customer a non-transferable, non-sublicensable, and non-exclusive license to use the Software. However, the Company shall not be obligated to provide the Customer with improved versions of the programs relating to the Software, correct program errors (bugs) in the Software, or perform other updates.
2. The Customer may reproduce the Software solely for backup purposes, provided that any backup copies must include all copyright information or other proprietary notices contained in the original Software.
3. In order to use the Software, the Customer may be required to apply for and enter into a separate service agreement for services separately designated by the Company.
4. All intellectual property rights including copyrights, ownership rights, and any other right relating to the Software belong to the Company or third parties who have granted licenses to the Company, and shall not be transferred to Customer under the Terms, etc..

5. The Company may modify the specifications of the Software (including its interface, configuration, and content) without any prior notice. Furthermore, the Company shall not guarantee binary compatibility after such modification.

Article 9 (Usage Environment)

1. The use of all or part of the Software may require an Internet connection environment and communication devices, software, and other ancillary equipment with specifications separately determined by the Company. The Customer shall set up and prepare all such connection environments, terminals, and equipment at the Customer's own responsibility and expense.
2. The Customer shall implement security measures appropriate to the Customer's own usage environment, such as preventing computer virus infections, unauthorized access, and information leaks. The Company shall not be involved in the Customer's usage environment in any way and shall assume no responsibility therefor.

Article 10 (Disclaimer)

1. THE SOFTWARE IS PROVIDED "AS IS." THE COMPANY MAKES NO WARRANTIES, EXPRESS OR IMPLIED, REGARDING THE SOFTWARE TO THE CUSTOMER, INCLUDING BUT NOT LIMITED TO THE ABSENCE OF DEFECTS OR ERRORS (BUGS), MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THIRD-PARTY RIGHTS.
2. THE COMPANY SHALL NOT OBLIGATED TO CORRECT ANY ERRORS (BUGS), MALFUNCTIONS, OR DEFECTS IN THE SOFTWARE, REGARDLESS OF SPECIFICATION CHANGES TO THE SOFTWARE OR FOR ANY OTHER REASON.
3. EVEN IF ANY DAMAGE OCCURS TO THE CUSTOMER AS A RESULT OF MODIFICATIONS OR ALTERATIONS MADE BY THE CUSTOMER TO THE SOFTWARE, THE COMPANY SHALL ASSUME NO RESPONSIBILITY WHATSOEVER.
4. EVEN IF ANY DAMAGE OCCURS TO THE CUSTOMER AS A RESULT OF USING THE SOFTWARE, THE COMPANY SHALL ASSUME NO RESPONSIBILITY WHATSOEVER.
5. REGARDLESS OF WHETHER THE COMPANY WAS NOTIFIED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGE, THE COMPANY SHALL ASSUME NO RESPONSIBILITY FOR ANY ORDINARY, SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES INCURRED BY THE CUSTOMER AS A RESULT OF ERRORS (BUGS) OR OTHER DEFECTS IN THE SOFTWARE AND THIRD-PARTY SOFTWARE.
6. IN THE EVENT OF ANY DISPUTE ARISING BETWEEN THE CUSTOMER AND A THIRD PARTY ARISING FROM OR IN CONNECTION WITH THE USE OF THE SOFTWARE, THE CUSTOMER SHALL RESOLVE SUCH DISPUTE ON ITS OWN. FURTHERMORE, EVEN IF THE CUSTOMER SUFFERS ANY DAMAGE AS A RESULT OF SUCH DISPUTE, THE COMPANY SHALL ASSUME NO RESPONSIBILITY WHATSOEVER.

Chapter 4 Customer's Obligations

Article 11 (Prohibited Acts)

When using the Software, the Customer shall not engage in any of the following acts or acts that may result in any of the following acts:

(1) Reproducing or copying all or part of the Software not in accordance with the conditions set forth in the Terms, etc.;

(2) Decompiling, disassembling, reverse engineering the Software, or similar acts thereto;

(3) Removing or modifying copyright notices or other intellectual property rights notices attached to the Software;
(4) Selling, transferring, lending, licensing, or otherwise allowing third parties to use the Software;
(5) Incorporating all or part of the Software into other software;
(6) Modifying, adapting, distributing, lending, publicly transmitting, sublicensing, leasing, or otherwise using the Software beyond the scope explicitly permitted under the Terms, etc.;
(7) Exporting the Software or copies thereof in violation of export control regulations of any country;
(8) Acts that violate the Terms, etc., laws and regulations, or public order and morals; or
(9) Other acts deemed inappropriate by the Company.

Article 12 (Measures Upon Termination)

1. When the Customer terminates use of the Software, the Customer shall, at its own expense, stop operation of and delete the Software program and all copies thereof.
2. Upon terminating use of the Software, the Customer may be required to download and apply a termination license key designated by the Company. The Customer acknowledges and agrees that if the Customer fails to implement such termination measures, the Customer's use of the Software shall be deemed to continue, and the Customer may remain liable to pay the usage fees of the Software to the Company even after the termination.
3. Upon terminating use of the Software, the Customer shall promptly delete the Software and all data managed thereby.

Chapter 5 Term

Article 13 (Term)

When the Company establishes a usage period for the Software, the Customer may use the Software only within the usage period established by the Company.

Article 14 (Termination)

1. If the Company determines that the Customer has violated any provision of the Terms, etc., the Company may terminate the Terms, etc. without prior notice to the Customer.
2. Even in the case set forth in the preceding paragraph, the Customer shall implement the measures specified in Article 12 (Measures upon Termination), and if the Customer fails to implement such measures, the Customer shall be obligated to pay the usage fees of the Software to the Company in accordance with the provisions of Paragraph 3 of the same article.

Chapter 6 Miscellaneous Provisions

Article 15 (Confidentiality)

1. The "Confidential Information" in the Terms means all information which, in connection with the use of the Software and applications for such use, is provided or disclosed by either party to the other party in writing (including electronic means; the same applies hereinafter in this article), orally, or through recording media. Notwithstanding the foregoing, the following shall not constitute the Confidential Information:
   1) Information already possessed by the receiving party at the time of disclosure;
   2) Information that was already publicly known or in the public domain at the time of disclosure;

3) Information that became publicly known or publicly available through no fault of the receiving party after disclosure;
4) Information lawfully obtained without any confidentiality obligations from a third party who has legitimate authority;
5) Information independently developed without reliance on the other party's Confidential Information; and
6) Information confirmed by other party in writing or by other means as not requiring confidentiality.

2. Except as otherwise provided in the Terms, both the Company and Customer shall use, analyze, reproduce, and process the Confidential Information solely for the purposes of using and developing the Software as well as establishing or improving business processes related to the Software, and shall not provide, disclose, or divulge the other party's Confidential Information to any third party without the prior written consent of the other party.
3. Notwithstanding the preceding paragraph, both the Company and Customer may disclose the Confidential Information when required by law, court order, or government agency directive, request or demand. However, when either the Company or Customer received such order, request, or demand, it shall promptly notify the other party thereof.
4. The confidentiality obligations under this article shall remain in effect during the Software usage period and for two (2) years after its termination.

Article 16 (Non-Waiver)
The Company's failure to exercise any right provided in the Terms or Additional Provisions shall not be deemed a waiver of such right.

Article 17 (Severability)
If any provision of the Terms or Additional Provisions is held to be invalid, the remaining provisions shall continue in full force and effect without being affected thereby.

Article 18 (Survival)
Even after the termination of use of the Software, Articles 2 through 4 and Articles 8 through 20 in the Terms shall remain in full force and effect.

Article 19 (Compliance with Laws)
The Customer shall comply with all applicable laws and regulations in connection with the use of the Software.

Article 20 (Jurisdiction and Governing Law)

1. All disputes arising out of or in connection with the application for use of the Software, use of the Software, or the Terms, etc. shall be subject to the exclusive jurisdiction of the Osaka District Court as the court of first instance.
2. The Terms, etc. shall be governed by and construed in accordance with the laws of Japan.

[End]

Appendix
Effective Date: Oct 1 2025

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Kyoto, JAPAN **Contact : www.ia.omron.com**

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