Data Flow Controller
DX1

Simplify data utilization across your production site

Transformation enabler in on-site efficiency and your management strategy utilizing real-time on-site information

The utilization of production site data has been the focus of increasing attention, for its potential application in boosting OEE, improving quality, and reducing GHG emissions, as well as in keeping up with the spread of AI.
In reality, however, at many production sites, data has yet to be sufficiently collected and utilized for optimizing entire equipment.
The Data Flow Controller was created as an edge controller for collecting and visualizing data from equipment running on the production site, and is designed to solve issues on sites struggling with data utilization.

Facing these challenges in production site data utilization?

Lack of know-how for retrieving / fully utilizing data

Data to retrieve/view differs depending on equipment/user

Equipment needs to be stopped to start data utilization, which is a barrier to implementation

The three values the Data Flow Controller provides to resolve data utilization issues on the production site

A quick and easy start to data utilization, **for anyone** P4

· Easy connection to existing equipment via Ethernet cable
· Zero tool installation
· Flow editor that can be used with zero programming
· Videos for easy setup
· Easy-to-handle time-series data

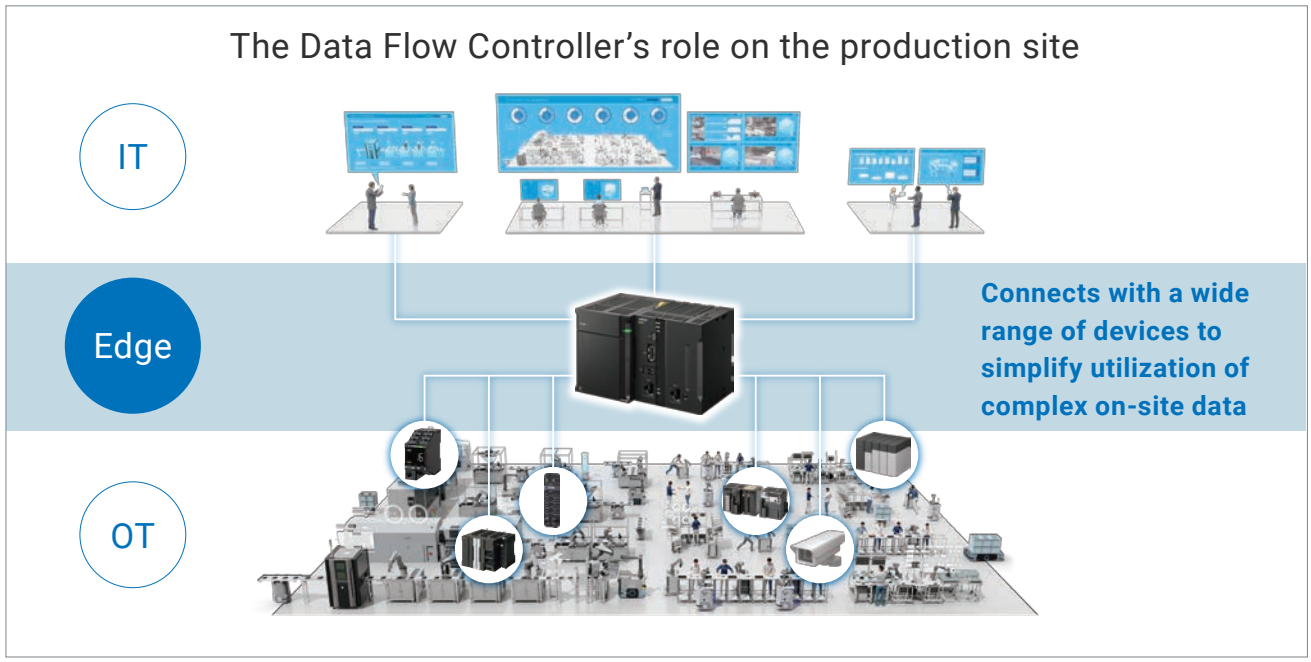
From **templates** to **customization** —solutions for every level P8

· Templates that enable immediate retrieval of critical indicator data
· Complex/advanced customization also supported

Implementation with **zero equipment downtime** P10

· Retrofit support even for equipment using non-OMRON PLCs
· Smooth transition from pre-implementation evaluation to rollout

The Data Flow Controller's role on the production site



A quick and easy start to data utilization, **for anyone**

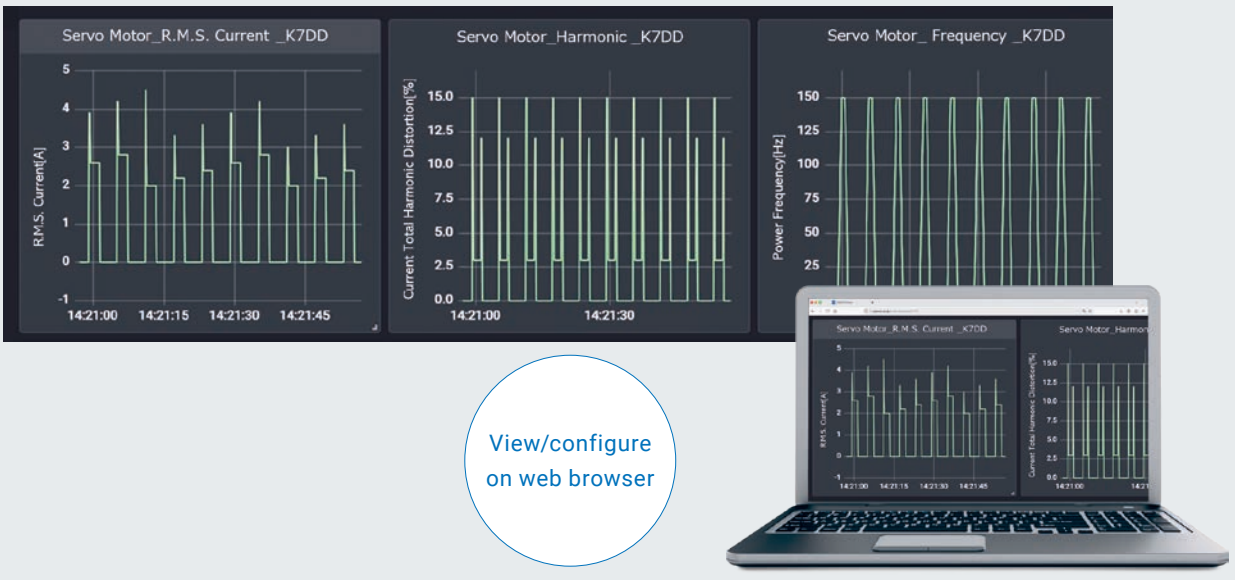
The Data Flow Controller empowers on-site staff to start data utilization on their own, even if they’re unfamiliar with programming languages or control programs.

Easy connection to existing equipment via Ethernet cable

The Data Flow Controller can be retrofitted easily with Ethernet cables—no need to rewire your existing equipment.

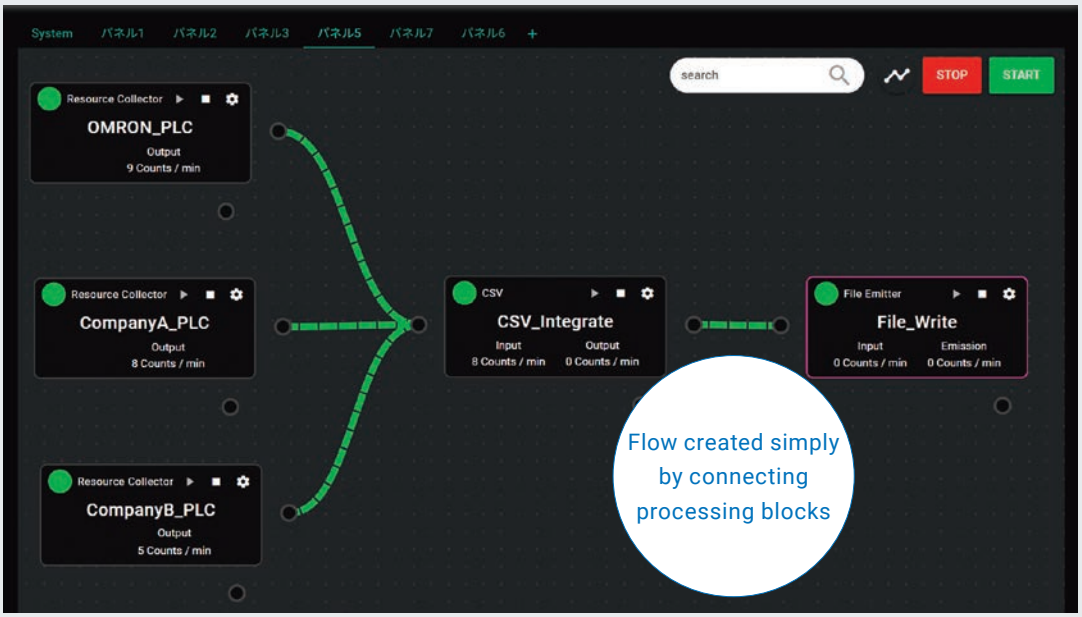
Zero tool installation

SpeeDBee Synapse, a data collection/utilization tool built into the Data Flow Controller, and the Chart Display Tool are both browser-based. They don’t need to be installed to your PC, and can be viewed and configured anytime, anywhere.



Flow editor that can be used with zero programming (no-code)

The Data Flow Controller's flow editor lets you create data processes (data flows) just by connecting the processing blocks (components) you need with lines.Processes for collection, analysis, transmission, integration, etc. can be created intuitively, making designing accessible even to those unfamiliar with programming.



Videos for easy setup

We provide tutorial videos for a range of Data Flow Controller operations, from first-time login to troubleshooting—with even more to come.

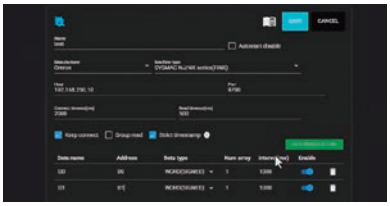
https://www.fa.omron.co.jp/dx1/video-manual/en/

Video Examples

First-time login

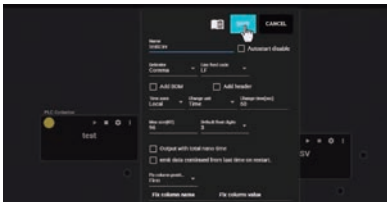
Describes first-time login operations via web browser, following connection of Data Flow Controller to PC.

Creating/configuring PLC Collector



Describes configuration operations for collecting data from OMRON PLCs using PLC Collector.

Creating/configuring CSV Serializer



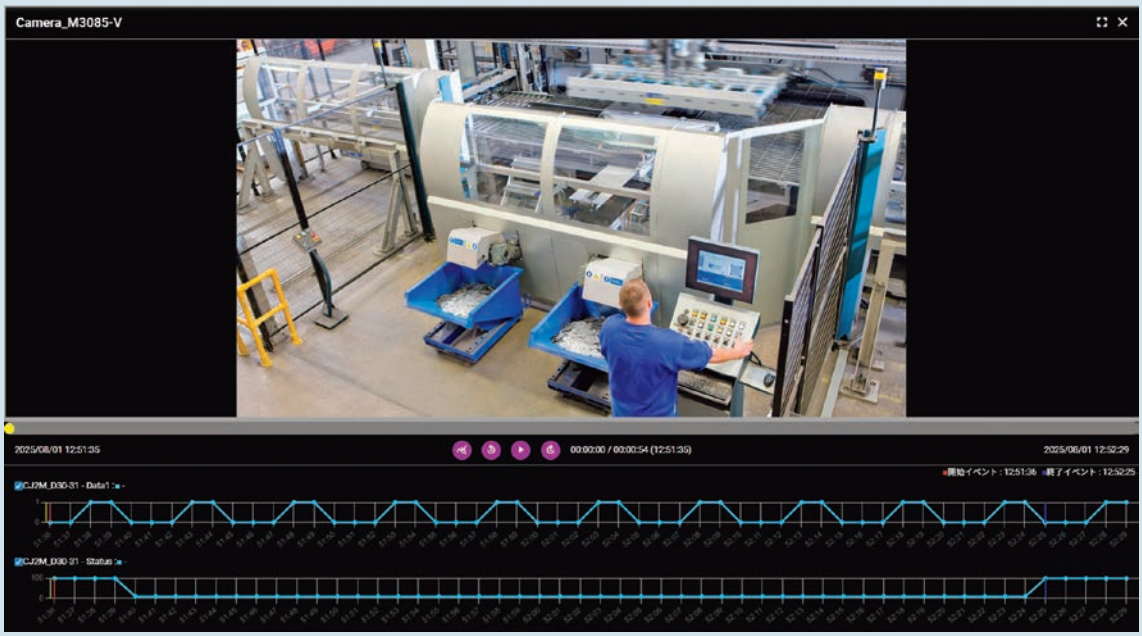
Describes how to convert collected data to CSV format using CSV Serializer.

A quick and easy start to data utilization, **for anyone**

Easy-to-handle time-series data

Data from different devices, including non-OMRON PLCs, can be collected in time-series format.
Data can also be viewed together with corresponding video. This allows you to examine equipment behavior upon issue occurrence, making data analysis and identification easier.

*1. Refer to page 10 for information on non-OMRON PLCs.



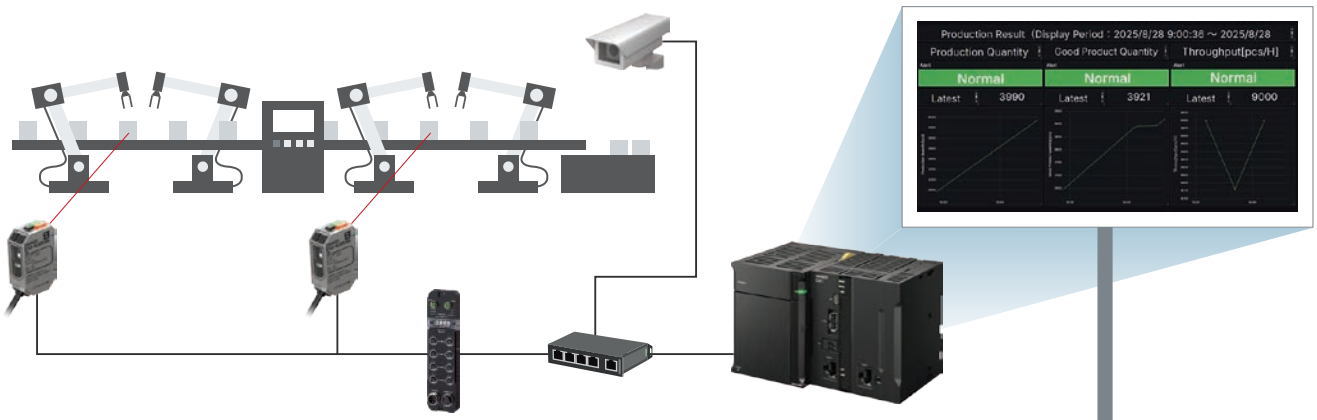
Data collected in time-series format displayed with video for easy analysis

From **templates** to **customization** —solutions for every level

To make data utilization easier, the Data Flow Controller has a built-in package, including templates for critical indicators. It can also be customized for more advanced data utilization that the templates may not cover.

Templates that enable immediate retrieval of critical indicator data

Start your data utilization journey smoothly by simply connecting the specified devices[*1] and selecting packages pre-installed to the Data Flow Controller.



Data utilization can be started just by connecting specified devices and with minimal configuration

Data Flow Controller
Built-in package

Real-time indicator visualization that connects the production site and management

Indicators that are of interest to management and actual data handled on the production site are visualized so that their correlation is apparent, leading to shared understanding based on quantitative figures.

One-stop support that covers everything from issue identification to action recommendation

The Data Flow Controller enables an environment that keeps the improvement cycle rolling. It automatically records and accumulates data and video from the moment signs of fault/stoppage are detected, providing valuable reference material for devising solutions.

Complex/advanced customization also supported

Customization using PythonTM and C—for connection with PLCs provided by non-OMRON suppliers, complex calculations, communication via unsupported protocols, and other system-specific features are covered.

*1. For the connected devices of each package, refer to the data sheet of the Data Flow Controller DX1 (Cat. No. V305)

Effective on their own that can also work together to drive improvement

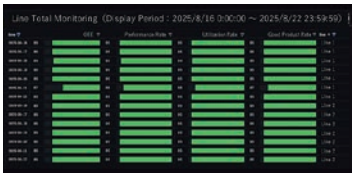
The Packages helps you track uptime, identify stoppage causes, and make improvements. It coordinates four separate packages to visualize everything from individual equipment and devices to the factory at large along the same timeline, and links KPIs with on-site operations. Each package can also be individually implemented, allowing you to start small according to the specific needs of your production site.

Visualization

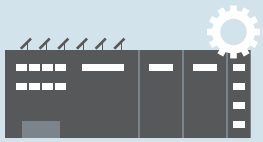
Management

Visualization of operation status across entire factory

This package visualizes indicators such as OEE and yield rate for each production line, allowing you to immediately identify lines with problems.



Factory Monitoring Package

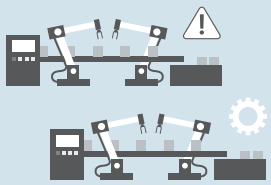


Production site

Automatic visualization of equipment operation

This package visualizes the OEE, yield rate, and cycle time of each equipment, in real time.

Equipment Monitoring Package

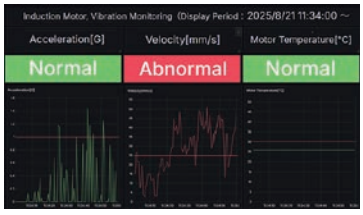


Drill down to identify the cause

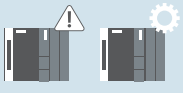
Analysis

Easy visualization of status monitoring data

This package collects data from K6/K7 Series*1 devices and enables easy visualization of deterioration trends. It also sends out alerts to promptly notify anything out of the ordinary to help you optimize your maintenance timing.

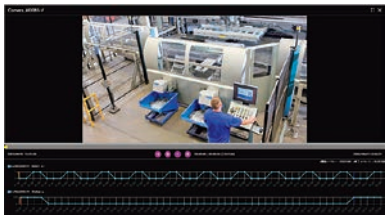


Status Monitoring Package



Recording of video before/ after fault that can be played back later

This package enables the visualization of site conditions upon fault occurrence, which can be useful in recurrence prevention and in sharing issue information. When the PLC issues an alert, cameras are automatically triggered to accumulate video of before and after the fault.



Event-triggered Video Logging Package

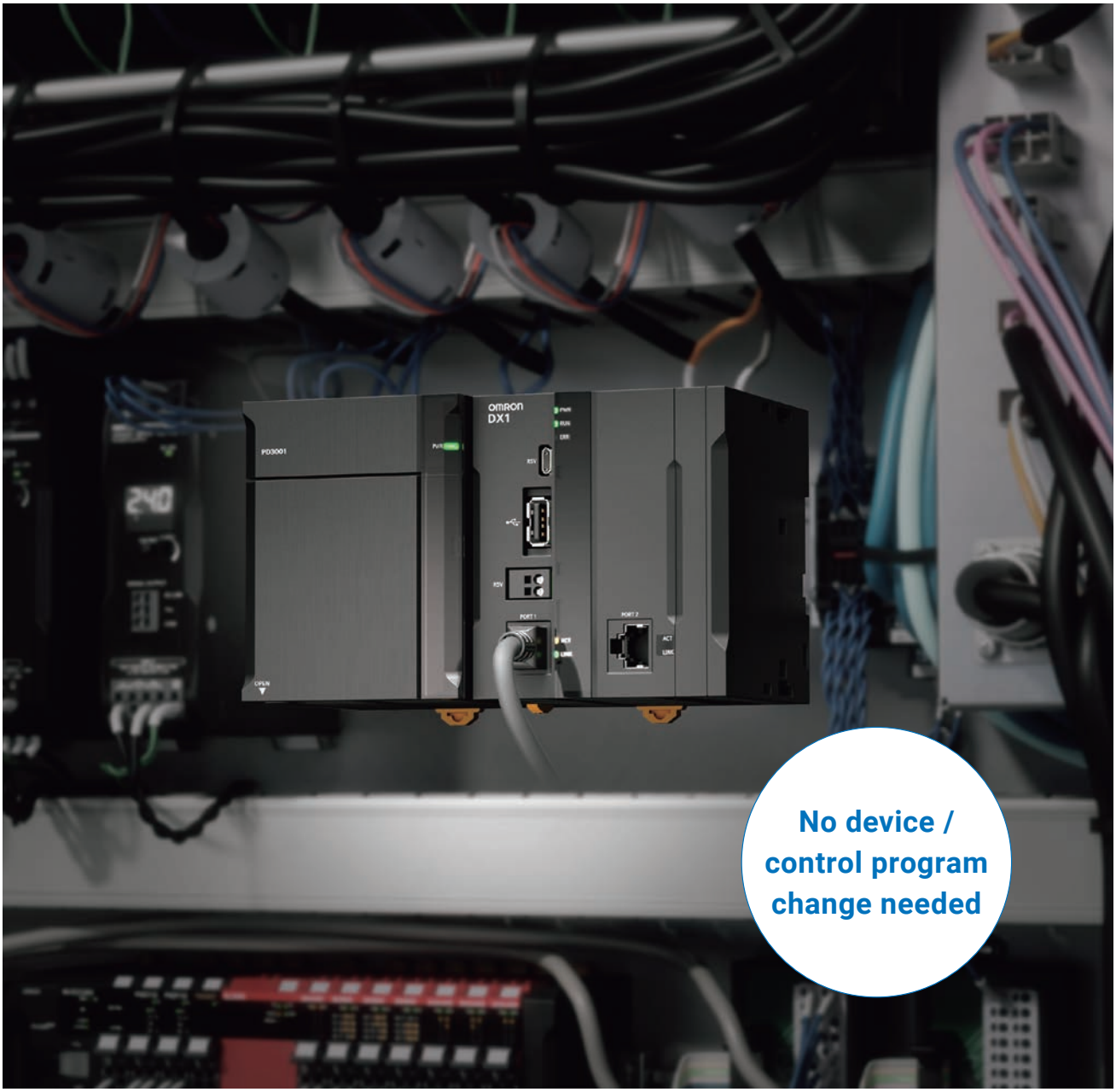
*1. Devices for monitoring the status of motors, temperatures, insulation, and heaters

Implementation with **zero equipment downtime**

The Data Flow Controller can be retrofitted without stopping your equipment, allowing you to start data utilization smoothly and without impacting productivity.

Retrofit support even for equipment using non-OMRON PLCs

The Data Flow Controller supports an extensive array of communication methods and requires no replacement of devices or control programs. This means that you can start data utilization with your equipment kept running, even when using a non-OMRON PLC.



Supported PLCs

Mitsubishi Electric Corporation	: MELSEC-series
JTEKT Corporation	: TOYOPUC-series
KEYENCE CORPORATION	: KV-series
Panasonic Industry Co., Ltd.	: FP-series
OMRON Corporation	: NJ/NX-series, CK-series, CS/CJ/CP-series and NSJ-series

Note: Refer to the DX-series SpeeDBee Synapse User's Manual (Cat. No. V243) for details.
Some of the above models may not be connectable.

Smooth transition from pre-implementation evaluation to rollout

You can get a feel of the Data Flow Controller before actually purchasing it, by trying out its trial version. Support is available at locations across the world, allowing you to embark on your data utilization journey with confidence.

Assessment

Purchase

Design/ Commissioning

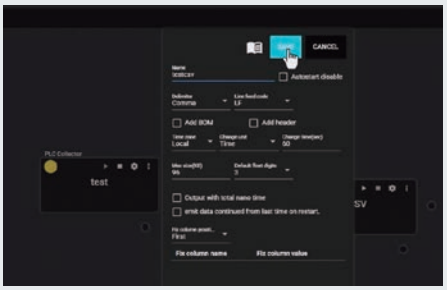
Operation

Trial version

We offer a Windows trial version that lets you get a feel of the Data Flow Controller before purchasing it. The flows you design with the trial version can be used as-is in the purchased product upon its commissioning.

Tutorial Video

We provide tutorial videos for a range of Data Flow Controller operations, from first-time login to troubleshooting.



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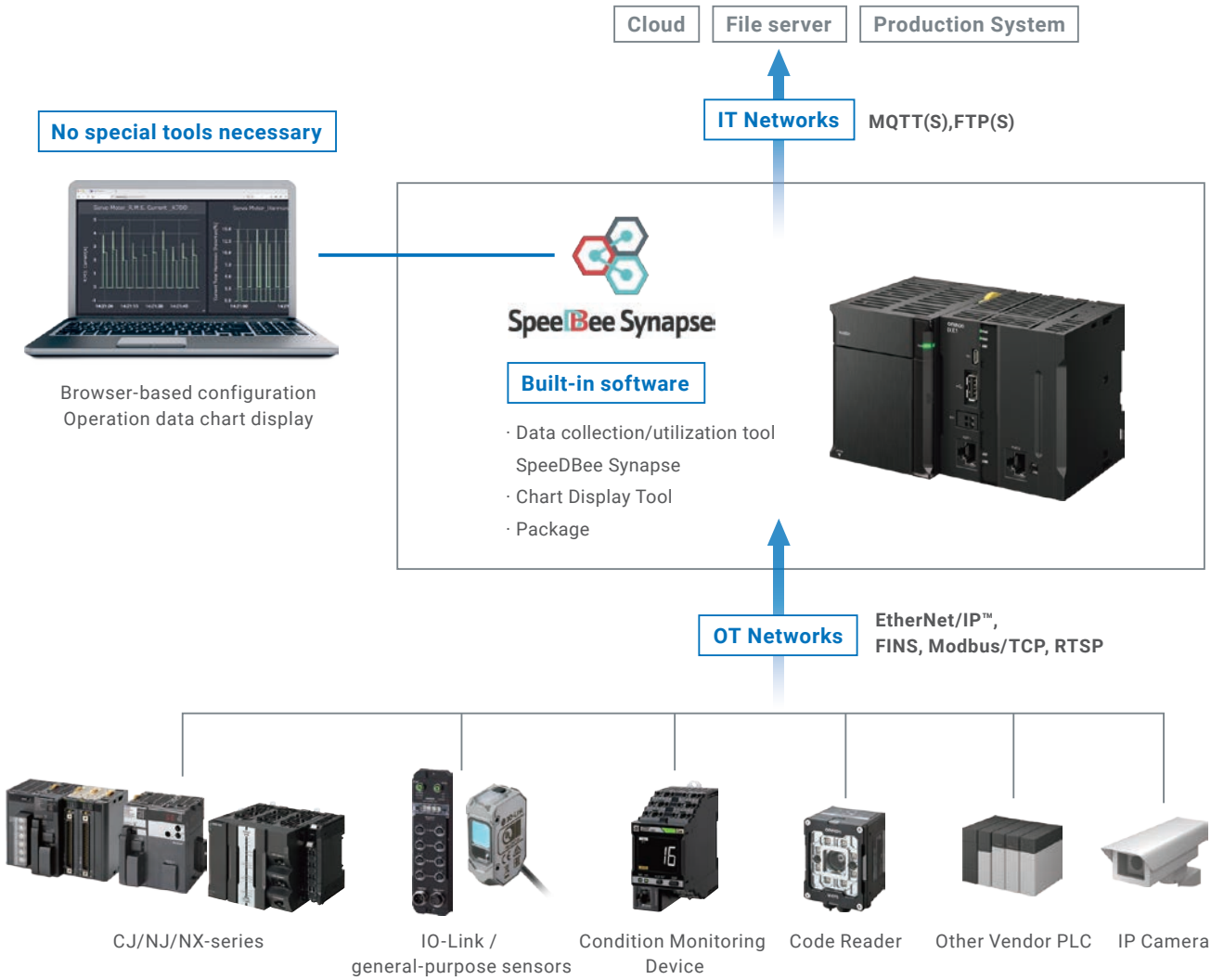
Global support

We offer support at our locations across the globe to assist our customers in their commissioning and operation efforts.

Key advantages of the Data Flow Controller

The Data Flow Controller provides a simple path to production site data utilization, through its built-in software that requires no special tools and broad support of networks that integrate IT and OT.



Ordering Information

CPU Unit

Product name	Specifications		Model
	Communications	Built-in software	
DX-series CPU Unit 	2 Ethernet ports, 1 USB port	• Data collection: SpeeDBee Synapse • Chart Display Tool • Package: Equipment Monitoring Package Factory Monitoring Package Status Monitoring Package Event-triggered Video Logging Package	DX100-0010

For detailed specifications and information about the power supply unit, refer to the data sheet of the Data Flow Controller DX1 (Cat. No. V305)

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Product Inquiries (For DX-series):

DataPF-contactdesk-OC@omron.com

Inquiry response days: Excluding Saturdays, Sundays, and December 31 to January 3 (based on Japan Standard Time)

Note: Do not use this document to operate the Unit.

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