azbil

No. CP-SP-1457E

# User's Manual

## for Loader Package

### **Model MLP-F4Q**

# for Digital Mass Flow Controller

**Model F4Q** 



Thank you for purchasing this Azbil Corporation product. This manual contains information for ensuring the correct use of the Loader Package.

It should be read by those who design, set up, or maintain equipment that utilizes this product. This manual is necessary not only for initial setup, but also for changing settings and for troubleshooting. Be sure to keep it nearby for handy reference.

### **Azbil Corporation**

#### NOTICE

Please make sure that this manual is available to the user of the product.

Reproduction or transmission of this user's manual, in whole or in part, is prohibited. The information and specifications in this manual are subject to change without notice.

Considerable effort has been made to ensure that this manual is complete and accurate, but if you should find an omission or error, please contact us.

Please understand that we cannot in some cases accept responsibility for the results of the use of this equipment by the customer.

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### **Conventions Used in This Manual**

■ The safety precautions explained below aim to prevent injury to you and others, and to prevent property damage.



■ In describing the product, this manual uses the icons and notations listed below.

! Handling Precau	tions:
	Information to be aware of when handling.
Note:	Indicates information that may be useful.
	Indicates an item or page to which the user may refer.
(1) (2) (3):	Steps in a sequence or parts of a figure, etc.
[OK] button	A button displayed on a PC screen
[File]	Messages and menus displayed on a PC screen
$[File] \rightarrow [Initialization]:$	Refers to the operation of selecting [File] and then [Initialization] on a PC screen.
»:	This indicates the result of an operation or the state after the operation.
Ctrl, A:	Indicates keys on the keyboard.
Ctrl + A:	Refers to the operation of pressing the A key while holding down the Ctrl key on the keyboard.

### The Role of This Manual

There are four different manuals related to the MLP-F4Q. Read them as necessary for your specific requirements. If a manual you require is not available, contact the azbil Group or one of its dealers.



# User's Manual for Loader Package Model MLP-F4Q for Digital Mass Flow Controller Model F4Q

This manual.

The user can specify and view parameters of the F4Q on a PC using the MLP-F4Q loader. Those who set up or check the F4Q using the loader should read this manual thoroughly.

The manual describes installation of the loader on a PC, various loader functions, and how to use them.



#### Digital Mass Flow Controller Model F4Q User's Manual

Document No. CP-SP-1461E

Document No. CP-SP-1457E

Personnel who are using the F4Q for the first time or who are in charge of hardware design or maintenance of a control panel containing the F4Q should read this manual thoroughly.

This manual gives an overview of the product, describes installation, wiring, operation, various functions, maintenance, and troubleshooting, and gives hardware specifications.

### Digital Mass Flow Controller Model F4Q User's Manual for RS-485 Communication Functions

#### Document No. CP-SP-1458E

Personnel who use this device's communications functions should read this manual. The manual gives an overview of communications, describes wiring, transmission protocols, communications data, and troubleshooting for communication errors, and gives communications specifications.



#### Digital Mass Flow Controller Model F4Q User's Manual

#### Document No. CP-UM-5978JECK

This manual is supplied with the F4Q.

Personnel in charge of the design or manufacture of equipment that incorporates the F4Q and personnel in charge of installation of this device should read this manual thoroughly.

The manual covers safety precautions, installation, wiring, and main specifications.

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# **Chapter 1. Introduction**

### 1-1 Overview

The MLP-F4Q Loader Package for F4Q series digital mass flow controllers is a simplified engineering tool for F4Q series digital mass flow controllers (hereafter "the device"). With the loader, the user can configure various settings of the F4Q, monitor the flow rate and the operational status, and perform other operations. This software runs on Windows 10 (64-bit Japanese/English version) or Windows 11 (Japanese/English version) PCs.

Features of the Loade	er
	The loader has the following functions:
Configuration	
	Various settings can be read from the device, checked or edited, and written to the device. In addition, parameter files can be created when the loader is not connected to the device.
Monitoring	
	The operational status of the device and alarms can be checked. The settings for parameters that are shown with a [Write] button can be immediately written to the device while monitoring.
Monitoring trend data	
	The values measured by the device can be displayed in a graph.
Device operation	
	Various device operations are possible.
• File functions	
	Various settings and monitored data can be saved to a file. Saved files can be opened to check the data.
• Tools	

Convenient functions of the loader are available.

### 1-2 System Requirements

The following system environment is required for use of the loader.

#### System Environment

ltem	Description				
РС	Compatible equipment	A PC which can run Windows 10 or Windows 11 Recommended: 1.5 GHz or faster processor. Minimum: 1 GHz			
	Operating system*1*2	Windows 10 (64-bit Japanese/English version) Windows 11 (Japanese/English version)			
	Memory	Recommended: 4 GB or more. Minimum: 2 GB			
	Hard disk	Recommended free space: 20 GB or more. Minimum: 10 GB			
	Display	Recommended: 1366 $\times$ 768 or more, 32-bit color or more			
	(For Japanese version:) Japanese input system	Japanese keyboard			
	Pointing device	A mouse or an equivalent device compatible with Windows.			
	USB port	At least 1 port (needed for connection to the device)			
Software	Adobe Acrobat Reader DC or later version Required for reading manuals in PDF format. If this software is not installed on the PC, download it from the Adobe website and install it.				

\* 1. The performance of the loader cannot be guaranteed if it is used on other operating systems.

\* 2. Microsoft .NET Framework 4.6 or later, which is required for this loader, is preinstalled with Windows 10 or Windows 11.

### Hardware Configuration

### Note

• CP Digital Mass Flow Controller Model F4Q User's Manual (document No. CP-SP-1461E)(for details on the hardware configuration)

### 1-3 Installation

Download the installer for the loader from the following website:

https://aa-industrial.azbil.com/en/home/

The installer file is compressed. It must be expanded before use. (Expanded file name example: setup\_MLPF4Q\_ V1\_0\_00.msi)

### Installing the Loader

The following explanation of loader installation and screens uses the English version of 64-bit Windows 10 as an example. For an example of installation on the Japanese version of Windows 10, refer to the Japanese version of this manual (CP-SP-1457).

- (1) Double-click setup\_MLPF4Q\_Vx\_x\_x.msi\* to launch the installer.
  - \* The letter x stands for numbers. Sample filename: setup\_MLPF4Q\_V1\_0\_00.msi
  - MLP-F4Q(F4Q) Setup Welcome to the MLP-F4Q(F4Q) Setup Wizard The Setup Wizard will install MLP-F4Q(F4Q) on your computer. Click Next to continue or Cancel to exit the Setup Wizard. Back Next Cancel
  - » The setup wizard opens.

- (2) Click the [Next] button.
  - $\gg$  The following screen is displayed.

nd-User License Agreeme Please read the following licens To Customers If You have an end user Use have the end user acknowled and conditions contained her herein by the end user is deen This Software may contain s including, but not limited to General Public License (LG of the third party as well to u	nt e agreement e the Softw dge this Agg ein. Any br ned to be a software un o, General	t carefully vare and/or R reement and l reach of the te breach of Yo ader terms an Public licens	elated Docume ave it comply rms and condit u. d conditions o ie (GPL) and	ents, Yo with the tions co of a thir Lessen	ou shall be terms ontained d party, //.ibrary
Please read the following licens To Customers If You have an end user Use have the end user acknowled and conditions contained her herein by the end user is deen This Software may contain s including, but not limited to General Public License (LG of the third party as well to u	e agreement e the Softw dge this Agg ein. Any br ned to be a software un o, General	vare and/or R reement and l reach of the te breach of Yo ader terms am Public licens	elated Docume ave it comply rms and condit u. d conditions o ie (GPL) and	ents, Yo with the tions co	ou shall he terms ontained d party.
To Customers If You have an end user Use have the end user acknowled and conditions contained her herein by the end user is deen This Software may contain s including, but not limited to General Public License (LG) of the third party as well to u	e the Softw dge this Agr ein. Any br ned to be a software un o, General	vare and/or R reement and I reach of the te breach of Yo ader terms an Public licens	elated Docume ave it comply rms and condit u. d conditions o se (GPL) and	ents, Yo with the tions co	ou shall he terms ontained d party, /Library
If You have an end user Use have the end user acknowled and conditions contained her herein by the end user is deer This Software may contain s including, but not limited to General Public License (LG of the third party as well to u	e the Softw dge this Ago ein. Any br ned to be a software un o, General	vare and/or R reement and I reach of the te breach of Yo ader terms an Public licens	elated Docume ave it comply rms and condit u. d conditions o se (GPL) and	ents, Ye with the tions co	ou shall he terms ontained rd party, /Library
	PL). You n se the Softv	nust comply v ware.	with the terms	and co	nditions
✓ I accept the terms in the Licer	nse Agreeme	int			
		10	_	_	

(3) If you accept the software license agreement and wish to install the software, check the check box for [I accept the terms in the License Agreement] and click the [Next] button.

» The following screen is displayed.

MLP-F4Q(F4Q) Setup	-		>
Destination Folder			5
Click Next to install to the default folder or dick Change to choose anothe	r.	5	Ľ
Install MLP-F4Q(F4Q) to:			
C:\Program Files (x86)\Azbil MLP\			
Change			
	_		

### 📖 Note

- Click the [Change...] button to change the destination folder.
- (4) Click the [Next] button.
  - $\gg$  The following screen is displayed.

🕼 MLP-F4Q(F4Q) Setup			_		×
Ready to install MLP-F4Q(F4Q)				e	Ð
Click Install to begin the installation. Click settings. Click Cancel to exit the wizard.	Back to rev	iew or change any	/ of your ir	nstallation	
	<u>B</u> ack	<u>I</u> nstall		Cano	el

(5) Click the [Install] button.

» When installation is complete, the following screen is displayed.



### ! Handling Precautions

- A warning message about user account control might appear, depending on the PC settings. Allow the software to make changes to the computer.
- (6) Click the [Finish] button.This completes the loader installation. Close the installer.
- (7) If the installation files are no longer needed, delete the entire folder.

### 1-4 Uninstallation

### Uninstalling the Loader

- (1) Right-click the [Start] button and select [Apps & Features].
  - $\gg$  The following screen is displayed.

← Settings		- 🗆 X
<b>命</b> Home	Apps & features	
Find a setting	Microsoft Corporation	6/3/2021
Apps	Mail and Calendar Microsoft Corporation	4.09 MB 6/3/2021
IΞ Apps & features	Maps Microsoft Corporation	8.00 KB 6/3/2021
Er Default apps	Microsoft Edge	11/18/2020
印 <u></u> Offline maps	Microsoft Edge Update	11/18/2020
Apps for websites	Microsoft OneDrive	120 MB
□ Video playback		6/3/2021
☐ Startup	Microsoft Solitaire Collection Microsoft Studios	8.00 KB 6/3/2021
	Microsoft Store Microsoft Corporation	<b>16.0 KB</b> 6/3/2021
	Mixed Reality Portal Microsoft Corporation	8.00 KB 6/3/2021
	Movies & TV Microsoft Corporation	8.00 KB 6/3/2021

- (2) Select [MLP-F4Q (F4Q)] from the list of apps in the right-hand pane and click it.
  - $\gg$  The following screen is displayed.

Settings		-	×
	Apps & features		
Find a setting	P Morosoft Bige	100.0000	
Appro	Microsoft Edge Update	in all and	
E Apps & features		11/18/2020	
5 Default apps	Microsoft OneDrive	120 MB 6/3/2021	
0 Offline maps	Microsoft Solitaire Collection Microsoft Studios	8.00 K8 6/3/2821	
D Apps for websites	Microsoft Store Microsoft Convention	24.0 KB	
3 Video playback	Mixed Reality Portal	8.00 KB	
P Startup	Microsoft Corporation	6/1/2021	
	10.0	7/30/2021	
		Modily Uninstall	
	Movies & TV Microsoft Corporation	8.00 K8 6/3/2821	
	Office	72.0 KB	

(3) Click the [Uninstall] button. The program and related files will be deleted.

### **!** Handling Precautions

• A warning message about user account control might appear, depending on the PC settings. Click the [Yes] button to allow the software to make changes to the computer.

### **!** Handling Precautions

- Do not unplug the communication cable from the PC while the loader is running. Doing so may cause faulty loader operation.
- Before starting the loader, close all other application software. Otherwise, the loader may not work properly due to a particular combination of applications and/or drivers.
- In the Windows settings, open [Control Panel] → [Region] and then press the [Additional settings] button to check that "." is set for [Decimal symbol]. If any other symbol is set, the loader will not work properly.
- Check the Windows power option settings to make sure that the PC will not automatically enter sleep mode. If the PC enters sleep mode, communication with the device will stop.
- For details on Windows and PC settings, refer to the user's manuals provided with Windows and your PC.

#### Starting the Loader

Double-click the [MLP-F4Q (F4Q)] icon on the desktop, or click the [Start] button at the bottom left of the screen and select [All Apps]  $\rightarrow$  [Azbil MLP]  $\rightarrow$  [MLP-F4Q (F4Q)].

>> The following splash screen is displayed for 3 seconds and then the basic loader screen is displayed.



🕅 Note

• For details on the OS or the mouse, see the user's manuals provided with those products.

#### Exiting the Loader

Select [File]  $\rightarrow$  [Exit] or click the [X] icon in the upper right corner of the screen.

>>The loader closes.

Chapter 2. Starting and Exiting the Loader

### 3-1 Overview

#### Overview of Functions

Connect the loader to the device in order to change the parameter settings, monitor measured values and various statuses, display trends (graphs), and perform other operations (flow rate zero adjustment, etc.). Parameter settings and monitoring results can be saved to a file. The saved parameter file can be opened to check the data, and parameter settings can be written to the device. In addition, with the device not connected, it is possible to edit new parameter settings, save them to a file, and connect the device afterward to write the settings to the device.

### **!** Handling Precautions

- As a result of internal calculation (rounding), the value of the least significant digit displayed on the loader might differ from the value that the device has internally.
- As a result of internal calculation, the least significant digit near either the range high or range low limit may be judged to be outside the range limit, with the result that the number cannot be input.



Parts	ot	the	Scr	een

Name	Description		
Menu bar	All functions of the loader can be accessed from here by selecting any of the menus with the mouse or keys.		
Toolbar	lcons for frequently used functions of the loader are provided for easy access to the necessary function.		
Tab	Each tab shows a group of items related to a specific function or purpose. Clicking any of the tabs displays the parameters or various values related to the function or purpose. Parameters : Displays the device parameters. You can change their settings on this tab. Monitor : Displays data such as device process values and abnormal statuses. Trend : Displays the values measured with the device and various statuses in graph format.		
Tree view	Items on the tab are grouped by device function. When any of the groups is selected, related device information is displayed in the panel view.		
Panel view	Information on the device (status, parameters, etc.) is displayed. Parameter settings can be changed, with the exception of items that are grayed out.		
Status bar	The status of communications between the loader and the device is displayed.		

### Loader Functions

The table below shows the functions of the loader. They can be executed from the menu bar.

The functions with icons can also be executed from the toolbar.

For device information and a list of parameters, refer to the user's manual for the device.

Menu bar			Querrie d'Annations		
Menu	Submenu 1	Submenu 2	Overview of functions	loolbar	Shortcut key
File	New	-	While the loader is not connected to the device, this function creates a file of parameter settings to be written to the device later.	ß	Ctrl+N
	Open	-	Reads parameters that were saved to a file and displays them on the loader screen. The parameters can be changed and written to the device.		Ctrl+O
	Save	-	Save (overwrite) the parameter settings in the file opened with the current settings.		Ctrl+S
	Rename and save	-	Saves the current parameter settings to a file.		Shift+Ctrl+S
	Exit	-	Ends the loader program.	-	Alt+F4
Online	Parameter	Read all parameters from device	Reads device information and parameters from the device.	<b>†</b>	F1
		Write parameters to the device	Only the parameter settings are written to the device. Device information cannot be written. Parameter settings cannot be written if the model No. of the connected F4Q differs from the number set in the loader.	+	F2
	Monitor	Start monitoring	Reads the process value and device status from the device and updates the monitoring display.	₽₽	F4
		End monitoring	Ends updating of values on the monitor screen.	₽₽	F5
		Output CSV file	Outputs monitoring results to a CSV file.	CSV	F6
	Trend	Trend settings	Sets variables for trend operation.	₩.	F7
		Start recording trend	Starts trend recording.	<b>₽</b>	F8
		Stop recording trend	Ends trend recording.	2	F9
	Device operation		Various device operations are available to the user.	-	-
Tools	High-speed PV/MV sampling	Output sampling results to CSV file	Outputs high-speed PV/MV sampling results to a CSV file.	-	Ctrl+F7
Settings	Comm. settings	-	Communication settings of the loader can be changed.		Ctrl+G
	Language	Japanese	Switches the loader display language to Japanese.	-	-
		English	Switches the loader display language to English.	-	-
Help	Documents	-	Displays various documents stored in the specified folder.	-	-
	Version information (A)	-	The version information for the loader, etc., is displayed.	-	-

\* Adobe Acrobat Reader XI or a later version is required to view the document.

### **3-2** Connecting the Loader to the Device

In order to view or change the data on the device, the loader must first be connected to the device.

The steps are as outlined below.

Step 1: Connect the PC to the device.

Step 2: Start the loader.

Steps 3–4: Set the communication conditions.

### Procedures for Device Connection

In order to connect the loader to the device, it is necessary to specify communication settings for the loader.

- (1) Turn the device on.
- (2) Connect the device to the PC.
- (3) Start the loader according to chapter 2.
- (4) Select [Settings]  $\rightarrow$  [Comm. settings] on the menu bar.

F MLP-F4Q Version 1.0.0							
File(F) Online(O)	Tools(T)	Settings(S)	Help(H)		_		
🕒 New 💼 Ope	n 🗖 Sa	Comm.	settings(C)	Ctrl+G			
Parameters		Langua	ge(L)		٢		
					_		

F Comm. Settings	5	×
COM port		$\sim$
Baud rate	38400	$\sim$
Parity bits	EVEN	$\sim$
Stop bits	1	$\sim$
Bit length	8 bits	
Timeout period	1000	msec
No. of retries	1	
Device address	1	
ОК	Cancel	

(5) In the COM port field, select the COM number for the USB cable used to connect to the device, and click the [OK] button.

E Comm. Settings X						
COM port		~				
Baud rate	38400	$\sim$				
Parity bits	EVEN	$\sim$				
Stop bits	1	$\sim$				
Bit length	8 bits					
Timeout period	1000	msec				
No. of retries	1					
Device address	1					
ОК	Cancel					

 $\gg$  The window closes.

### 📖 Note

• To identify which of multiple communication ports is used, in Windows select [Control Panel] → [Device Manager] and view [Ports (COM & LPT)] to check the number of the USB communication port to which the device is connected.

📩 Device Manager	-	×
<u>F</u> ile <u>A</u> ction <u>V</u> iew <u>H</u> elp		
> 🚽 Network adapters		^
<ul> <li>         M<sup>O</sup> Other devices     </li> <li>         Ports (COM &amp; LPT)     </li> </ul>		
USB Serial Device (COM3)		- 64
> 🖪 Print queues		
> 🔲 Processors		
> If Security devices		
Software devices		~

### 3-3 Checking and Changing Parameter Settings

Parameter settings can be checked or changed by the following methods.

- $\cdot$  Create a parameter file
- · Open a parameter file
- · Read all parameters from the device\*

Changed parameters can be written to the device or saved by the following methods.

- · Write all parameters to the device\*
- $\cdot$  Save the file
- $\cdot$  Rename and save the file

\* It is necessary to connect the loader to the device in advance. (C 3 - 2 Connecting the Loader to the Device (p. 3-3))

#### Creating a Parameter File without Connecting the Loader to the Device

It is possible to create a parameter file for a device before connecting it to the loader, and then write the saved parameter settings to the device afterward.

(1) Select [File]  $\rightarrow$  [New] on the menu bar, or click the  $\square$  button on the toolbar.

FN	F MLP-F4Q Version 1.0.0							
File	(F)	Online(O)	Tools(T)	Settings(S)	Help(H)			
	Ne	w(N)		Ctrl+N	me and sa			
	Ор	en(O)		Ctrl+O				
	Sav	ve(S)		Ctrl+S				
	Re	name and sa	ve (R)	Ctrl+Shift+S				
	Exi	t(X)		Alt+F4				

F Select model number	×
Select the model number of the device to connect.	
Model name	
F4Q : Digital mass flow controller	~
Model No.	
F4Q0002	^
F4Q0005	
F4Q0050BC	
F4Q0050JK	
F4Q0100	
F400500	
F4Q9200	~
OK Cancel	

(2) Select the model number of the device whose parameter file is to be created, and click the [OK] button.

F Select model number	×
Select the model number of the device to connect.	
Model name	
F4Q : Digital mass flow controller	~
Model No. F400002 F40005 F40050BC F40050JK F400100 F400200 F400500	
F4Q9200	×
OK Cancel	

0 1 1		
MLP-F4Q. Version 1.0.0	-	×
File(F) Online(O) Tools(T) Settings(S) Help(H)		
🗋 New 🗎 Open 🖶 Save 🙀 Rename and save 📤 Read all parameters from device 📩 Write parameters to the device		
Parameters Monitor Trend		
Preve Info.     Preve Info.     Conditionation and Info.     Analog Injuritudingui     Digital Inputiongui     Digital Inputiongui     Total from     Fail-aste settings     Communication settings		
MonitoringRecording trend		

(3) Select the [Parameters] tab and click [Device Info.] in the tree view on the left side of the screen to confirm that the model number is correct. Then, select the parameters you want to change in the tree view and modify them.



(4) After that, select [File]  $\rightarrow$  [Rename and save...] on the menu bar, or click the  $\bigcirc$  button on the toolbar.

	F MLP-F4Q Version 1.0.0							
	File(F)	Online(O)	Tools(T)	Settings(S)	Help(H)			
	New(N)			Ctrl+N	me and			
ľ	Open(O)			Ctrl+O				
	Sav	/e(S)		Ctrl+S				
	Rei	name and sa	ve (R) C	Ctrl+Shift+S				
	Exi	t(X)		Alt+F4	1			

[Save] button. F Rename and save... × ✓ <sup>ひ</sup> ○ Parameterの検索 整理 ▼ 新しいフォルダー ? source 更新日時 種類 名前 📧 アドレス帳 F4Q0001.mlpx 2021/08/20 14:19 MLPX ファイル 🚖 お気に入り F4Q0002.mlpx 2021/08/20 14:19 MLPX ファイル ↓ ダウンロード F4Q0003.mlpx 2021/08/20 14:20 MLPX ファイル 📃 デスクトップ ۲キュメント Fax 🔜 mlp mlpf4q - Manuals v < ファイル名(N: \*.mlpx ファイルの種類(T): F4Q parameter file (\*.mlpx) 保存(S) キャンセル ヘ フォルダーの非表示

(5) Enter a name in the [File name] field (example: F4Q\_N1\_1.f4q) and click the

### Note

• To open saved files and write parameter settings to the device, refer to 🕼 🖬 Writing Parameter Settings to the Device (p. 3-11) and Checking Saved Parameter Settings (p. 3-13).

### Checking the Parameters of a Connected Device

The way to read and display all parameters in the connected device is explained below.

- Connect the loader to the device. ( 3-2 Connecting the Loader to the Device (p. 3-3))
- (2) Select [Online] → [Parameters] → [Read all parameters from device] on the menu bar, or click the button on the toolbar.

F MLP-F4Q Version 1.0.0							
File(F)	Online(O) Tools	(T) Settings	s(S) Help(H)				
Nev	Parameters(P	) 🕨	Read all parameters from device(R)	F1 fron			
Pa	Monitor(M)	•	Write parameters to the device(W)	F2			
	Trend(T)						
- Parai	Device operati	ion(O)					

 $\gg$  The following screen is displayed.

Reading all parameters				
<b>Po you wish to read all parameters?</b>				
OK キャンセル				

(3) Click the [OK] button.





(4) Click the [OK] button.





- (5) Click the [Parameters] tab and select the item to check in the tree view. (example: [Flow rate control])
  - >> Details of the item are displayed on the right side of the screen (in panel view).

MLP-F4Q Version 1.0	0.4					- 0	×
File(F) Online(O)	Tools(T) Set	tings(S) Help(H)					
🖻 New 💼 Open	Save	Rename and sav	e 🛔 Rei	ad all parameters from d	evice 🛔 Write parameters to th	e device	
Parameters	Mo	nitor	Trend				
Parameter							1
<ul> <li>Device. Info.</li> <li>Display settings</li> </ul>		Operational mode	selection when	power turned ON[C-02]	Mode before power shutdown $ \lor$		- 1
- Flow rate control	pensation	Flow rate setup met	hod (SP setup r	nethod selection)[C-03]	Select from SP-0 to SP-7 V		
- Analog input/out	put		Dir	ect setup function[C-21]	Disabled ~		
- Total flow - Fail-safe setting	s			Flow rate setpoint (SP-0)	0.00	L/min	
Communication	settings			Flow rate setpoint (SP-1)	0.00	L/min	
				Flow rate setpoint (SP-2)	0.00	L/min	
				Flow rate setpoint (SP-3)	0.00	L/min	
				Flow rate setpoint (SP-4)	0.00	L/min	
				Flow rate setpoint (SP-5)	0.00	L/min	
				Flow rate setpoint (SP-6)	0.00	L/min	
				Flow rate setpoint (SP-7)	0.00	L/min	
				SP limit function [C-35]	Disabled ~		
		<					>

#### Writing Parameter Settings to the Device

This section tells how to write parameter settings to the device. After reading the parameters into the loader, do the following.

#### **!** Handling Precautions

- Parameter settings cannot be written to the device if the model number of the device is different from the number on the [Device Info.] tab.
   However, because the underlined digits in the following example represent device specifications that do not affect the loader function, even if there are discrepancies in these digits, settings can be written to the device.
   Example: F4Q9200<u>B6TN100000</u>
- Select [Online] → [Parameters] → [Write parameters to the device] on the menu bar, or click the button on the toolbar.

F MLP-F	4Q Version 1.0.0			
File(F)	Online(O) Tools	(T) Settings	s(S) Help(H)	
🕒 Nev	Parameters(P	') <b>•</b>	Read all parameters from device(R) F1	
Pa	Monitor(M)	•	Write parameters to the device(W) F2	
- Dave	Trend(T)			
D.	Device operat	ion(O) →	Operational mode selection when power	• •

 $\gg$  The following screen is displayed.

Writing all parameters	×
Do you wish to write all parameters?	
OK キャンセル	

(2) Click the [OK] button.

Writing all parameters						
Po you wish to write all parameters?						
OK キャンセル						



(3) Click the [OK] button.

 $\gg$  This completes the writing of the parameters.

### Saving Parameter Settings to a File

Parameter settings that were read from the device and that were changed can be saved to a file using the following procedure.

(1) Select [File]  $\rightarrow$  [Rename and save...] on the menu bar, or click the  $\bigotimes$  button on the toolbar.

ſ	F MLP-	F4Q Version	1.0.0		
	File(F)	Online(O)	Tools(T)	Settings(S)	Help(H)
	New(N)			Ctrl+N	me and
ľ	Ор	en(O)		Ctrl+O	
	Sav	/e(S)		Ctrl+S	
	Re	name and sa	ve (R) C	trl+Shift+S	
	Exi	t(X)		Alt+F4	1

 $\gg$  The following screen is displayed.

→ * ↑	《 ドキュメント >	mlp	> mlpf4q > Parameter	~	õ	Parameter@	検索
E理 ▼ 新しいフ	オルダー						BI • (
■ source ■ アドレス帳 ★ お気に入! ■ デスクトップ 値 ドキュメン! ■ Fax ■ pp	4 9 7 7	^	名前 5400001.mlpx 5400002.mlpx 5400003.mlpx			更新日時 2021/08/20 14:19 2021/08/20 14:19 2021/08/20 14:20	種類 MLPX ファイ MLPX ファイ
- Man ファイル名(N):	nuals	*	¢				
and the second							

(2) Enter a name in the [File <u>n</u>ame] field and click the [<u>Save</u>] button.

→ · • ↑ 📙 « ドキュ火ン	/ト > mli	p > mlpf4q > Parameter	v ē	Parameter@	検索
778		r			D==
整理 ▼ 新しいフォルター		~			8== 🕶 【
source	^	名前		更新日時	種類
■ アドレス帳		🖺 F4Q0001.mlpx		2021/08/20 14:19	MLPX ファイJ
🚖 お気に入り		54Q0002.mlpx		2021/08/20 14:19	MLPX ファイ
👆 ダウンロード		🖺 F4Q0003.mlpx		2021/08/20 14:20	MLPX ファイ
🔜 デスクトップ					
付 ドキュメント	- 61				
Fax					
mlp					
mlpf4q					
Manuals		(			
	•				
ファイル名(N): *.mlpx					
ファイルの種類(T): F4Q param	eter file ('	*.mlpx)			
フォルダーの非表示				保存(S)	キャンセル

 $\gg$  The parameter settings are saved.

### Checking Saved Parameter Settings

This section describes the procedure for displaying parameter settings that have been saved to a file.

(1) Select [File]  $\rightarrow$  [Open] on the menu bar, or click the **b**utton on the toolbar.

	F MLP-	F4Q Version	1.0.0		
	File(F)	Online(O)	Tools(T)	Settings(S)	Help(H)
	Ne	w(N)		Ctrl+N	me and s
Ĩ	Ор	en(O)		Ctrl+O	
Ĭ	Sa	ve(S)		Ctrl+S	
l	Re	name and sa	ve (R)	Ctrl+Shift+S	dianal ma
	Exi	t(X)		Alt+F4	uonai mo

		and the second second second					
- → ~ ↑ « ドキュメント » n	nlp > mlp	of4q > Parameter	~	G	2	Parameterの検索	
整理 ▼ 新しいフォルダー						<b>•</b> •••	0
source	^	名前				更新日時	種類
国 アドレス帳		F4Q0001.mlpx				2021/08/20 14:19	MLP
★ お気に入り		54Q0002.mlpx				2021/08/20 14:19	MLP
🕹 ダウンロード		F4Q0003.mlpx				2021/08/20 14:20	MLF
デスクトップ							
🛗 ドキュメント							
Fax	- 10						
mlp							
mlpf4q							
Manuals							
Monitor							
- Parameter	~	<					
ファイル名(N): <mark>*.m</mark>	lpx			~	F40	2 parameter file (*.mlpx)	~
						BR/(0) twit	

F Open			×
← → ✓ ↑ « ドキュメント >	mlp > mlpf4q > Parameter	✓ <sup>ひ</sup> ○ Parameterの検索	
整理 ▼ 新しいフォルダー		B== 👻 🔲	?
source	<b>^</b> 名前 ^	更新日時	種類
アドレス帳	🖺 F4Q0001.mlpx	2021/08/20 14:19	MLP
☆ お気に入り	🖺 F4Q0002.mlpx	2021/08/20 14:19	MLP)
🖊 ダウンロード	🖺 F4Q0003.mlpx	2021/08/20 14:20	MLP
デスクトップ			
🔮 ドキュメント			
Fax			
- mlp			
mlpf4q			
- Manuals			
Parameter	v <		,
ファイル名(N): 🚺	mlox	<ul> <li>F4Q parameter file (*.mlpx)</li> </ul>	$\sim$

 $\gg$  The following screen is displayed.

MLP-F4Q Version 1.0.0	D						-		×
File(F) Online(O) To	ools(T) Sett	ings(S) He	lp(H)						
🕒 New 💼 Open	Bave Save	Rename	and save	Read	all parameters from device	📥 Write parame	eters to the de	vice	
Parameters	Mo	nitor	Trend						
Parameter     Parameter     Peraneter     Display settings     Flow rate control     Conditions/compet     Analog input/outpu     Digital input/outpu     Total flow     Fail-are settings     Communication set	ensation st t ettings								
Monitoring Recording	g trend								

(3) Select a tab and an item in the tree view to check the parameter settings.

### 📖 Note

• C Digital Mass Flow Controller Model F4Q User's Manual (document No. CP-SP-1461E)(for details on each parameter)

### 3-4 Checking Measured Values and Monitoring Status

### Displaying Measured Values and Status of the Device

- (1) Connect the loader to the device. (C 3-2 Connecting the Loader to the Device (p. 3-3))
- (2) Obtain device information by executing steps (1) to (4) in Checking the Parameters of a Connected Device (p. 3-9). If you have already executed steps (1) to (4), this process is unnecessary.
- (3) Click the [Monitor] tab and select the desired item in the tree view. At this point, monitoring information has not yet been read from the device.

MLP-F4Q Version 1.0.0	D					-	×
File(F) Online(O) To	ools(T) Settings(	) Help(H)					
Start monitoring	End monitori	g 🚯 Output CSV file					
Parameters	Monitor	Trend					
<ul> <li>→ Monitor</li> <li>Flow control info.</li> <li>Flow control info. (setting, etc.)</li> <li>Engineer info.</li> </ul>		Operat	ng mode	Valve fully closed	Write		^
Device status		SP numb	er in use	SP-0 ~			
		:	3P in use	0.000	mL/min		
		c	Online SP	0.000	mL/min		
			PV	0.000	mL/min		
		Valve manipulated vari	able (MV)	0.000	%		
		Ana	ilog input	0.000	V/mA		
		Anal	og output	0.000	V/mA		
	Totalized flow		0.00	mL			
		Cont	rol status	Ready		_	~
Monitoring Recording	g trend					-	 

(4) Click [Online] → [Monitor] → [Start monitoring] on the menu bar, or click the button on the toolbar.

MLP-F4Q Version 1.0.0							
File(F)	Online(O) Tools(T) Setting	s(S)	Help(H)				
🔣 Star	Parameters(P)	ring	Output CSV f	ile	<b>`</b>		
Pa	Monitor(M)		Start Monitoring(S)	F4			
	Trend(T)	~	End Monitoring(E)	F5	/		
- Monit	Device operation(O)		Output CSV file(O)	F6			
		_					

>> The following screen is displayed and the loader starts updating values and information. While monitoring is in progress, [Monitoring...] is displayed in blue at the bottom left of the screen.

MLP-F4Q Version 1.0.0	)				-	×
File(F) Online(O) To	ools(T) Settings(S	) Help(H)				
Start monitoring	End monitoring	Output CSV file				
Parameters	Monitor	Trend				
- Monitor - Flow control info Flow control info. ( - Engineer info.	setting, etc.)	Operating mode	Valve fully closed Valve fully closed	Write		^
- Device status		SP number in use	SP-0 ~			
		SP in use	1500.000	mL/min		
		Online SP	0.000	mL/min		
		PV	1559.407	mL/min		
		Valve manipulated variable (MV)	30.964	96		
		Analog input	0.286	V/mA		
		Analog output	19.252	V/mA		
		Totalized flow	9.74	mL		
		Control status	Ready			~
Monitoring Recording	y trend				-	<b>&gt;</b>

(5) The item selected in the tree view on the left side of the screen is displayed on the right side of the screen (in panel view).

### 📖 Note

• C Digital Mass Flow Controller Model F4Q User's Manual (document No. CP-SP-1461E)(for details on each monitored item)

#### Displaying the Device Status or History

#### • Displaying the device status

Follow the steps in  $\blacksquare$  Displaying Measured Values and Status of the Device above and select [Monitor]  $\rightarrow$  [Device status] on the left-hand side (tree view) of the [Monitor] tab.

>> The following screen is displayed, where you can check the status of the device.



#### • Displaying device status history

Follow the steps in  $\blacksquare$  Displaying Measured Values and Status of the Device above and select [Monitor]  $\rightarrow$  [Device status history] on the left-hand side (tree view) of the [Monitor] tab.

>> The following screen is displayed, where you can check the device status history.

MLP-F4Q Version 1.0	10			-		×
File(F) Online(O)	Tools(T) Settings(S)	Help(H)				
Start monitoring	End monitoring	Output CSV file				
Parameters	Monitor	Trend				
Identify     Final control links     Final contro	(selling, etc.)	Device status history [01] (02] (03) (04) (05] (09] (09] (10) (11) (12) (13) (14) (14) (15) (16)	ERR-01(1)  AUM-06(15)  WRN-16(6)  ERR-04(0)  ERR-03(1)  WRN-08(4)  AUM-07(2)  WRN-11(3)	Descr	(plion	
Monitoring Recordin	ng trena					

The device status history displays the 16 most recent events after power-on, starting from the oldest one.



• CP Digital Mass Flow Controller Model F4Q User's Manual (document No. CP-SP-1461E)(for details on the device status and history)

#### Stopping Measured Value Updating and Device Status Monitoring

(1) Click [Online]  $\rightarrow$  [Monitor]  $\rightarrow$  [End monitoring] on the menu bar, or click the button on the toolbar.

F MLP-F4Q Version 1.0.0						
File(F)	Online(O) Tools(T) Settings(S)	Help(H)				
Star	Parameters(P)	Output CSV file				
Pa	Monitor(M)	Start Monitoring(S) F4				
	Trend(T)	End Monitoring(E) F5				
FL	Device operation(O)	Output CSV file(O) F6				
		Device statús				

>> Monitoring stops. (Measured values and various statuses are no longer updated.)

#### Saving Measured Values and Device Status in a File

(1) Click [Online]  $\rightarrow$  [Monitor]  $\rightarrow$  [Output CSV file] on the menu bar with the [Monitor] tab open, or click the  $\bigcirc$  Output CSV file button on the toolbar.

MLP-F4Q Version 1.0.0							
File(F)	Online(O)	Tools(T)	Setting	s(S)	Help(H)		
Star	Param	eters(P)	•	ring	CSV Output CSV	file	
Pa	Monito	r(M)	•		Start Monitoring(S)	F4	П
	Trend(	T)	•	1	End Monitoring(E)	F5	H
E Monit	Device	operation((	D) ►		Output CSV file(O)	F6	
		-	(			OVICO CTOT	LC

 $\gg$  The following screen is displayed.

F Save monitoring data			×
← → × ↑ 📙 « mlp > mlpf4q > Monitor	ٽ ~	🔎 Search Monitor	
Organize   New folder			
Documents ^ Name		Date modified	Туре
mlp M001.csv		4/15/2021 12:17 AM	CSV File
mlpf4q M002.csv		4/15/2021 12:17 AM	CSV File
Manuals M003.csv		4/15/2021 12:17 AM	CSV File
Parameter			
Sampling			
Trend			
🕹 Downloads 🗸 🧹			
File <u>n</u> ame:			
Save as type: CSV file			
<ul> <li>Hide Folders</li> </ul>		Save	Cancel

(2) Enter a name in the [File <u>n</u>ame] field and click the [<u>S</u>ave] button.

### 3-5 Immediate Writing of Parameters

#### Writing Monitor Parameter Settings to the Device Immediately

Parameter settings shown with a [Write] button can be written to the device immediately.

- (1) Connect the loader to the device. (C 3-2 Connecting the Loader to the Device (p. 3-3))
- (2) Obtain device information by executing steps (1) to (4) in Checking the Parameters of a Connected Device (p. 3-9). If you have already executed steps (1) to (4), this process is unnecessary.
- (3) Click the [Monitor] tab and select the desired item in the tree view.

MLP-F4Q Version 1.0.	0					-	×
File(F) Online(O) T	ools(T) Settings(S	) Help(H)					
Start monitoring	End monitorin	) 🔒 Output CSV file					
Parameters	Monitor	Trend					
	(setting, etc.)	SP setup me	thod selection	Select from SP-0 to SP-7 Select from SP-0 to SP-7 ~	Write	]	
Device status Device status hist	ory		Gas type	Set by the user			
		Full	scale flow rate	0.00	mL/min		
		Totali	ed flow status	Totalized flow event			
				Totalized flow reset flag			
				Totalization paused			
				Totalization maximum exceeded			
			Analog type	Current[mA]			
			Analog scaling	0.00	mL/min		
		High-speed s	ampling mode	Notused			
				Not used $$	Write		
		<					>
Monitoring Recordin	g trend						

(4) Change the value or option selection for the desired monitoring parameter and press the [Write] button next to it. Only the setting for that monitoring parameter is written to the device.

MLP-F4Q Version 1.0.0			-	- 0	×
File(F) Online(O) Tools(T) Setting	(S) Help(H)				
Start monitoring 🛛 📅 End monito	ing 🔀 Output CSV file				
Parameters Monito	Trend				
Monitor How control info. How control info. Getting, etc.) Engineer info. Device status Device status history	SP setup method selection Gas type Full scale flow rate Totalized flow status	Select from SP-0 to SP-7 Select from SP-0 to SP-7 Salect from SP-0 to SP-7 Analog setup Online SP 0 colo Totalized flow event Totalized flow reset flag Totalization paused Totalization maximum exceeded	Write mL/min		
	Analog type Analog scaling High-speed sampling mode	Current(mA) 0.00 Not used	mL/min Write		>
Monitoring Recording trend					

# 3-6 Displaying Measured Values and Various Statuses in a Graph (Trend)

### Initial Setup for Displaying Data in a Graph and Saving It to a File

(1) Select the [Trend] tab.



- (2) Click [Online] → [Trend] → [Trend settings] on the menu bar, or click the button on the toolbar.
  - $\gg$  The following screen is displayed.

Trend settings	-		×
Sampling cycle Specify the sampling cycle. Sampling cycle S (0~1000.0) Note: If '0' is set, data will be collected continuously. Sampling data Select the data to be sampled. Mode Add SP WV AD Rr temp, Delete	CSV file output setting Specify the file name each time recording starts. Save to: C1Users/UserName/Document/mighting/4q/Tree File name: default  Cescription 3 -Sampting data is automatically saved to a CSV fileUp to 10:000 lines can be stored in a file. If this number is exceeded, data will be save to a new fileNime stamp and sequential number are automatically added to the file name. Example: "default_20211231236959_001.csv"	Select	1
0	K Cancel		

(3) Set [Sampling cycle] on the [Trend settings] screen. This is the cycle for periodic collection of measured values. You can select a cycle from the drop-down list or enter a numeric value. If 0 is set there is no interval and data is sampled continuously.



(4) Set values for [Sampling data] on the [Trend settings] screen. Candidates for sampling are displayed in the drop-down list. Select a measured value you want to collect and click the [Add] button. The selected value is added to the list of sampling targets at the bottom. Multiple measured values can be added. Click the [Delete] button to remove the selected data from the sampling target list.



3-21

(5) Configure the settings to save measured values to a file. Configure the [CSV file output setting] section on the [Trend settings] screen. To specify a different file name every time [Start recording trend] is executed, select the [Specify the file name each time recording starts] check box. If this check box is cleared, a file will be automatically recorded every time [Start recording trend] is executed. You can specify the folder for storing automatically recorded files in [Save to:] and the name of the automatically recorded file in [File name:]. A time stamp and sequential number are added to the specified file name.

Trend settings	-		×
Sampling cycle Specify the sampling cycle. Sampling cycle s (0~100.0) Note: If '0' is set, data will be collected continuously. Sampling data Select the data to be sampled. Mode Add SP PV MV AO Rr temp. Delete	CSV file output setting Specify the file name each time recording starts. Save to: C:USers/UserName/Document/mipinipf4q:Tree File name: default C Description ) Sampling data is automatically saved to a CSV file. Up to 10,000 lines can be stored in a file. If this number is exceeded, data will be saved to a new file. Atms stamp and sequential number are automatically added to the file name. Example: "default_20211231235969_001.csv"	Select	
c	K Cancel		

(6) Click the [OK] button on the [Trend settings] screen.

 $\gg$  The new settings are applied and the window closes.

Trend settings	-		×
Sampling cycle Specify the sampling cycle. Sampling cycle S v (0~1000.0) Note: If '0' is set, data will be collected continuously. Sampling data Select the data to be sampled. Idode v Add SP PV MV AV AP Ref temp. Delete	CSV file output setting 	Select	
	K Cancel		
	Disables the set	ting ings	s.

### **!** Handling Precautions

• If you click [Cancel], the settings in steps (1)–(5) are discarded.

### Displaying Data in a Graph and Saving It to a File

- (1) Connect the loader to the device. (C 3-2 Connecting the Loader to the Device (p. 3-3))
- (3) Select the [Trend] tab.

III M(P-HQ Version 1.0.0 – U X							
File(F) Online(O) Tools(T) Settings(S) H	elp(H)						
Trend settings ES Start recording trend	E <sup>™</sup> Stop recording trend						
Parameters Monitor	Trend						
Analog data		Analog data					
View in full size	5000						
Color Data name Value View	]	And the second s					
	4000						
- PV 4501.606 ⊠	4000						
- Al 0.300							
- AO 17.682	3000-						
- Total flow 1700.00							
Sensor AD 0							
- Heater power 3455.094	2000-	-40					
	ʻ						
Discipal state	-						
Colora Data game Vielas Viena	1000	-20					
- OK L							
- Dii L 🗹							
- DI2 H 🗹	00.00	100 00:00:10 00:00:20 00:00:30					
- DI3 L M		Disital data					
- Error H							
- Alarm H 🗹	OK-	┉┈┼┈┼┼╨╴┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉┉					
- Warning H	DI1-						
- Intomation H	]						
	DI2-						
	DI3-						
	EV1(Total) -						
	Error						
	Alarm -						
	Warring						
	waning -						
	Infomation -						
	00:00	00 00:00:10 00:00:20 00:00:30					
Monitoring Recording trend							

(4) Click [Online] → [Trend] → [Start recording trend] on the menu bar, or click the button on the toolbar.





>> Trend display and writing to a CSV file begin. While trend display is in progress, [Recording trend...] is displayed in blue at the bottom left of the screen.

### Modifying the Graph Display

#### • Changing the data displayed on the graph

Select or deselect the check boxes on the right side of the analog and digital data lists to display the desired data in the graph.



#### • Checking analog data details



You can check the data name, value at the current position in the graph, and unit by placing the cursor on the line in the analog data graph.

Also, when a row of data in the analog data list is clicked, the corresponding line on the analog data graph is bolded while the mouse button is pressed.

Additionally, the Y axis on the side to which the relevant data is assigned is shown in bold in the same color as the line.



#### • Switching between full-size display and normal display

On the left side of the screen, above the [Analog data] table, select the [View in full size] check box to display a full-size graph.

Analog data		View in f	full size
Color	Data name	Value	View
	SP	4500.000	
—	PV	4346.779	$\checkmark$
—	MV	89.482	$\checkmark$
—	AI	0.252	$\checkmark$
—	AO	17.755	$\checkmark$
—	Total flow	1707.25	$\checkmark$
—	Sensor AD	0	$\checkmark$
—	Rr temp.	27.106	$\checkmark$
—	Heater power 3471.849		$\sim$

• Full size display of analog data







### Stopping Display of Data in a Graph and Writing to a File

Click [Online]  $\rightarrow$  [Trend]  $\rightarrow$  [Stop recording trend] on the menu bar,

or click the  $\square$  button on the toolbar.

F MLP-F4Q Version 1.0.0						
File(F)	Online(O) Tools(T) Settin	ngs(S) Help(H)				
🛛 🙀 Trer	Parameters(P)	g trend 🛛 🖓 Stop recording trend				
Pa	Monitor(M)	r Trend				
	Trend(T)	Trend settings(V) F7				
Analog	Device operation(O)	Start recording trend(S) F8				
	View	i Stop recording trend(E) F9				

 $\gg$  Display of the trend and writing to a CSV file stops.

### 3-7 Operating the Device

Various device operations are available to the user.

### Operating the Device

- (1) Connect the loader to the device. ( 3 2 Connecting the Loader to the Device (p. 3-3))
- (3) Click [Online]  $\rightarrow$  [Device operation] and the operation you want to execute on the menu bar.

### Note

- CP-SP-1461E)(for details on device operations)
- >> The screen for the device operation you select in step (3) is displayed. Execute the operation according to the on-screen instructions.

F MLP-F4Q Version 1.0.0										
File(F) Online(O) Tools(T) Settings(S) Help(H)										
🖓 Trer	Paran	neters(P)	•	ig tre	nd	🗐 Sto	p recording t	rend		
Pa	Monit	or(M)	•	r			Trend			
Analaa	Dovic	(T)			Flow				OHLEA	
Analog	Devic	e operation(	0, ,		FIOW	rate zero	point adjustn	nent(Z)	Ctri+F1	
		l	View i	•	Total	flow volu	me reset(T)		Ctrl+F2	- 1
Color	Data n	ame	Value		Devid	e status	deletion(E)		Ctrl+F3	

### **3-8 Using Convenient Functions (Tools)**

From the loader, various convenient functions are available.

### High-Speed Sampling

#### • What is high-speed sampling?

This function records the instantaneous flow rate (PV) and valve opening (MV) of the device at high speed (1.5 ms). Up to 1000 data values (a total of 1500 ms) can be recorded. This data can be used to check the response time of the instantaneous flow rate (PV) or the presence of pulsation after changing the flow rate set point (SP), for example. Data recorded with high-speed sampling can be read and saved to a file with the loader.

#### • Using high-speed sampling to record the PV and SP at the device

- Click [Flow control info. (setting, etc.)] in the tree view on the [Monitor] tab.
   ( 3-4 Checking Measured Values and Monitoring Status (p. 3-15))
  - $\gg$  The following screen is displayed.

MLP-F4Q Version 1.0.4	4			-		×
File(F) Online(O) To	cols(T) Settings(S)	Help(H)				
Start monitoring	End monitoring	Output CSV file				
Parameters	Monitor	Trend				
Monitor     Flow control info.     Flow control info.     Flow control info.     Engineer info.     Device status     Device status	setting, etc.) ory		SP setup method selection Gas type Full scale flow rate Totalized flow status	Select from SP-0 to SP-7 Select from SP-0 to SP-7 ~ Set by the user 0.00 Totalized flow event Totalized flow reset flag Totalized flow reset flag	Write	
	C.		Analog type Analog scaling High-speed sampling mode	Current(mA) 0.00 Not used Vot used	L/min Write	>
mormoringin Recording	g oren on a					.::

- MLP-F4Q Version 1.0.5 × File(E) Online(Q) Tools(T) Settings(S) Help(H) 🛱 Start monitoring 📲 End monitoring 🔹 Output CSV file Parameters Monitor Trend Select from SP-0 to SP-7 l info. Info. (setting, etc.) SP setup method selection ect from SP-0 to SP-7 Vite Gas type Set by the user Full scale flow rate 0 Totalized flow status 🔲 Totalized flow event Totalized flow reset flag Totalization paused Totalization maximum Analog type Current[mA] Analog scaling 0 mL/mir High-speed sampl Write
- (2) Select the operation you want to execute from the drop-down list for the [High-speed sampling mode] parameter and click the [Write] button on the right.

#### • Stop

To stop sampling when "Manual mode" is selected or to not use sampling, select this option.

• Auto mode

Select this mode to automatically start sampling every time the SP (the set flow rate) is changed. When 1000 values are sampled after the SP is changed, sampling automatically stops. (The data for the last SP change is deleted every time the SP is changed.)

• Manual mode

Select this mode to start sampling immediately. Then, when "Stop" is selected, sampling stops and the 1000 data values sampled immediately before the stop are recorded.

• Alarm stop mode

Select this mode to start sampling immediately. If an alarm occurs, sampling automatically stops. The 1000 data values sampled immediately before the alarm was triggered are recorded.

High-speed sampling mode	Sampling start condition	Sampling stop condition	Recorded data
Auto mode	When the SP is changed	After 1000 samples	The 1000 values sampled immediately after the SP was changed
Manual mode	When the high-speed sampling mode is changed to "Manual mode"	When the high-speed sampling mode is changed to "Stop"	The 1000 values sampled immediately before the stop
Alarm stop mode	When the high-speed sampling mode is changed to "Alarm stop mode"	When the first alarm occurs after the mode was changed to "Alarm stop mode"	The 1000 values sampled immediately before the alarm was triggered

The following table	summarizes t	the above	description
			r

#### • Saving high-speed sampling values (PV and SP) recorded in the device to a file

- (1) Connect the loader to the device. ( 3-2 Connecting the Loader to the Device (p. 3-3))
- (2) Obtain device information by executing steps (1) to (4) in C→ Checking the Parameters of a Connected Device (p. 3-9). If you have already executed steps (1) to (4), this process is unnecessary.
- (3) Click [Tools]  $\rightarrow$  [High-speed PV/MV sampling]  $\rightarrow$  [Output sampling results to CSV file] on the menu bar.

Tools(T)	Settings(S)	Help(H)			
High	-speed PV/MV s	sampling(S)	•	Output sampling results to CSV file (O)	Ctrl+F7

 $\gg$  The following screen is displayed.

E Save sampling dat	a					×
← → • ↑ <mark> </mark>	≪ mlp →	mlpf4q > Sampling	~	ē	Search Sampling	
Organize 🔻 Ne	w folder					- ?
> 📃 Desktop	^	Name	^		Date modified	Туре
✓		sample1.csv			5/6/2021 5:15 PM	CSV File
🗸 🔄 mlp		sample2.csv			1/13/2021 1:53 PM	CSV File
✓ mlpf4q	- 11	sample3.csv			1/13/2021 1:53 PM	CSV File
Manuals						
Monitor	- 1					
Paramete	er					
Sampling	1					
Trend	~	<				
File <u>n</u> ame:	default					``````````````````````````````````````
Save as type:	CSV file					`
<ul> <li>Hide Folders</li> </ul>					Save	Cancel

(4) Enter a name in the [File <u>n</u>ame] field and click the [<u>Save</u>] button.

» Sampling values are saved to a CSV file. Example: default.csv

index(1.5msec),PV(mL/min),MV(%)
0,-0.01,0.00
1,-0.04,0.00
2,0.02,0.00
3,0.00,0.00
4,0.02,0.00
5,0.01,0.00
507,59.94,63.65
508,59.95,63.65
509,59.96,63.65
510,60.01,63.65
511,60.09,63.65
512,60.08,63.65
513,60.08,63.65
985,60.11,63.60
986,60.18,63.59
987,60.20,63.59
998,60.09,63.59
999,59.93,63.60

NOTE: Description of data

index(1.5 ms)	: The sampling interval (0 to 999 = 1st to 1000th samples)
PV(mL/min)	: Instantaneous flow rate (mL/min)
MV(%)	: Degree of valve opening (fully closed = 0 %, fully open = 100 %)

\* Value determined according to the model and within the flow rate range where performance can be guaranteed.

### 3-9 Changing the Display Language

### Changing from Japanese to English Display

(1) Select [設定(S)] → [言語設定(L)] → [英語(E)] on the menu bar.

F MLP-F4Q Version 1.0.0		
ファイル(F) オンライン(O) ツール(T)	設定(S) ヘルプ(H)	
田 モニタ開始 田 モニタ停止 🛛	通信設定(C) Ctrl+G	
	言語設定(L) ▶	日本語(J)
パラメータ	モ_ツ トレン	英語(E)
□ オト,ニズト,エーカ		

 $\gg$  The following screen is displayed.

言語設定	×
言語を英語に切替えます。 言語を切り替えるには本アプリケーションの再起動が必要です。 本アプリケーションを再起動しますか?	
OK キャンセル	

(2) Click the [OK] button.

MIP-E40 Version 1.0.0	1			_	п	×
File(F) Online(O) To	ols(T) Settings(S) Help(	H)			_	
P New Donen	Save Renam	and save TRead	all narameters from device	Write parameters to the device		
			an parameters nonr device			
Parameters	Monitor	Trend				
Monitoring Recording	g trend					đ

 $\gg$  The loader is restarted and the display switches to English.

### Changing the English Display to the Japanese Display

(1) Select [Settings]  $\rightarrow$  [Language]  $\rightarrow$  [Japanese] on the menu bar.

#### F MLP-F4Q Version 1.0.0

File(F) Online(O) Tools(T)	Settings(S) Help(H)		
🕒 New 📄 Open 🔲 S	Comm. settings(C)	Ctrl+G	f
Demonstration	Language(L)	Japanese(J)	
Parameters	Monitor	English(E)	

 $\gg$  The following screen is displayed.

Language	Х
Switches to Japanese. You need to restart this application to switch languages. Do you wish to restart it?	
OK キャンセル	

(2) Click the [OK] button.



 $\gg$  The loader is restarted and the display switches to Japanese.

### 3-10 Adding a Document to the Loader

Once you add documents such as a user's manual to the loader menu, you can open them at any time. Multiple documents can be added.

(1) Select [Help]  $\rightarrow$  [(Documents can be added here. Click for details.)] on the menu bar.

F MLP-F4Q Version 1.0.0	)	
File(F) Online(O) To	ools(T) Settings(S)	Help(H)
Start monitoring	End monitoring	( Documents can be added here. Click for details. )
Parameters	Monitor	Version information(V)

 $\gg$  The following screen is displayed.

About customization of the Help menu	×
A function allows users to add their own documents under the Help menu.	
Store the documents you wish to add in the folder specified by the loader.* The loader displays the file name in the submenu without the path or extension. When the menu item is selected, the loader starts an application that is appropriate for the document type and displays the document.	
*The folder is shown below. The "@ (UserName)" part differs depending on the PC environment.	
ОК	

(2) Store documents in the indicated folder.

(3) From the menu bar, selecting [Help] and then the name of a document that you stored opens the document.



# Chapter 4. Troubleshooting

### 4-1 Loader Errors and Corrective Actions

### Error Messages and Corrective Actions

Туре	Message	Description	Corrective Action
Starting/exiting the loader	Loader startup cannot continue. Exiting the loader	An error in the loader file was detected.	Uninstall the loader and reinstall it. If this does not resolve the error, contact the azbil Group or one of its dealers.
Communication settings	No COM port has been selected.	The [OK] button was pressed without a COM port selection.	Select the COM port that is assigned for communication with the device, and click the [OK] button.
[File] → [New]	No model number has been selected.	The [OK] button was pressed with no model number selected.	A model number must be specified. Select the model number of the device to connect to and press the [OK] button.
[File] → [Open]	The model is not supported by the loader. Reading of the file failed.	The selected file is for a model that is not supported by the loader, so the file could not be opened.	If a new version of the loader is available on the Azbil website, it might be possible to open the file by upgrading the loader. If the file still cannot be opened, the file might be corrupt. Take the same corrective action as for "The read data contains errors."
	The read data contains errors.	The file could not be opened due to errors in the file. The file is probably corrupt.	Specify the necessary parameter settings again and save them to a file. (Execute [Read all parameters from device] or select [File] $\rightarrow$ [New] to display the parameters, change the settings, and save them to a file.)
	The specified file cannot be opened.	The file could not be opened because Windows detected an error.	Restart the loader. If the file still cannot be opened, the file might be corrupt. Take the same corrective action as for "The read data contains errors."
	[File name] File not found. Check the file name and try again	The specified file cannot be opened because the loader cannot find it.	Enter the correct file name.

Туре	Message	Description	Corrective Action
$[File] \rightarrow [Save]$	No file is open.	The user attempted to overwrite a file when creating a new file.	Execute [Rename and save].
	[File name] already exists. Do you want to replace it?	A file with the same name was found when [Rename and save] was executed. You can overwrite the file data with the current parameter settings.	To overwrite the data, press the [Yes] button. If you do not want to overwrite the data, press the [No] button, change the file name, then save it.
	[File name] This file is set to read-only Try again with a different file name.	The specified file is read-only and cannot be overwritten.	Change the file name and save it.
	[File name] You don't have permission to save in this location. Contact the administrator to obtain permission. Would you like to save in the [Document] folder instead?	You do not have access rights for the specified destination folder.	To save the file to the Documents folder, press the [Yes] button. To save the file to another folder, select a folder that you have access rights to and save the file.
Read all parameters from device	The model is not supported by the loader. Reading of parameters failed.	A product that the loader does not support is connected or a model not supported by the loader is specified, so parameters cannot be read from the device.	Check the model number of the connected product. Download the latest version of the loader software from the Azbil website (Compo Club), install the loader, and try again.
	Reading of parameters failed.	Reading of parameters from the device was aborted because a communication error occurred.	Please check the communication settings for the loader, the power to the device, and the cable connections, and then try again.
Write parameters to the device	Parameters could not be written to the device because the model number of the device is different from the number specified by the loader. The model number in the loader's device information must be the same as the model number of the connected device. Model number specified by the loader: xxxxxxxxx Model number of the connected device: xxxxxxxxx	Parameters could not be written to the device because the model number of the connected device is different from the model number currently specified for work using the loader.	The model number in the loader's device information must be the same as the model number of the connected device.
	Writing of parameters failed.	Writing parameter settings to the device was aborted because a communication error occurred.	Please check the communication settings for the loader, the power to the device, and the cable connections, and then try again.

Type	Message	Description	Corrective Action
Monitoring, trend, device operation, expanded functions	Operation could not start or could not be completed because the model number of the device is different from the number specified by the loader. Please execute reading of all parameters from the device and try again. Model number specified by the loader: xxxxxxxxxx Model number of the connected device: xxxxxxxxxx	Operation could not start or could not be completed because the model number of the connected device is different from the model number currently specified for work using the loader.	Make the model numbers match by, for example, reading all the parameters from the device at the same time before starting or executing operation.
Monitoring	A communication error occurred.     A communication error occurred during monitor       Monitor startup failed.     Startup.		Please check the communication settings for the loader, the power to the device, and the cable connections, and
	Monitoring stopped due to a communication error.	A communication error occurred during monitoring.	then try again.
Trend	A communication error occurred.	A communication error occurred during trend	
	Trend monitoring startup failed. Trend monitoring stopped due to a communication error.	A communication error occurred during trend monitoring.	
Device operation	Operation stopped due to a communication error.	A communication error occurred during device operation.	
Expanded functions	An error occurred when attempting to acquire sampling data.	A communication error occurred when attempting to acquire sampling data.	
Parameter values	The value is out of range.	The entered value could not be set because it is out of range.	Enter a value that is between the lower and upper limits that are indicated within the parentheses next to the parameter.
	The input value is invalid.	The specified value could not be input because it includes double-width Asian numbers or other characters that cannot be interpreted as numerical values.	Enter a numerical value.
	The number of characters has exceeded the limit.	The character string is too long.	The number of characters must be within the limit.

### 4-2 Other Troubleshooting

Туре	Message	Description	Corrective action
Display	Values are not displayed properly. Files cannot be opened.	If a symbol other than "" is set as the decimal point symbol in the Windows settings, the loader will not work properly.	In the Windows settings, select [Control Panel] $\rightarrow$ [Region] Then, click the [Additional settings] button. Check that "." is set as the decimal point symbol.
Other	Some or all functions of the loader (screen display, operation, etc.) cannot be executed.	Due to an unknown problem, the loader is not operating properly.	After exiting the loader with the following procedure, start it again. (1)While holding down the Ctrl + Alt keys, press Delete. (2)Click [Task Manager]. (3)Select this loader (MLP-xxx) and click the [End task] button.

Chapter 4. Troubleshooting

# Revision History (CP-SP-1457E)

Date	Edn.	(New) Page No.	Description
June 2021	1		
Oct. 2021	2		
Mar. 2024	3	1-1	Overview changed.
		1-2	Compatible equipment changed.
			Operating system changed.
			Note changed.
		1-3	URL changed.

### **Terms and Conditions**

We would like to express our appreciation for your purchase and use of Azbil Corporation's products.

You are required to acknowledge and agree upon the following terms and conditions for your purchase of Azbil Corporation's products (system products, field instruments, control valves, and control products), unless otherwise stated in any separate document, including, without limitation, estimation sheets, written agreements, catalogs, specifications and instruction manuals.

#### 1. Warranty period and warranty scope

1.1 Warranty period

Azbil Corporation's products shall be warranted for one (1) year from the date of your purchase of the said products or the delivery of the said products to a place designated by you.

1.2 Warranty scope

In the event that Azbil Corporation's product has any failure attributable to azbil during the aforementioned warranty period, Azbil Corporation shall, without charge, deliver a replacement for the said product to the place where you purchased, or repair the said product and deliver it to the aforementioned place. Notwithstanding the foregoing, any failure falling under one of the following shall not be covered under this warranty:

- (1) Failure caused by your improper use of azbil product (noncompliance with conditions, environment of use, precautions, etc. set forth in catalogs, specifications, instruction manuals, etc.);
- (2) Failure caused for other reasons than Azbil Corporation's product;
- Failure caused by any modification or repair made by any person other than Azbil Corporation or Azbil Corporation's subcontractors;
- (4) Failure caused by your use of Azbil Corporation's product in a manner not conforming to the intended usage of that product;
- (5) Failure that the state-of-the-art at the time of Azbil Corporation's shipment did not allow Azbil Corporation to predict; or
- (6) Failure that arose from any reason not attributable to Azbil Corporation, including, without limitation, acts of God, disasters, and actions taken by a third party.

Please note that the term "warranty" as used herein refers to equipment-only-warranty, and Azbil Corporation shall not be liable for any damages, including direct, indirect, special, incidental or consequential damages in connection with or arising out of Azbil Corporation's products.

2. Ascertainment of suitability

You are required to ascertain the suitability of Azbil Corporation's product in case of your use of the same with your machinery, equipment, etc. (hereinafter referred to as "Equipment") on your own responsibility, taking the following matters into consideration:

- (1) Regulations and standards or laws that your Equipment is to comply with.
- (2) Examples of application described in any documents provided by Azbil Corporation are for your reference purpose only, and you are required to check the functions and safety of your Equipment prior to your use.
- (3) Measures to be taken to secure the required level of the reliability and safety of your Equipment in your use Although azbil is constantly making efforts to improve the quality and reliability of Azbil Corporation's products, there exists a possibility that parts and machinery may break down. You are required to provide your Equipment with safety design such as fool-proof design,<sup>\*1</sup> and fail-safe design<sup>\*2</sup> (anti-flame propagation design, etc.), whereby preventing any occurrence of physical injuries, fires, significant damage, and so forth. Furthermore, fault avoidance,<sup>\*3</sup> fault tolerance,<sup>\*4</sup> or the like should be incorporated so that the said Equipment can satisfy the level of reliability and safety required for your use.
  - \*1. A design that is safe even if the user makes an error.
  - \*2. A design that is safe even if the device fails.
  - \*3. Avoidance of device failure by using highly reliable components, etc.
  - \*4. The use of redundancy.

#### 3. Precautions and restrictions on application

3.1 Restrictions on application

Please follow the table below for use in nuclear power or radiation-related equipment.

	Nuclear power quality*5 required	Nuclear power quality*5 not required
Within a radiation controlled area*6	Cannot be used (except for limit switches for nuclear power*7)	Cannot be used (except for limit switches for nuclear power*7)
Outside a radiation controlled area*6	Cannot be used (except for limit switches for nuclear power*7)	Can be used

- \*5. Nuclear power quality: compliance with JEAG 4121 required
- \*6. Radiation controlled area: an area governed by the requirements of article 3 of "Rules on the Prevention of Harm from Ionizing Radiation," article 2 2 4 of "Regulations on Installation and Operation of Nuclear Reactors for Practical Power Generation," article 4 of "Determining the Quantity, etc., of Radiation-Emitting Isotopes,"etc.
- \*7. Limit switch for nuclear power: a limit switch designed, manufactured and sold according to IEEE 382 and JEAG 4121.

Any Azbil Corporation's products shall not be used for/with medical equipment.

The products are for industrial use. Do not allow general consumers to install or use any Azbil Corporation's product. However, azbil products can be incorporated into products used by general consumers. If you intend to use a product for that purpose, please contact one of our sales representatives.

3.2 Precautions on application

you are required to conduct a consultation with our sales representative and understand detail specifications, cautions for operation, and so forth by reference to catalogs, specifications, instruction manual, etc. in case that you intend to use azbil product for any purposes specified in (1) through (6) below. Moreover, you are required to provide your Equipment with fool-proof design, fail-safe design, antiflame propagation design, fault avoidance, fault tolerance, and other kinds of protection/safety circuit design on your own responsibility to ensure reliability and safety, whereby preventing problems caused by failure or nonconformity.

- (1) For use under such conditions or in such environments as not stated in technical documents, including catalogs, specification, and instruction manuals
- (2) For use of specific purposes, such as:
  - \* Nuclear energy/radiation related facilities [When used outside a radiation controlled area and where nuclear power quality is not required] [When the limit switch for nuclear power is used]
    - Machinery or equipment for space/sea bottom
    - \* Transportation equipment
    - [Railway, aircraft, vessels, vehicle equipment, etc.]
    - \* Antidisaster/crime-prevention equipment
    - \* Burning appliances
    - \* Electrothermal equipment
    - \* Amusement facilities
  - \* Facilities/applications associated directly with billing
- (3) Supply systems such as electricity/gas/water supply systems, large-scale communication systems, and traffic/air traffic control systems requiring high reliability
- (4) Facilities that are to comply with regulations of governmental/public agencies or specific industries
- (5) Machinery or equipment that may affect human lives, human bodies or properties
- (6) Other machinery or equipment equivalent to those set forth in items (1) to (5) above which require high reliability and safety
- 4. Precautions against long-term use

Use of Azbil Corporation's products, including switches, which contain electronic components, over a prolonged period may degrade insulation or increase contact-resistance and may result in heat generation or any other similar problem causing such product or switch to develop safety hazards such as smoking, ignition, and electrification. Although acceleration of the above situation varies depending on the conditions or environment of use of the products, you are required not to use any Azbil Corporation's products for a period exceeding ten (10) years unless otherwise stated in specifications or instruction manuals.

5. Recommendation for renewal

Mechanical components, such as relays and switches, used for Azbil Corporation's products will reach the end of their life due to wear by repetitious open/close operations.

In addition, electronic components such as electrolytic capacitors will reach the end of their life due to aged deterioration based on the conditions or environment in which such electronic components are used. Although acceleration of the above situation varies depending on the conditions or environment of use, the number of open/close operations of relays, etc. as prescribed in specifications or instruction manuals, or depending on the design margin of your machine or equipment, you are required to renew any Azbil Corporation's products every 5 to 10 years unless otherwise specified in specifications or instruction manuals. System products, field instruments (sensors such as pressure/flow/level sensors, regulating valves, etc.) will reach the end of their life due to aged deterioration of parts. For those parts that will reach the end of their life due to aged deterioration, recommended replacement cycles are prescribed. You are required to replace parts based on such recommended replacement cycles.

6. Other precautions

Prior to your use of Azbil Corporation's products, you are required to understand and comply with specifications (e.g., conditions and environment of use), precautions, warnings/cautions/notices as set forth in the technical documents prepared for individual Azbil Corporation's products, such as catalogs, specifications, and instruction manuals to ensure the quality, reliability, and safety of those products.

7. Changes to specifications

Please note that the descriptions contained in any documents provided by azbil are subject to change without notice for improvement or for any other reason. For inquires or information on specifications as you may need to check, please contact our branch offices or sales offices, or your local sales agents.

8. Discontinuance of the supply of products/parts

Please note that the production of any Azbil Corporation's product may be discontinued without notice. After manufacturing is discontinued, we may not be able to provide replacement products even within the warranty period.

For repairable products, we will, in principle, undertake repairs for five (5) years after the discontinuance of those products. In some cases, however, we cannot undertake such repairs for reasons, such as the absence of repair parts. For system products, field instruments, we may not be able to undertake parts replacement for similar reasons.

9. Scope of services

Prices of Azbil Corporation's products do not include any charges for services such as engineer dispatch service. Accordingly, a separate fee will be charged in any of the following cases:

- (1) Installation, adjustment, guidance, and attendance at a test run
- (2) Maintenance, inspection, adjustment, and repair
- (3) Technical guidance and technical education
- (4) Special test or special inspection of a product under the conditions specified by you

Please note that we cannot provide any services as set forth above in a nuclear energy controlled area (radiation controlled area) or at a place where the level of exposure to radiation is equivalent to that in a nuclear energy controlled area.



### Azbil Corporation Advanced Automation Company

1-12-2 Kawana, Fujisawa Kanagawa 251-8522 Japan URL: https://www.azbil.com Specifications are subject to change without notice. (11)