

**ADMAG TI Series
AXG, AXW
Magnetic Flowmeter
EtherNet/IP Communication Type**



IM 01E21A02-06EN



ADMAG TI Series

AXG, AXW Magnetic Flowmeter

EtherNet/IP Communication Type

IM 01E21A02-06EN 3rd Edition

Contents

1.	Introduction.....	4
1.1	For Safe Use of Product	7
1.2	Warranty	9
2.	Operation by Display unit.....	10
2.1	Basic Operating Procedures	10
2.2	Display and Basic Configuration	11
2.2.1	Display Configuration.....	11
2.2.2	Operation Level.....	13
2.3	Display Mode and Setting Mode.....	13
2.4	Parameter Setting from Display Panel	16
2.4.1	Setting Example of Select Type Parameter (Flow rate unit).....	16
2.4.2	Setting Example of Numeric Type Parameter (Flow rate span)	17
2.4.3	Setting Example of Alphanumeric Type Parameter (Tag No.).....	18
2.5	microSD Card Insertion/Removal	19
3.	Operation with Web Page	20
3.1	Connecting Ethernet Configuration Tool	20
3.2	Network Configuration	21
3.3	Web Page Structure	28
3.4	Basic Setup.....	30
3.5	Parameter Configuration	31
3.6	Product Code/Name and EDS file for EtherNet/IP	32
3.7	Cyclic Communication	32
4.	Functions	35
4.1	Basic Settings	37
4.1.1	Overview	37
4.1.2	PV Mapping of Process Value	37
4.1.3	Display of the Process Value	38
4.1.4	Unit Setting.....	39
4.1.5	Span Setting.....	40
4.1.6	Damping Time Constant Setting.....	41
4.1.7	Low-cut Function Setting	42
4.1.8	Meter factor Setting.....	44
4.1.9	Sensor Type Setting.....	45

4.1.10	Sensor's Nominal Size Setting	46
4.1.11	Density Setting	46
4.1.12	Span Flow Velocity Display	46
4.1.13	Zero Adjustment	47
4.2	Totalization Function	49
4.2.1	Totalized Value and Unit Setting	49
4.2.2	Totalized Value Display and Totalization Function	49
4.2.3	Totalization Switch Function	50
4.2.4	Totalizer Operation at Alarm Occurrence	51
4.2.5	Start/Stop Setting for Totalization Function	51
4.2.6	Totalization Direction Setting	52
4.2.7	Totalized Value Reset/Preset Function	53
4.3	Auxiliary Calculation Function	54
4.3.1	Fluid Flow Direction Setting	54
4.3.2	Rate Limit Function Setting	54
4.3.3	Pulsing Flow Support Function Setting	57
4.3.4	Power Frequency Synchronization Setting	57
4.4	Alarm	59
4.4.1	Errors and Countermeasures	59
4.4.2	Operation at the Time of Error	63
4.4.3	Alarm Display Setting	65
4.4.4	Alarm History Function	66
4.4.5	Alarm Mask Function	67
4.5	Display	72
4.5.1	Language	72
4.5.2	Display Item Setting	73
4.5.3	Decimal-Point Position Setting	74
4.5.4	Display Line Count and Scroll Settings	76
4.5.5	Trend Graph Setting	78
4.5.6	Update period setting	79
4.5.7	Other Settings	80
4.5.8	microSD Card Setting	82
4.6	Device Information	84
4.6.1	Order Information	84
4.6.2	Device Revision	85
4.6.3	Memo Function	86
4.6.4	Date and Time Information	86
4.6.5	Display Operation Time	87
4.6.6	Explosion Protection Setting	87
4.7	Self-diagnostic Function	88
4.7.1	Types of Diagnosis Functions	88
4.7.2	Alarm High/Low Limit Function	88

4.7.3	Electrode Adhesion Detection	90
4.7.4	Sensor Empty Check	91
4.7.5	Wiring Connection Diagnosis	92
4.7.6	Verification (Device Health Diagnosis) Function	93
4.7.7	Electrode Insulation Deterioration Diagnosis	96
4.7.8	Flow Noise Diagnosis	97
4.7.9	Low Conductivity Diagnosis.....	98
4.7.10	Coil Insulation Diagnosis.....	99
4.7.11	Other Setting	99
4.8	Test Mode.....	100
4.8.1	Test Mode Setting	100
4.8.2	Test Value Setting	100
4.8.3	Test 2 Mode.....	101
4.8.4	Test Mode Auto Reset.....	101
4.9	Event Management Function.....	102
4.9.1	Backup Function	102
4.9.2	Restore/Duplicate Parameter	105
4.9.3	Backup and Restore Parameters	109
4.9.4	Data Logging Function.....	112
4.10	Parameter Protection	114
4.10.1	Software Write Protection Function	114
4.10.2	Display Restriction Function	115
5.	Parameter Lists.....	116
5.1	Display Parameters.....	117
5.2	Easy Configuration Parameters	118
5.3	Basic Configuration Parameters.....	120
5.4	Totalization Configuration Parameters	122
5.5	Auxiliary Function Configuration Parameters.....	125
5.6	Alarm Configuration Parameters	126
5.7	Display Configuration Parameters	130
5.8	Device Information Configuration Parameters	133
5.9	Diagnosis Function Configuration Parameters	136
5.10	Test mode Configuration Parameters	139
5.11	Backup/Restore/Data Logging Configuration Parameters	140
5.12	Parameter Protection Parameters	142
6.	Parameter Menu Tree	143
6.1	Display Menu Tree	143
6.2	EtherNet/IP Communication Menu Tree	156
	Revision Information	167

1. Introduction

This manual explains basic operations of ADMAG TI Series AXG, AXW Magnetic Flowmeter with EtherNet/IP Communication Protocol.

For items which are not covered in this manual, read the applicable user's manuals listed in "Table 1.1 Manual and General Specifications List" in the ADMAG TI Series Installation Manual. These documents can be downloaded from the YOKOGAWA website. To ensure the correct use of the product, read these manuals thoroughly and fully understand how to operate the product before operating it. To confirm the model name and specifications of the product, read the general specifications.

Website address: <https://www.yokogawa.com/library/>

■ Precautions Related to the Protection, Safety, and Alteration of the Product

The following safety symbol marks are used in this manual and the product.



WARNING

A WARNING sign denotes a hazard. It calls attention to a procedure, practice, condition, or the like, which, if not correctly performed or adhered to, could result in injury or death of personnel.



CAUTION

A CAUTION sign denotes a hazard. It calls attention to a procedure, practice, condition, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product.

IMPORTANT

An IMPORTANT sign denotes that attention is required to avoid damage to the product or system failure.

NOTE

A NOTE sign denotes information necessary for an essential understanding of operation and features.

The following symbols are used in the product and the manual to indicate the accompanying safety precautions:



Protective grounding terminal



Functional grounding terminal

(This terminal should not be used as a protective grounding terminal.)



Alternating current



Direct current



Caution

This symbol indicates that the operator must refer to an explanation in the user's manual in order to avoid the risk of injury or death of personnel or damage to the product.

For the protection and safe use of the product and the system in which this product is incorporated, be sure to follow the instructions and precautions on safety that are stated in user's manual whenever you handle the product. Take special note that if you handle the product in a manner that violates these instructions, the protection function of the product may be damaged or impaired. In such a case, YOKOGAWA does not guarantee the quality, performance, function, or safety of the product.

■ Regarding This User's Manual

- This manual should be provided to the end user.
- The contents of this manual are subject to change without prior notice.
- No part of this manual may be reproduced in any form without YOKOGAWA's written permission.
- YOKOGAWA makes no warranty of any kind with regard to this manual, including, but not limited to, implied warranty of merchantability and fitness for a particular purpose.
- If any questions arise or errors are found, or if any information is missing from this manual, inform the nearest YOKOGAWA sales office.
- The specifications covered by this manual are limited to those for the standard type under the specified model number break-down and do not cover custom-made products.
- Note that changes in the specifications, construction, or component parts of the product may not immediately be reflected in this manual at the time of change, provided that postponement of revisions will not cause difficulty to the user from a functional or performance standpoint.
- This manual is intended for the following personnel:
 - Engineers responsible for the installation and wiring of the product.
 - Personnel responsible for the normal daily operation of the product (operator).
- To ensure correct use, read this manual and the applicable manuals thoroughly before starting operation. Read the general specifications for specifications of the product.

■ Trademarks

- All the brands or names of Yokogawa Electric's products used in this manual are either trademarks or registered trademarks of Yokogawa Electric Corporation.
- All other company and product names mentioned in this manual are trade names, trademarks or registered trademarks of their respective companies.
- In this manual, trademarks and registered trademarks are not marked with "TM" or "®".
- EtherNet/IP is a registered trademark of ODVA.

1.1 For Safe Use of Product

For the protection and safe use of the product and the system in which this product is incorporated, be sure to follow the instructions and precautions on safety that are stated in user's manual whenever you handle the product. Take special note that if you handle the product in a manner that violates these instructions, the protection function of the product may be damaged or impaired. In such a case, YOKOGAWA shall not be liable for any indirect or consequential loss incurred by either using or not being able to use the product.

■ General



WARNING

- Do not open the cover in wet weather or humid environments. When the cover is open, the stated enclosure protection is not applicable.
- When opening the cover, wait for more than 20 minutes after turning off the power. Only an expert engineer or skilled personnel is permitted to open the cover.

■ Operation



WARNING

Be sure to enable the write protect function to prevent parameters from being overwritten after finishing parameter setting.

In rare cases, the IR switches may respond unexpectedly to water drops or extraneous substances sticking on the surface of the display panel due to characteristics of the operating principles. The possibility of malfunction arises after rain or cleaning near the place where the flowmeter is installed. Repeatedly turning a flashlight, etc. on and off in the direction of the IR switch may also be the cause of malfunction.

In addition, Enabling hardware write protect function is strongly recommended to avoid any IT security risk.

Read the installation manual for the hardware write protect function, and Section 4.10 for the software write protect function.

■ Maintenance



WARNING

- If dirt, dust, or other substances adheres to the glass of the display, wipe them clean with a soft dry cloth.
- Maintenance of this product should be implemented in a maintenance service shop where necessity tools and environment condition are provided. The required environmental condition is that the ambient temperature should be 5 to 40°C (the maximum relative humidity is 80 % for temperature 5 to 31°C, and decreasing linearly to 50 % relative humidity at 40°C).
- Status of hardware write protect function should be checked for IT security.

■ microSD card

IMPORTANT

- Do not store or use the microSD card in places with static electricity, near electrically charged objects, or where electrical noise is present. Doing so can result in shock or damage to the microSD card.
- Do not disassemble or modify the microSD card.
- Do not physically shock, bend, or pinch the microSD card.
- During reading/writing of data, do not turn off the power, apply vibration or shock, or pull out the card. Data can be corrupted or permanently lost.
- Use only the microSD cards designated by YOKOGAWA. The operation of the device cannot be guaranteed when other cards are used.
- When inserting the microSD card into the product, make sure to orient the microSD card correctly (face up or down) and insert it securely. If not inserted correctly, the microSD card will not be recognized by the product.
- Do not touch the microSD card with wet hands.
- Do not use the microSD card if it is dusty or dirty.
- The microSD card comes formatted. If you would like to format the microSD card, use the product's Format function.
- YOKOGAWA provides no warranty for damage to, or loss of data recorded on the microSD card, regardless of the cause of such damage or loss. We recommend regularly making backup copies of your data.
- Recommend that performing virus scan and no issue was confirmed before use of microSD card.
- If microSD is disposed, recommend that initialize the card in advance.

■ Ethernet connection



WARNING

- Ethernet connection with the device must be separated from external network, and the device must be installed only by control network that is separated by firewall.
- Remote access from PC on IT network to another PC on control network that is connected to the device is not allowed.
- PC that is connected to the device must be performed the security measure in advance.
- If the device and PC are connected via Ethernet, the wireless function of the PC connected to the IT network must be disabled.

NOTE

The control functions of the ADMAG TI soundly passed communication tests equivalent to Achilles level 1 certification, which certifies the robustness of industrial instruments.

1.2 Warranty

- The warranty shall cover the period described in the quotation presented to the purchaser at the time of purchase. Problems that may occur during the warranty period shall be repaired free of charge.
- In case of problems, the customer should contact the YOKOGAWA representative from which the product was purchased or the nearest YOKOGAWA office.
- If a problem arises with this product, please inform YOKOGAWA of the nature of the problem and the circumstances under which the problem developed, including the model specification and serial number. Any diagrams, data and other information you can include in your communication will also be helpful.
- Responsible part for repair costs of the problems shall be determined by YOKOGAWA based on our investigation.
- The purchaser shall bear the responsibility for repair costs, even during the warranty period, if the malfunction is due to:
 - Improper and/or inadequate maintenance by the purchaser.
 - Failure or damage due to improper handling, use, or storage which does not conform to design conditions.
 - Use of the product in question in a location not conforming to the standards specified by YOKOGAWA, or problems due to improper maintenance of the installation location.
 - Failure or damage due to modification or repair by any party except YOKOGAWA or an approved representative of YOKOGAWA.
 - Malfunction or damage from improper relocation of the product in question after delivery.
 - Reason of force majeure such as fires, earthquakes, storms/floods, thunder/lightning, or other natural disasters, as well as disturbances, riots, warfare, or radioactive contamination.

2. Operation by Display unit

2.1 Basic Operating Procedures

The parameter settings can be changed by using three IR (infra-red) switches; [SET], [SHIFT] and [▼] switches on the display. The three IR switches enable the user to set parameters from the outside of the glass of the display cover.

This section provides descriptions of basic parameter configuration on the display and operation procedures of the IR switches. This product can be also operated by using web page with wired Ethernet connection. For details about the setting procedure, refer to Chapter 4.



WARNING

Be sure to enable the write protect function to prevent parameters from being overwritten after finishing parameter setting.

In rare cases, the IR switches may respond unexpectedly to water drops or extraneous substances sticking on the surface of the display panel due to characteristics of the operating principles. The possibility of malfunction arises after rain or cleaning near the place where the flowmeter is installed. Turning on and off the flashlight, etc. towards the IR switch may also be the cause of the malfunction.

Read the Installation Manual for the hardware write protect function, and Section 4.10 for the software write protect function.

IMPORTANT

Operate the display under conditions where direct sunlight, etc. do not shine to the IR switches directly when the parameter setting operation is carried out.

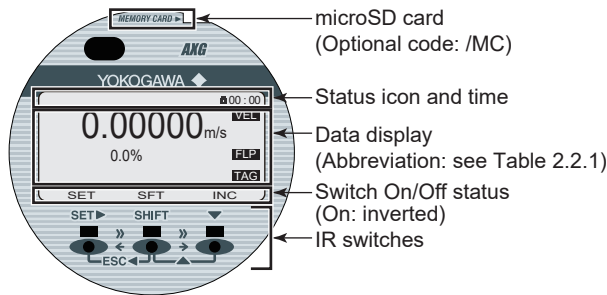
NOTE

- Always keep the display cover closed and operate the setting switches from the outside of the glass window.
- If dirt, dust, or other substances adheres to the glass of the display, wipe them clean with a soft dry cloth.
- Operation with dirty gloves may cause a switch response error.

2.2 Display and Basic Configuration

The display of the AXG transmitter has the various functions below.

2.2.1 Display Configuration



F0201.ai

(1) Basic operation of IR switches

The basic operations of the display panel are done by the three IR switches; [SET], [SHIFT], and [▼]. Combining two IR switches provides a different function, and the function of the switch is displayed on the display.

IR switch (Note 1)	Function of switch (Note 2)	Function
[SET ►]	SET	- Apply parameter and data (Note 3) - Move to next menu
[SHIFT]	SFT	- Set/reset Multiple selectable options (Select type parameter) - Move cursor right (Numeric type parameter)
[▼]	INC	- Move cursor down (Select type parameter) - Increment value (Numeric type parameter) - Change position of decimal point (Numeric type parameter)
[SHIFT] + [▼] (= [▲])	DEC	- Move cursor up (Select type parameter) - Decrement value (Numeric type parameter)
[SHIFT] + [SET ►] (= [ESC ◀])	ESC	- Cancel - Back to previous menu

Note 1: [A] + [B] (= [C]): The function is changed to switch [C] when switch [B] is pressed while pressing switch [A].

Note 2: [SET], [SFT], [INC], [DEC] and [ESC] indicate the assigned function in accordance with display mode at that time. All functions cannot be used simultaneously.

Note 3: "Apply" and "Enter" are executed by pressing [SET] twice. If the execution does not work properly, release your finger from the display glass completely after initially pressing [SET], and then, press that key again.

(2) Status icons

Icon	Description	Icon	Description
	Write protection function Disable		Write protection function Enable
	Device Busy		Device Fault
	microSD card Ready		microSD card Accessing
	microSD card Disable to access		Parameter Uploading
	Parameter Downloading		Trend graph function Running
	System Alarm Occurs		Setting Alarm Occurs
	Process Alarm Occurs		Information Occurs
	Warning Occurs		Operation level: Operator
	Display Damping Valid		Operation level: Specialist
	Operation level: Maintenance		

(3) Data indication part

Up to eight process values can be selected on the display. It is possible to display up to four items on the display at the same time, and the remaining four items can be displayed if scrolled.

Table 2.2.1 Abbreviation table of process values to be indicated on the display

Abbreviation	Description
FLP *1	Flow rate %
PRV *1	Process value
VEL *1	Flow velocity
VFL *1	Volumetric flow rate
MFL *1	Mass flow rate
FLB	Flow rate in % bar graph
TL1 *1	Totalized value 1
TL2 *1	Totalized value 2
TL3 *1	Totalized value 3
TAG	Tag No.
LTG	Long tag
COM	Communication protocol
ADH	Adhesion diagnostic level (Alarm at Level 4)
FNL	Flow level of flow noise diagnosis (Alarm at Level 4) (Only available for AXG, not for AXW)
TC1	Total 1 count
TC2	Total 2 count
TC3	Total 3 count

*1: A trend graph can be displayed online.

2.2.2 Operation Level

When setting a parameter from the display, configurable parameters differ depending on the three operation levels shown in Table 2.2.2. For maintenance and specialist levels, the pass code needs to be entered.

Table 2.2.2 Parameter Setting from Display and Operation Level

Operation Level	Parameter		Description
	Reading	Writing	
Operator	All parameters	Possible to set a display language on the display and parameters related to display items.	No pass code required
Maintenance	All parameters	Possible to set parameters allowed to set with the operator level and parameters related to zero adjustment.	Pass code required Default value: 0000
Specialist	All parameters	Possible to set all writable parameters	Pass code required Default value: 0000

A pass code can be configured only from the display.
This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Access cfg ► (see below)
----------------	--

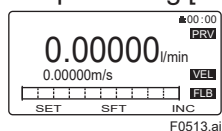
Parameter	Description
Chg mainte	Change of pass code (maintenance code) with maintenance operation level authority. To change the level, maintenance or specialist operation level authority is necessary.
Chg special	Change of pass code (special code) with specialist operation level authority. To change the level, specialist operation level authority is necessary.

2.3 Display Mode and Setting Mode

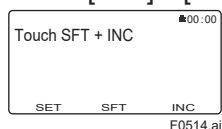
The device runs in Display Mode when the power is on. To check or change parameters, Setting Mode must be activated. The following procedure explains how to change to Setting Mode from Display Mode. For the functions of the IR switches, refer to Subsection 2.2.1.

[Procedure]

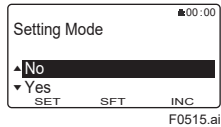
- 1) Keep touching [SET] switch for few seconds.



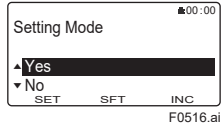
- 2) Touch [SFT] + [INC] switches.



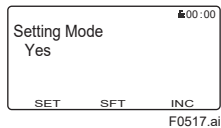
- 3) "No" is selected.
Touch [INC] switch and select "Yes".



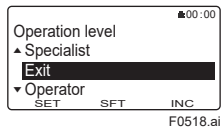
- 4) Touch [SET] switch.



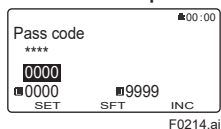
- 5) "Yes" is blinking.
Touch [SET] switch again.



- 6) The screen moves to the menu of Operation Level.



- 7) Select an appropriate operation level by moving the cursor with the [INC] or [DEC] switch. The "Operator" does not require a pass code, but for "Maintenance" and "Specialist", the pass code is necessary. When setting the pass code, [SFT] is for position change, [INC] is for number change, and pressing [SET] twice is for entry completion. The default pass code is set to "0000" when shipped from the factory.



- 8) When the operation level is determined, the screen moves to "Device setup" and switches to Setting Mode. In Setting Mode, parameters can be configured.
9) After completing the parameter settings, press the [ESC] switch. The screen will return to Display Mode.

IMPORTANT

Menu path

Display	Device setup ► Easy setup wizard
---------	----------------------------------

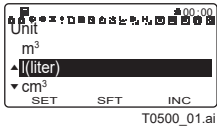
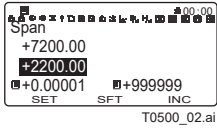
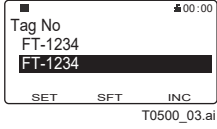
When parameters on the menu described above are set in the Wizard of Easy setup, be sure to execute "Setting download" in each menu after setting the parameters. If "Setting download" is not executed, any changed parameters will not be correctly applied to the device.

NOTE

If there is no operation for 10 minutes in Setting Mode, the screen goes back to Display Mode.

Parameter form

The following three parameter forms are available.

Type	Example of display	Description
Select type		Selects the adequate type of data from among the pre-determined alternatives.
Numeric type		Specifies the data with a combination of number and a decimal point for each digit.
Alphanumeric type		The data is configured with the combination of alphanumeric characters. (Tag No., Special unit, etc.)

The alphanumeric type displays the following alphanumeric characters in order.

0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz!#\$%&'()*+,-./:;<=>?@
[] ^ _ { } ~ "space"

2.4 Parameter Setting from Display Panel

This section explains how to specify the parameters from the display panel. Refer to Section 2.3, and set the operation level to “Specialist”. Also select a parameter to be specified in the Setting Mode.

NOTE

The flow rate unit, span flow, and tag No. are explained as an example.
If particular parameters are specified at the time of ordering, this product is shipped with the parameter specified. If a parameter is not specified at the time of ordering, that parameter needs to be set by the customer.

2.4.1 Setting Example of Select Type Parameter (Flow rate unit)

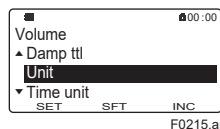
The following is the procedure of changing the flow rate unit for the Select type parameter. The physical unit and time unit need to be specified individually for the flow rate unit. When setting the volumetric flow rate unit to l/min, set “l (liter)” to the physical unit and “/min” to the time unit.

This setting can be configured with the following parameters.

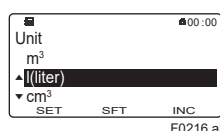
Menu path

Display	Device setup ▶ Detailed setup ▶ Pro var ▶ Volume ▶ (see below)
----------------	--

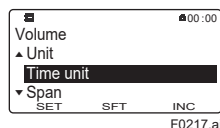
Parameter	Description
Unit	Specifies the physical unit of the volumetric flow rate.
Time unit	Specifies the time unit of the volumetric flow rate.



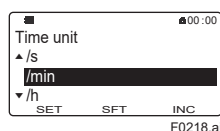
Specify the physical unit for volumetric flow rate. Move the cursor with [INC] or [DEC] according to the menu path described above, press [SET] to determine, and select the “Unit”.



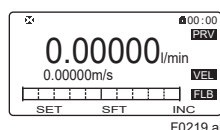
Move the cursor with [INC] or [DEC], press [SET] to determine, and select the “l(liter)”. While the selected unit is blinking, press [SET] to determine the unit. The screen returns to the setting page after completing the setting.



Specify the time unit for volumetric flow rate. Move the cursor with [INC] or [DEC] according to the menu path above, press [SET] to determine, and select the “Time unit”.



Move the cursor with [INC] or [DEC], select “/min”, and then press [SET]. While the selected unit is blinking, press [SET] to determine the unit. The screen returns to the setting page after completing the setting.



After completing the parameter setting, you can return the screen to Display Mode by pressing [ESC].

NOTE

Be sure to set the flow rate unit first when changing the flow rate unit and flow span value at the same time.
When the flow rate unit is changed, the span flow rate is converted in conjunction with the changed unit.

2.4.2 Setting Example of Numeric Type Parameter (Flow rate span)

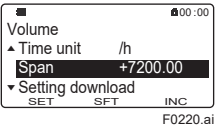
The following is the procedure of changing the flow rate span as numeric type parameter.
This setting can be configured with the following parameters.

Menu path

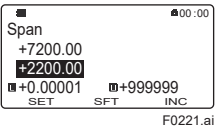
Display	Device setup ▶ Detailed setup ▶ Pro var ▶ Volume ▶ Span
---------	---

NOTE

Be sure to set the flow rate unit first when changing the flow rate unit and flow span value at the same time.
When the flow rate unit is changed, the span flow rate is converted in conjunction with the changed unit.



Specify the flow rate span unit.
Move the cursor with [INC] or [DEC] according to the menu path above, press [SET] to determine, and select the "Span".



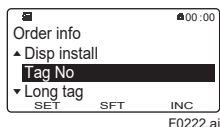
The switch's functionality for setting the span flow rate is as below:
Plus/minus and numeric change: [INC]
Movement of digits: [SFT]
Determination of parameter: [SET]
[]: Minimum value
[]: Maximum value
Press [SET] to determine the parameter while the setting value of the flow rate span is blinking. The screen returns to the setting page after completing the setting.

2.4.3 Setting Example of Alphanumeric Type Parameter (Tag No.)

The following is the procedure of changing the Tag No. of alphanumeric type parameter. This setting can be configured with the following parameters.

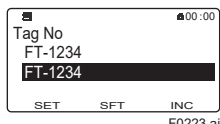
Menu path

Display	Device setup ► Detailed setup ► Device info ► Order info ► Tag No
----------------	---



Specify the Tag No..

Move the cursor with [INC] or [DEC] according to the menu path above, press [SET] to determine, and select the "Tag No".



The Tag No. can be set with up to eight characters from the display.

The switch's functionality for setting the Tag No. is as follows:

Number and character change: [INC]

Movement of digits: [SFT]

Determination of parameter: [SET]

Available characters: ASCII characters

Press [SET] to determine the parameter while the value of Tag No. is blinking. The screen returns to the setting page after completing the setting.

2.5 microSD Card Insertion/Removal

If the optional code MC is selected, the parameter setting can be stored into the dedicated microSD card inserted into the display unit. The stored data can be restored to the device. For detailed on the functions, refer to Chapter 4.

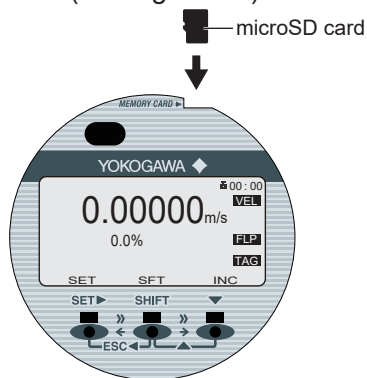


WARNING

Use only a microSD card designated by YOKOGAWA. The operation of the device cannot be guaranteed when other cards are used.

(1) Insertion of microSD Card

Carefully insert the dedicated microSD card into the slot on the display until the slot holds the card. (see Figure 2.5).



F0224.ai

Figure 2.5 Insertion of microSD Card

(2) Removal of microSD Card

Remove the microSD from the slot shown in Figure 2.5.

When removing the microSD card, select “Execute” from the following parameters.

Menu path

Display	Device setup ► microSD ► Unmount
---------	----------------------------------

IMPORTANT

If the microSD card is removed without executing “Unmount” on the software, it may cause the stored data to be erased or the product to operate abnormally.

3. Operation with Web Page

This chapter describes the connection of this instrument and wired Ethernet connection, and the operations using web page.

3.1 Connecting Ethernet Configuration Tool

The Ethernet configuration can connect with this product from any connection point of RJ-45. Port 1 and/or Port2 can be used for plant operation and maintenance of Ethernet communication. See Figure 3.1 for a connection example in device.

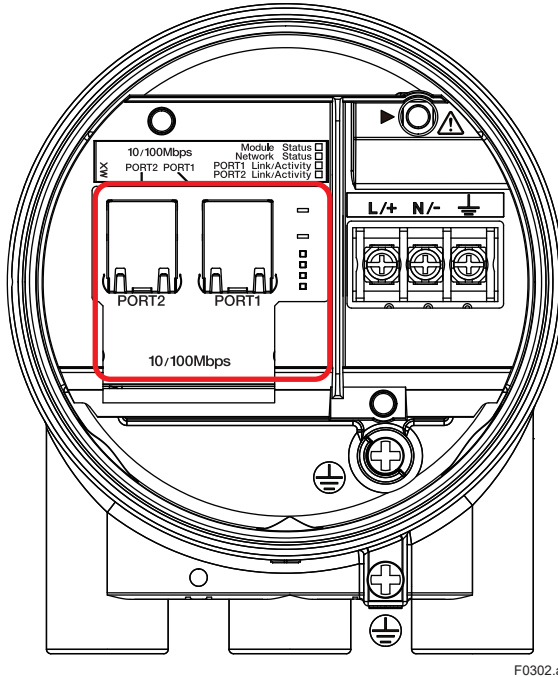


Figure 3.1 Connecting the Ethernet configuration tool with RJ-45 ports

NOTE

For maintenance (temporary connection) purpose, connect RJ-45 Ethernet cable without passing through the cable hole of device.

3.2 Network Configuration

Supported software

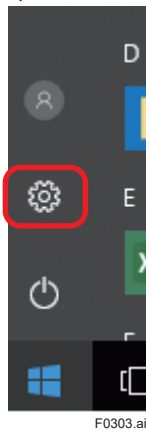
Operation systems	Microsoft Windows 7 or later
Web browser	Internet explorer 8 or later Google chrome Microsoft Edge

Network configuration procedure

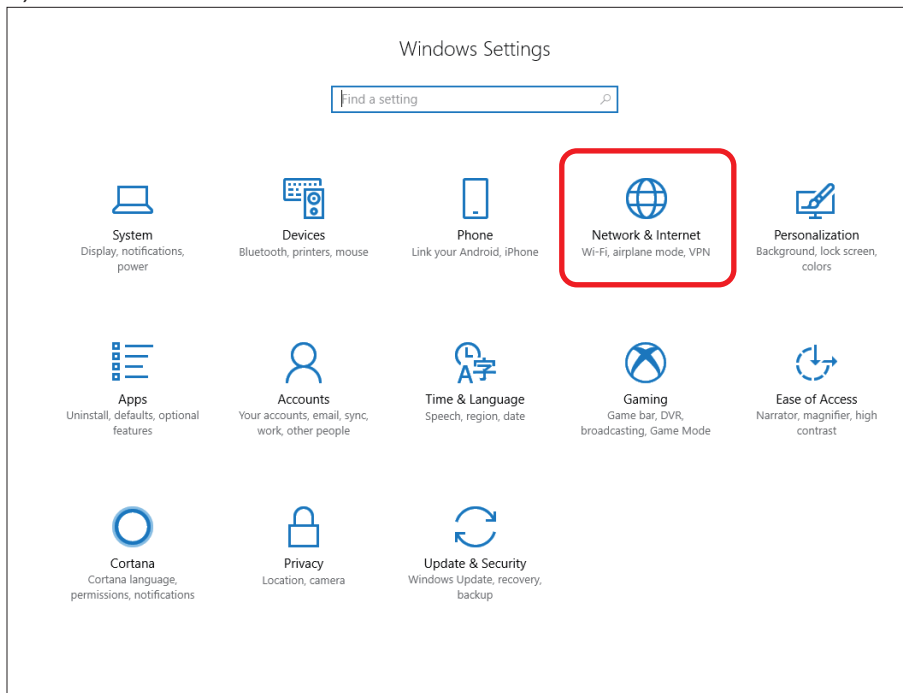
NOTE

To configure network setting on computer, appropriate access rights are required. (e.g. Administrator)
Enable Java script to use web browser for parameter settings.

- 1) Click Start menu and select Settings icon

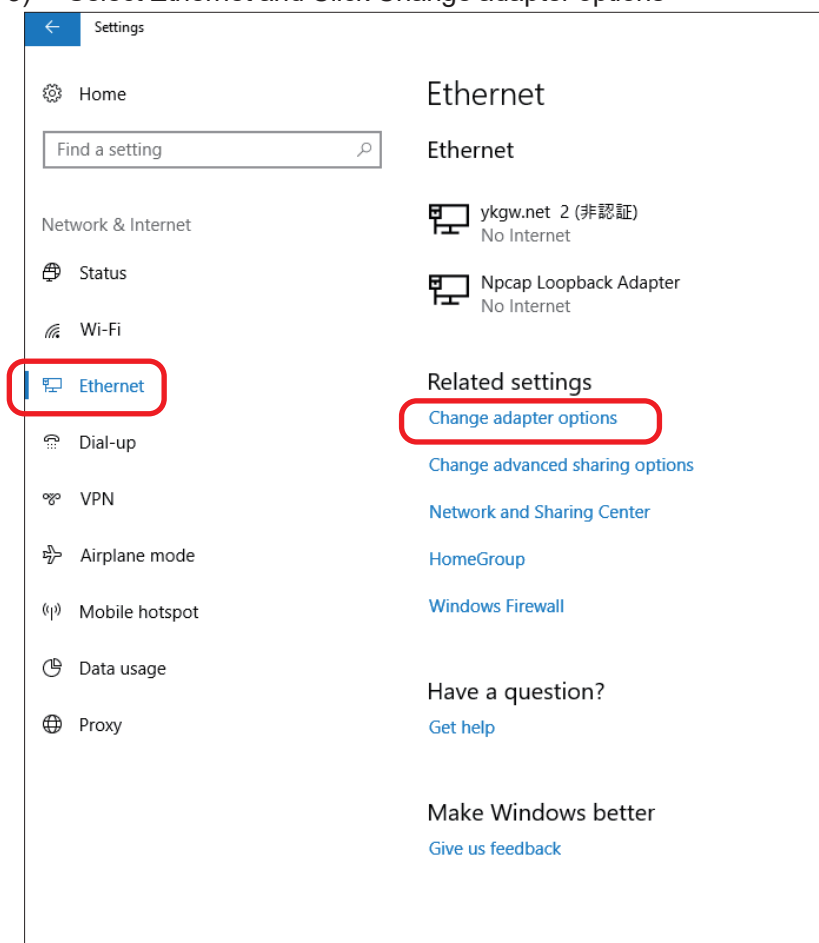


2) Select Network & Internet



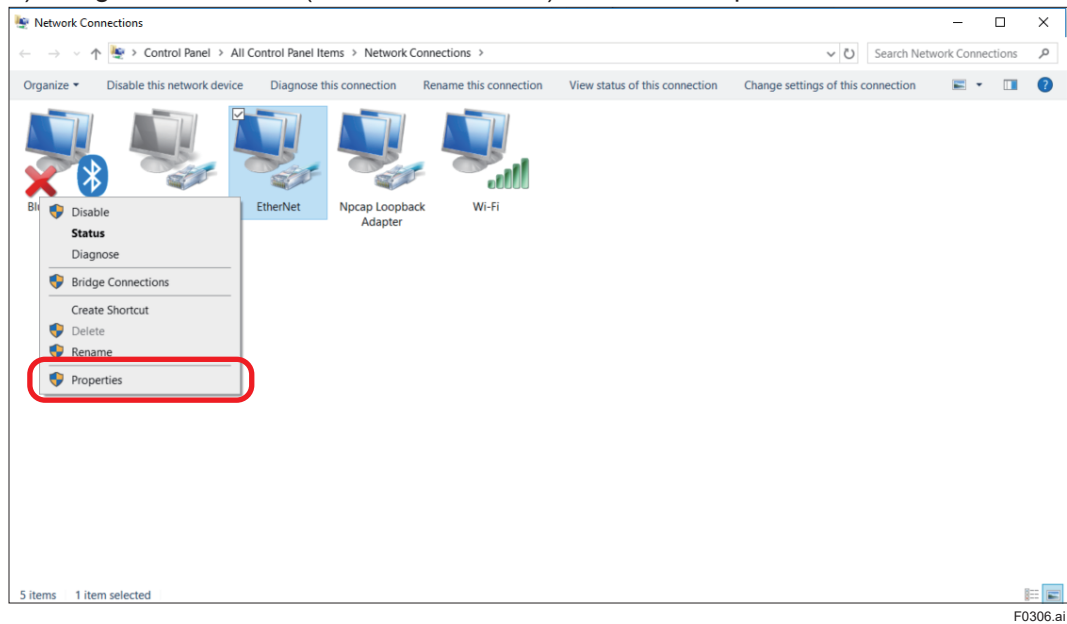
F0304.ai

3) Select Ethernet and Click Change adapter options



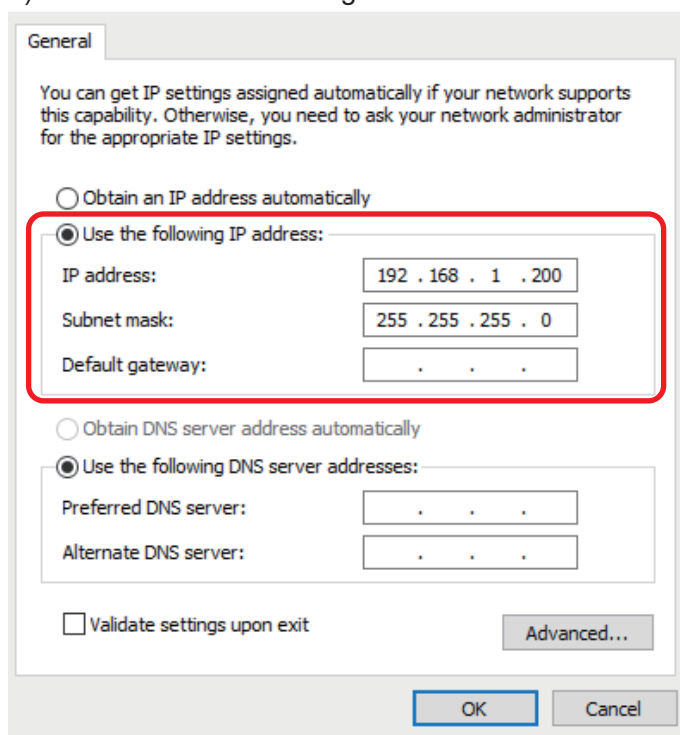
F0305.ai

4) Right-click Ethernet(Local Area Network) and select Properties



5) Select Internet Protocol Version 4(TCP/IPv4) and press Properties button

6) Select Use the following address: and enter IP address, Subnet mask



F0307.ai

NOTE

Typical settings of IP address, subnet mask and default gateway

IP address: 192.168.1.xxx (xxx is 1...254 except for 210)

Example setting

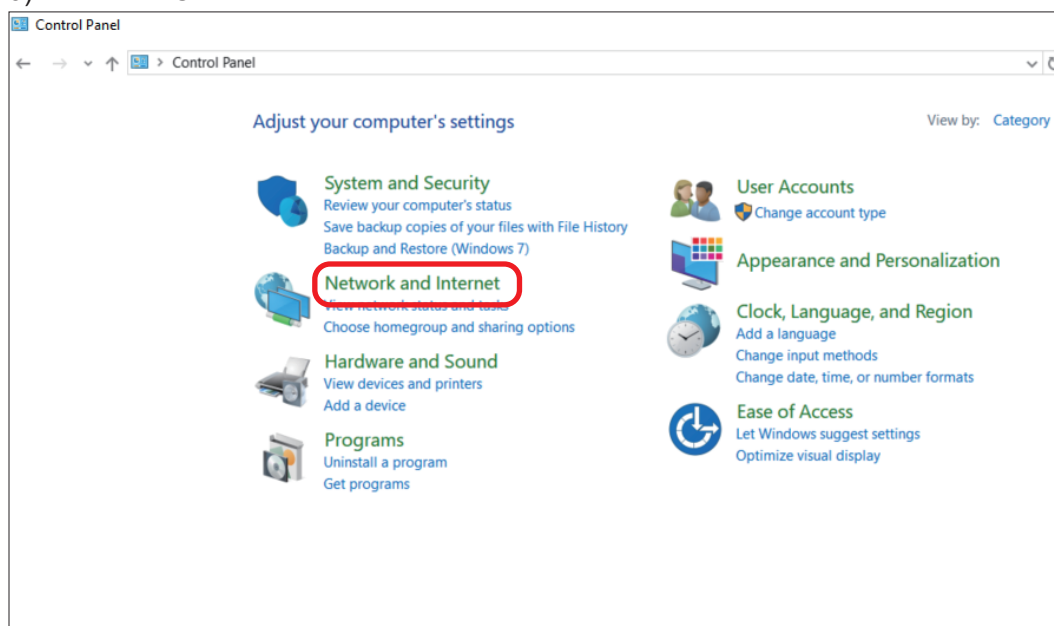
IP address: 192.168.1.200

Subnet mask: 255.255.255.0

Default gateway: empty

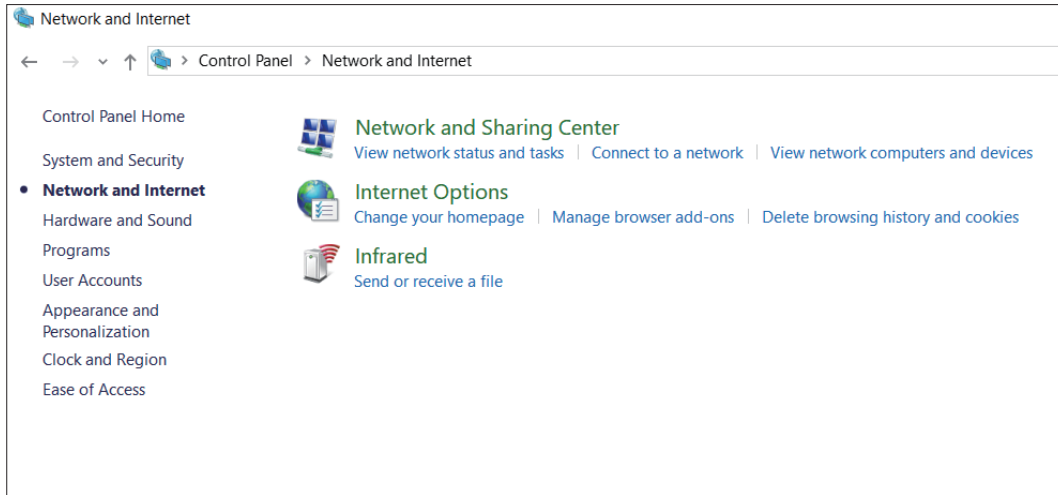
Default IP address of the device is 192.168.1.210 if no delivery setting is specified.

- 7) Press OK button to close Internet Protocol Version 4(TCP/IPv4)
- 8) Press OK button to close Ethernet(Local Area Network) properties screen
- 9) Move to Control Panel and click Network and Internet



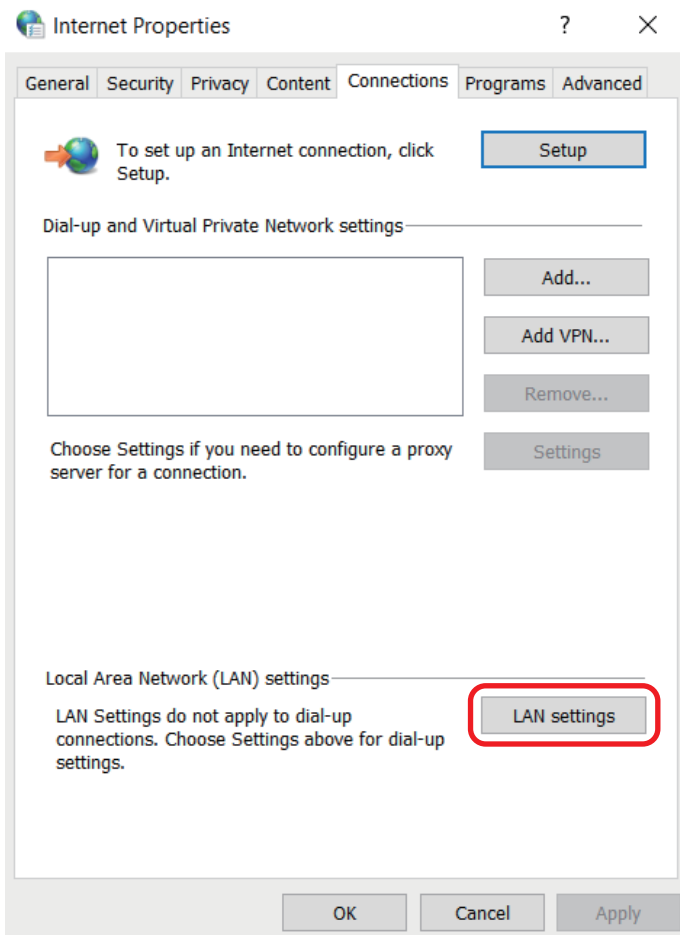
F0308.ai

10) Click Internet Options



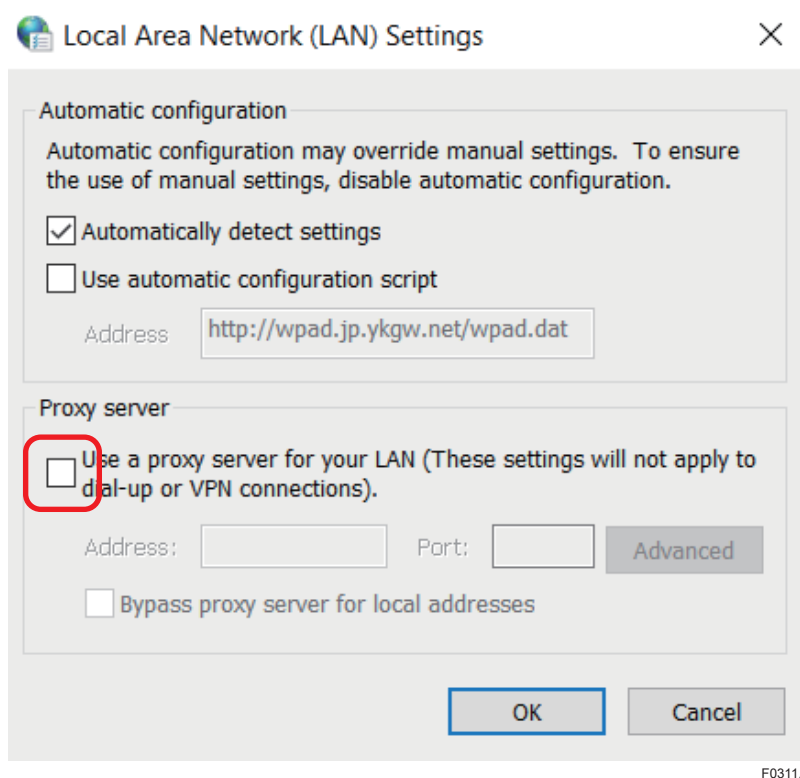
F0309.ai

11) Select Connections tab and click LAN settings button



F0310.ai

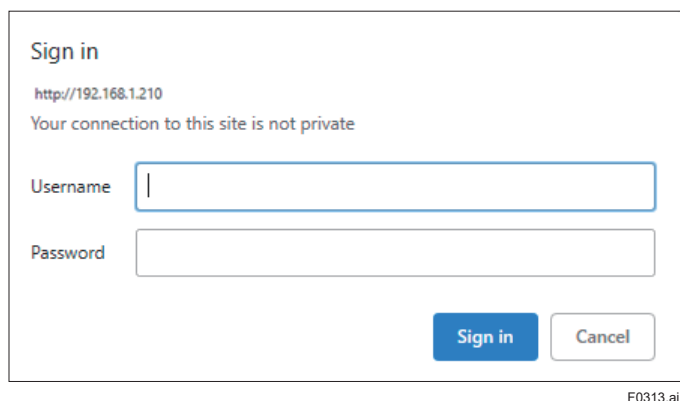
- 12) Uncheck Proxy server and click OK button



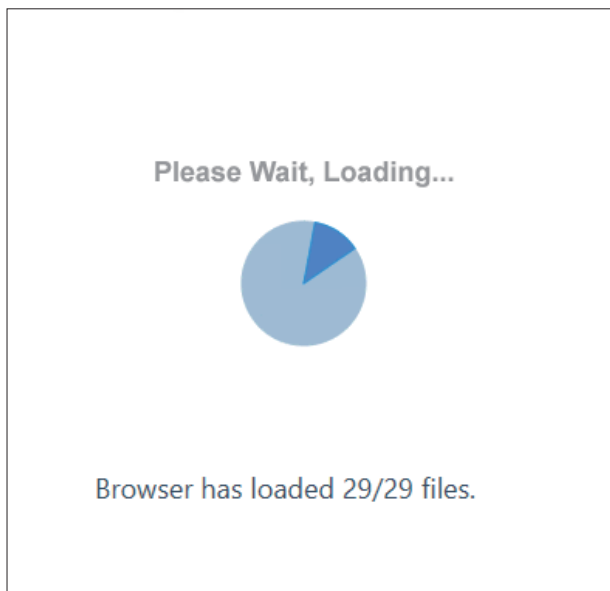
- 13) Press OK button to close Internet properties screen
- 14) Open web browser
- 15) Enter <http://192.168.1.210/index.html> and press Enter button
If IP address was specified at the time of ordering, set the specified value.



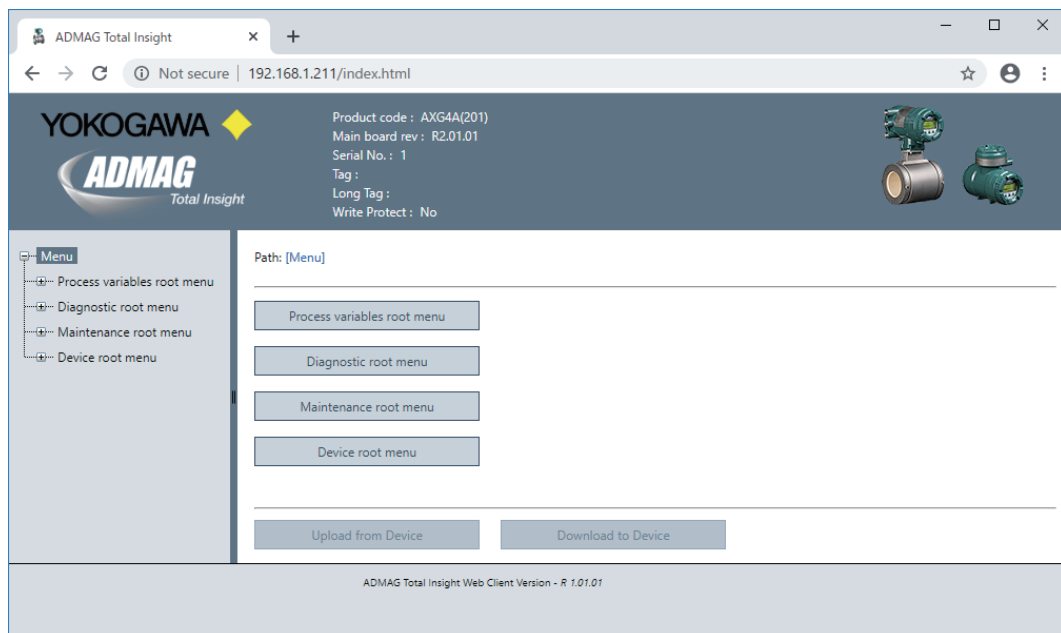
- 16) Enter User name and Password
User name: admagti
Password: 0000



When authorization is success, the following screen is shown for a few sec and then top page for parameter settings is shown.



F0314.ai



F0315.ai

When authorization failed, error message like the following screen is shown.
Then, go back to procedure 15.

Authorization Required

This server could not verify that you are authorized to access the document requested. Either you supplied the wrong credentials (e.g., bad password), or your browser doesn't understand how to supply the credentials required.

F0316.ai

3.3 Web Page Structure

F0317.ai

Header

This area shows device information and status of write protect.

Menu

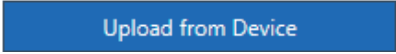
This area shows menu structure for parameter settings. Expand menu tree by clicking + button and close it by clicking - button.

See chapter6 for details of menu structure.

Parameter

This area shows menu and/or parameters.

Items	Sample	Descriptions
Path	Path: [Menu]-[Process variables root menu]	Shows menu path.
Parameter	Display select1	Shows parameter name.
Edit status		Shows editing parameter.
Input portion (numbers, characters)	9999999999	Shows/Enters parameter value. Read only parameter is shown by gray-out.
Input portion (password)		Enters parameter values with hidden mark.
Input portion (Selection)	MI(Megaliter)	Shows/Selects parameter value. Read only parameter is shown by gray-out and cannot be expanded.
Input portion (Multiple selection)	Velocity test on Volume flow test on Mass flow test on	Shows/Selects parameter value. Read only parameter is only shown by active selection name. Maximum 4 lines display without scrolling.
Check-box list	Alarm record mask 2 ☐ 50:Signal overflow on ☐ 51:Empty pipe detection on ☐ 52:H/L HH/LL alarm on ☐ 53:Adhesion over level 4 on ☐ 85:Cable misconnect on OK Cancel	Shows/Selects the parameter values when space area of input portion (Multiple selection) is clicked.
Menu button	Device variables	Shows lower menu.

Items	Sample	Descriptions
Unit	kg/h	Shows unit to right side of the parameter if the parameter has unit.
Error message	Input value exceeds range.	Show error message of the parameter when a device returns error response or no device response.
Reading parameters		Updates device parameters are shown on current opened page. Parameters on current opened page expect for editing parameters are periodically/automatically updated.
Writing parameters		Writes edited device parameters are shown on current opened page.

3.4 Basic Setup

If the dedicated parameters are specified at the time of ordering, this product is shipped with the Tag No. or device information configured.

The Tag No. and device information can be checked and set with the following parameters.

■ Tag No. (Tag, Long tag)

Menu path

Ethernet	Device root menu ► Detailed setup ► Device information ► Order information ► (see below)
-----------------	--

Parameter	Description
Tag	Up to 16 alphanumeric characters *1
Long tag	Up to 32 alphanumeric characters *2

*1: Symbols, letters and numbers enclosed by the thick line in the following table are available.

*2: All symbols, letters and numbers in the following table are available.

SP	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
p	q	r	s	t	u	v	w	x	y	z	{		}	~	

* "SP" indicates a space.

■ Network setting (DHCP enable, IP address, Subnet mask, Default gateway)

(1) DHCP enable

Menu path

Ethernet	Ethernet Device root menu ► Detailed setup ► Device information ► Ethernet communication ► DHCP enable
-----------------	--

Selection	Description
Disable	DHCP is not active and fixed IP address configuration is used.
Enable	DHCP is enable and IP address is automatically assigned.

(2) IP address, Subnet mask, Default gateway

Menu path

Ethernet	Device root menu ► Detailed setup ► Device information ► Ethernet communication ► (see below)
-----------------	---

Parameter	Description
IP address	Sets fixed IP address. The IP address is available when DHCP is not active.
Subnet mask	Sets Subnet mask. The Subnet mask is available when DHCP is not active.
Default gateway	Sets Default gateway. The Default gateway is available when DHCP is not active.

NOTE

Typical settings of IP address, subnet mask and default gateway

IP address: 192.168.1.xxx (xxx is 1...254)

Example setting

IP address: 192.168.1.207

Subnet mask: 255.255.255.0

Default gateway: empty

Default IP address of the device is 192.168.1.210 if no delivery setting is specified.

NOTE

Network parameter settings like DHCP enable, IP address, Subnet mask and Default gateway are reflected after cycling on the device when these parameters are configured from the web page.

NOTE

DHCP and last octet of IP address setting by dip switch is also available. Refer to IM01E22A01-01 or IM01E24A01-01 for details.

When IP address is set by dip switch, first 3 octet can be set by the following software parameter.

3 octet IP address for HW switch

3.5 Parameter Configuration

The parameter structure of the web page is hierarchical and various settings are available. For details of the menu tree and parameter, refer to Chapters 4 and 5.

Note that some display parameters are different from those of the web page.

**CAUTION**

Note that a parameter cannot be set with the display while communicating with Ethernet.

3.6 Product Code/Name and EDS file for EtherNet/IP

EDS file is required to connect host application tool for EtherNet/IP (e.g. PLC). If EDS is not installed in the host tool, download the correct EDS file from ODVA official web site and install it, or contact respective vendor of the host tool.

EDS file is separated by the Product code/name. Confirm the following table to install the correct EDS file.

Vendor ID	250
Vendor Name	Yokogawa Electric Corporation
Product Code	AXG: 201 AXW: 206
Product Name	AXG4A Magnetic Flowmeter AXW4A Magnetic Flowmeter

3.7 Cyclic Communication

This device has 4 inputs, an output and a configuration output for cyclic communication of EtherNet/IP. These cyclic data can be sent to host application on EtherNet/IP (e.g. PLC). The following tables show the cyclic data structure.

Input 1 (Assem 100), 61 bytes

Description	Byte
Flowrate%	1-4
PV	5-8
Total 1	9-12
Total 2	13-16
Total 3	17-20
Total 1 cnt	21-24
Total 2 cnt	25-28
Total 3 cnt	29-32
Velocity	33-36
Volume flow	37-40
Mass flow	41-44
Status group 0	45-48
Status group 1	49-52
Status group 2	53-56
Status group 3	57-60
Velocity unit	61

Input 2 (Assem 101), 39 bytes

Description	Byte
Flowrate%	1-4
PV	5-8
Total 1	9-12
Total 1 cnt	13-16
Volume flow	17-20
Status group 0	21-24
Status group 1	25-28
Status group 2	29-32
Status group 3	33-36
Volume unit	37
Time unit	38
Total 1 unit	39

Input 3 (Assem 102), 62 bytes

Description	Byte
Flowrate%	1-4
PV	5-8
Total 1	9-12
Total 2	13-16
Total 3	17-20
Total 1 cnt	21-24
Total 2 cnt	25-28
Total 3 cnt	29-32
Volume flow	33-36
Mass flow	37-40
Status group 0	41-44
Status group 1	45-48
Status group 2	49-52
Status group 3	53-56
Volume unit	57
Mass unit	58
Time unit	59
Total 1 unit	60
Total 2 unit	61
Total 3 unit	62

Input 4 (Assem 103), 49 bytes

Description	Byte
Status group 0	1-4
Status group 1	5-8
Status group 2	9-12
Status group 3	13-16
Adhesion measure value	17-20
Adhesion status	21
-	22
-	23
-	24
Flow noise value*1	25-28
Flow noise status*1	29
-	30
-	31
-	32
Conductivity*1	33-36
IEX coil resistance	37-40
Electrode voltage A	41-44
Electrode voltage B	45-48
Empty status	49

*1: Only available for AXG, not for AXW

Output 1 (Assem 150), 6 bytes

Description	Byte
Total 1 start/stop	1
Total 1 reset/preset	2
Total 2 start/stop	3
Total 2 reset/preset	4
Total 3 start/stop	5
Total 3 reset/preset	6

Configuration (Assem 5), 92 bytes

Description	Byte
Velocity damping	1-4
Velocity damping for TTL	5-8
Volume flow damping	9-12
Volume flow damping for TTL	13-16
Mass flow damping	17-20
Mass flow damping for TTL	21-24
Velocity unit	25
Volume unit	26
Mass unit	27
Time unit	28
Total 1 conversion factor	29-32
Total 1 lowcut	33-36
Total 1 failure option	37
Total 1 option	38
-	39
-	40
Total 1 preset value	41-44
Total 2 unit	45
-	46
-	47
-	48
Total 2 conversion factor	49-52
Total 2 lowcut	53-56
Total 2 failure option	57
Total 2 option	58
-	59
-	60
Total 2 preset value	61-64
Total 3 unit	65
-	66
-	67
-	68
Total 3 conversion factor	69-72
Total 3 lowcut	73-76
Total 3 failure option	77
Total 3 option	78
-	79
-	80
Total 3 preset value	81-84
Flow direction	85
Density unit	86
-	87
-	88
Fixed density	89-92

4. Functions

This chapter describes the functions of the product. Following is an overview of each function.

■ Basic settings

This product can measure the process values of the flow velocity, volumetric flow rate, mass flow rate, and flow noise at the same time. A damping time constant can be specified for each process value.

For details about how to check measured results and the setting procedure, read Section 4.1.

■ Totalization function

This product has three totalizers for totalizing selected process values. In addition to the totalized value display function, the product has a totalization counter function to scale totalized values with the conversion factor and to count a specific flow rate. A totalization preset function that totalization starts from a value set in advance.

For details about the totalization function and setting procedures, read Section 4.2.

■ Alarm

A detected error can be notified as an alarm or warning. This function can show the error status based in accordance with NAMUR NE107 to suit parameter settings. It is also possible to record alarms that occurred in the past in the history and mask unnecessary so that they are hidden on the display.

For details about contents and setting procedures, read Section 4.4.

■ Display

This display supports an English language for use on the display. This function can also show the time changes of the selected parameter in a trend graph on the display.

For details about display settings, read Section 4.5.

■ Device information

With this function, the parameters specified at the time of order, model code, and suffix code of this product can be checked on the display.

For details about how to check the device information, read Section 4.6.

■ Self-diagnostic function

The self-diagnostic function can be used to diagnose failures of the product or the process state.

For example, this function is useful for diagnosing the health of the product by using the electrode adhesion detecting function, sensor empty check function, or verification function.

For details about the various self-diagnostic functions, read Section 4.7.

■ Test mode

With this mode, the process value can be arbitrarily specified to test a response from the product.

For details about the test mode, read Section 4.8.

■ Backup, Restore, and Duplicate of Parameter

The backup function can store settings of the parameters into the built-in memory in the display. If the optional code MC is selected, setting parameters are stored in the microSD card supplied with this product in addition to the built-in memory in the display (display board).

The backup data can be used to restore settings of the product for which data is backed up or duplicate settings to another product.

For details about the backup, restore, and duplicate functions, read Section 4.9.

■ Software write protection function

A write protect can be changed using the hardware write protection switch and the parameter settings (software write protection).

For details about the hardware write protection switch, read the Installation Manual. For details about the software write protection function, read Section 4.10.

4.1 Basic Settings

4.1.1 Overview

This product can measure flow velocity, volumetric flow rate, mass flow rate, and flow noise at the same time. A measured result can be output as an Ethernet communication.

4.1.2 PV Mapping of Process Value

The flow velocity, volumetric flow rate, mass flow rate, and flow noise can be mapped to the primary variable (PV).

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Pro var ► PV flow select
Ethernet	Device root menu ► Detailed setup ► Process variables ► PV flow select

Selection		Description
Display	Ethernet	
Velocity	Velocity	Specifies the flow velocity to the Primary Value.
Volume	Volume	Specifies the volumetric flow rate to the Primary Value.
Mass	Mass	Specifies the mass flow rate to the Primary Value.
Diag	Diag	Specifies the flow noise to the Primary Value. (Only available for AXG, not for AXW)

Setting example: If the volumetric flow rate is set to PV, and the volumetric flow rate span is set to 100 m³/h for use, set the parameters as follows.

PV flow select="Volume"

Volume flow unit="m³"

Time unit="/h"

Volume flow span="100.000"

Setting example: If the mass flow rate is set to PV, with the mass flow rate span being set to 10,000 kg/h and the density to 1000 kg/m³ for use, set the parameters as follows.

Density unit="kg/m³"

Density fixed value="1000.000"

PV flow select="Mass"

Mass flow unit="kg"

Time unit="/h"

Mass flow span="10000.0"

4.1.3 Display of the Process Value

The flow velocity, volumetric flow rate, mass flow rate, totalized value, and flow noise can be checked with the following parameters.

■ Flow rate (PV)

Menu path

Display	Device setup ► Process variables ► (see below)
Ethernet	Process variables root menu ► Device variables ► (see below)

Parameter		Description
Display	Ethernet	
Flow rate(%)	Flow rate(%)	Displays the percentage to the range for the process value set to the Primary Value.
Flow rate	PV	Displays the process value set to the Primary Value.

■ Flow velocity, Volumetric flow rate, Mass flow rate, Totalized

Menu path

Display	Device setup ► Process variables ► (see below)
Ethernet	Process variables root menu ► Device variables ► (see below)

Parameter		Description
Display	Ethernet	
Velocity	Velocity	Displays the flow velocity.
Volume	Volume flow	Displays the volumetric flow rate.
Mass	Mass flow	Displays the mass flow rate.
Totalizer ► Totalizer 1	Totalizer1	Displays the totalized value of totalizer 1.
Totalizer ► Totalizer 2	Totalizer2	Displays the totalized value of totalizer 2.
Totalizer ► Totalizer 3	Totalizer3	Displays the totalized value of totalizer 3.

■ Flow noise

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Result ► Value
Ethernet	Process variables root menu ► Device variables ► Flow noise

This parameter is only available for AXG, not for AXW.
This parameter displays the flow noise.

4.1.4 Unit Setting

Units can be specified for the flow velocity, volumetric flow rate, mass flow rate. Each flow rate unit can be specified with the physical unit and the time unit, individually. However, note that the time unit is common to all flow rates. Also, the unit of the flow velocity is fixed to “cm/s” and it cannot be changed.

Example) To set the volumetric flow rate unit to “m³/h”

The volumetric unit can be set to “m³/h” and the time unit to “/h”. At this time, the time unit for the mass flow rate is also set to “/h”.

This setting can be configured with the following parameters.

■ Physical unit

Menu path

Display	Device setup ► Detailed setup ► Pro var ► (see below)
Ethernet	Device root menu ► Detailed setup ► Process variables ► (see below)

Parameter		Description
Display	Ethernet	
Velocity ► Unit	Velocity ► Velocity unit	Specifies the physical unit of the flow velocity.
Volume ► Unit	Volume flow ► Volume flow unit	Specifies the physical unit of the volumetric flow rate.
Mass ► Unit	Mass flow ► Mass flow unit	Specifies the physical unit of the mass flow rate.

■ Time unit

Menu path

Display	Device setup ► Detailed setup ► Pro var ► (see below)
Ethernet	Device root menu ► Detailed setup ► Process variables ► (see below)

Parameter		Description
Display	Ethernet	
Volume ► Time unit	Volume flow ► Time unit	Specifies the time unit of the volumetric flow rate.
Mass ► Time unit	Mass flow ► Time unit	Specifies the time unit of the mass flow rate.

4.1.5 Span Setting

A span can be specified for the flow velocity, volumetric flow rate, mass flow rate, and flow noise. However, the unit for the span is the same as the unit specified in Subsection 4.1.4. If the unit is changed, the span value is converted to match the changed unit. This setting can be configured with the following parameters.

■ Flow velocity, Volumetric flow rate, Mass flow rate

Menu path

Display	Device setup ► Detailed setup ► Pro var ► (see below)
Ethernet	Device root menu ► Detailed setup ► Process variables ► (see below)

Parameter		Description
Display	Ethernet	
Velocity ► Span	Velocity ► Velocity span	Specifies the span of the flow velocity.
Volume ► Span	Volume flow ► Volume flow span	Specifies the span of volumetric flow rate.
Mass ► Span	Mass flow ► Mass flow span	Specifies the span of the mass flow rate.

■ Flow noise

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Span
Ethernet	Diagnostic root menu ► Diagnosis ► Flow noise ► Flow noise span

This parameter is only available for AXG, not for AXW.

This parameter specifies the span of the flow noise.

NOTE

Be sure to note the following points when specifying the flow rate span.

- For a line with a significant flow change, set the flow rate span to the maximum flow rate. If the flow rate exceeds the flow rate span, the error of the flow rate% increases.
- For a line with a stable flow rate, set the flow rate span to approximately 1.5 to 2.0 times the normal flow rate.
- For flow rate span, set the value for which the flow velocity is comparable to the range from 0.3 to 10 m/s. The converted value to the flow velocity unit can be checked using the sizing data described in the general specifications or the parameter (Subsection 4.1.12). For the parameter in Subsection 4.1.12, it displays the value obtained by converting the specified flow rate span to the flow velocity unit.

NOTE

Be sure to set the flow rate unit first when the span value and its flow rate unit are changed at the same time.

4.1.6 Damping Time Constant Setting

The damping time constant (63.2% response) can be specified for the flow velocity, volumetric flow rate, mass flow rate, and flow noise. To reduce an output fluctuation or change the response speed, change the damping time constant (default value is 3.0 seconds).

It is possible to measure a pulsing flow of up to 1 Hz with an output damping of 0.1 seconds for a piston pump, etc.

The damping time constant can be set for the output of each process value.

This setting can be configured with the following parameters.

■ Process value

Menu path

Display	Device setup ► Detailed setup ► Pro var ► (see below)
Ethernet	Device root menu ► Detailed setup ► Process variables ► (see below)

Parameter		Description
Display	Ethernet	
Velocity ► Damp	Velocity ► Velocity damping	Specifies the damping time constant of the flow velocity.
Volume ► Damp	Volume flow ► Volume flow damping	Specifies the damping time constant of the volumetric flow rate.
Mass ► Damp	Mass flow ► Mass flow damping	Specifies the damping time constant of the mass flow rate.

■ Totalizer

Menu path

Display	Device setup ► Detailed setup ► Pro var ► (see below)
Ethernet	Device root menu ► Detailed setup ► Process variables ► (see below)

Parameter		Description
Display	Ethernet	
Velocity ► Damp ttl	Velocity ► Velocity damping total	Specifies the damping time constant of the flow velocity.
Volume ► Damp ttl	Volume flow ► Volume flow damping total	Specifies the damping time constant of the volumetric flow rate.
Mass ► Damp ttl	Mass flow ► Mass flow damping total	Specifies the damping time constant of the mass flow rate.

■ Flow noise

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Damp
Ethernet	Diagnostic root menu ► Diagnosis ► Flow noise ► Flow noise damping

This parameter is only available for AXG, not for AXW.

This parameter specifies the damping time constant of the flow noise.

NOTE

The output fluctuation increases if the damping time constant is set to a lower value.
Set the damping time constant to 5 seconds or longer for control processing application.

4.1.7 Low-cut Function Setting

A low-cut value can be specified for the PV, Ethernet communication and totalizer output value. If the low-cut function is used, the flow rate below set values can be stopped from being output. This function helps reduce erroneous output when the flow is "0".

However, the unit of the low-cut value is the same as the unit specified in Subsection 4.1.4. If the unit is changed, the low-cut value is changed to match the changed unit. The low-cut value is not synchronized with the span value. If the span value is changed, be sure to reset the low-cut value.

Set the low-cut value to "0" if the low-cut function is not used.

This setting can be configured with the following parameters.

■ PV

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► Low cut
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display lowcut

This parameter specifies the low-cut value of PV value displayed on the display or Ethernet communication.

NOTE

If Main soft rev (Main board revision/Main soft rev) is R2.01.01 or earlier, PV value displayed on the Ethernet communication is not affected by the low cut function for PV. This value is displayed as it is.

NOTE

Totalizer is not affected by the low cut function for PV.

■ Totalizer

Menu path

Display	Device setup ► Detailed setup ► Totalizer ► (see below)
Ethernet	Device root menu ► Detailed setup ► Totalizer ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1 ► Low cut	Totalizer1 ► Total1 low cut	Specifies the low-cut value of totalizer 1.
Totalizer 2 ► Low cut	Totalizer2 ► Total2 low cut	Specifies the low-cut value of totalizer 2.
Totalizer 3 ► Low cut	Totalizer3 ► Total3 low cut	Specifies the low-cut value of totalizer 3.

The actual value for which the low-cut is effective has $\pm 0.5\%$ of the hysteresis from the set low-cut value. The hysteresis width on the negative side (going into the low-cut. When flow rate is decreasing) and the positive side (going out of low-cut. When flow rate is increasing) are as follows:

(1) Negative side

$$= \text{Low-cut set value} - (\text{Minimum span set with multi range} \times 0.5 \%)$$

(2) Positive side

$$= \text{Low-cut set value} + (\text{Minimum span set with multi range} \times 0.5 \%)$$

**Example: When setting to span of volumetric flow rate = 10.0 m³/h,
Low-cut value = 1.0 m³/h**

(1) Negative side

$$= 1.0 \text{ [m}^3\text{/h]} - (10.0 \text{ [m}^3\text{/h]} \times 0.5 \%)$$

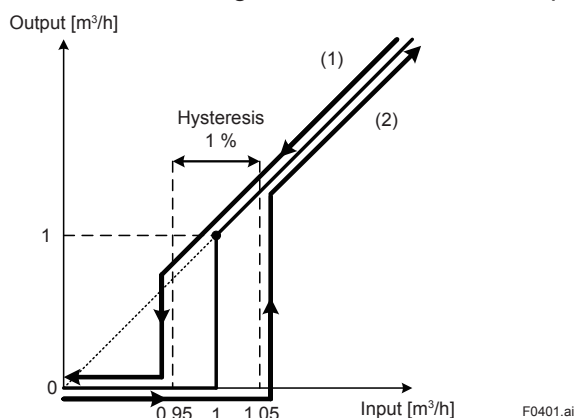
$$= 0.95 \text{ [m}^3\text{/h]}$$

(2) Positive side

$$= 1.0 \text{ [m}^3\text{/h]} + (10.0 \text{ [m}^3\text{/h]} \times 0.5 \%)$$

$$= 1.05 \text{ [m}^3\text{/h]}$$

In this case, when the flow rate is decreasing, the output flow rate value becomes 0.0 [m³/h] with the low-cut function if the actual flow rate goes below 0.95 [m³/h]. On the other hand, when the flow rate is increasing, the flow rate value is output if the actual flow rate goes over 1.05 [m³/h].



NOTE

Note that the totalization might be counted due to the influence of the output fluctuation near 0% output if a small low-cut value is set.

In particular, if the value of the flow rate span, damping time constant, or conductivity is low, the totalization is easily counted when the flow rate is "0". In such a case, increase the flow rate span, damping time constant, or low-cut value.

NOTE

When changing the output process value to be output, it is necessary to specify the low-cut value again.

4.1.8 Meter factor Setting

When ordering only the remote transmitter, or when changing the remote sensor to combine with, the meter factor of the remote sensor must be specified.

This setting can be configured with the following parameters.

When the customer orders the remote transmitter and the remote sensor at the same time as a combination, the meter factor of the remote sensor to combine with is set to the remote transmitter. So, the customer is not required to set the meter factor.

Menu path

Display	Device setup ► Detailed setup ► Sensor ► (see below)
Ethernet	Device root menu ► Basic setup ► Sensor ► (see below)

Parameter		Description
Display	Ethernet	
Low MF	Low MF	Specifies the meter factor of the low-frequency side.
High MF	High MF	Specifies the meter factor of the high-frequency side.

NOTE

For the integral type, do not change the meter factor since they are set at factory shipment.

NOTE

The meter factor is described in the METER FACTOR column on the remote sensor nameplate.

Example:

ADMAG ANG MAGNETIC FLOWMETER			
MODEL:	STYLE:	METER FACTOR L:	NO.:
SUFFIX:		H:	
		MPa MAX.	TAG NO.:
SIZE:	mm	FLUID TEMP.:	
		AMB. TEMP.:	°C
YOKOGAWA		COMB NO.:	
Made in Japan Yokogawa Electric Corporation Tokyo 180-8750 JAPAN			

F0445.ai

4.1.9 Sensor Type Setting

When only the remote transmitter is ordered, or when the remote sensor to combine with, the type of the remote sensor must be specified.

This setting can be configured with the following parameters.

When the customer orders the remote transmitter and the remote sensor at the same time as a combination, the type of the remote sensor to combine with is set to the remote transmitter at the factory before shipment. So, the customer is not required to set the sensor type.

Menu path

Display	Device setup ► Detailed setup ► Sensor ► Flow sensor sel
Ethernet	Device root menu ► Basic setup ► Sensor ► Select flow sensor

From the table below, select the sensor type.

Selection		Description
Display	Ethernet	
ADMAG AXG	ADMAG AXG	Configure to use the ADMAG AXG Series remote sensor. (Only available for AXG, not for AXW)
ADMAG AXW	ADMAG AXW	Configure to use the ADMAG AXW Series remote sensor.
ADMAG AXF	ADMAG AXF	Configure to use the ADMAG AXF Series remote sensor. (Only available for AXG, not for AXW)
ADMAG AE	ADMAG AE	Configure to use the ADMAG AE Series remote sensor. (Only available for AXG, not for AXW)
Calibrator	Calibrator	Configure to use the AM012 (calibrator) .
Other 1	Other1	Configure to use another remote sensor.
Other 2	Other2	
Other 3	Other3	

IMPORTANT

When changing the combination of the sensors, the meter factor needs to be re-adjusted based on actual flow calibration to secure the accuracy. When using another remote sensor, such as other companies' products, contact a Yokogawa sales office or representative.

4.1.10 Sensor's Nominal Size Setting

When only the remote transmitter is ordered, or when changing the remote sensor to combine, the nominal size of the remote sensor must be specified.

This setting can be configured with the following parameters.

When the customer orders the remote transmitter and the remote sensor at the same time as a combination, the nominal size of the remote sensor to combine with is set to the remote transmitter at the factory before shipment. So, the customer is not required to set the nominal size.

Menu path

Display	Device setup ► Detailed setup ► Sensor ► (see below)
Ethernet	Device root menu ► Detailed setup ► Sensor ► (see below)

Parameter		Description
Display	Ethernet	
Nominal size unit	Nominal size unit	Specifies the unit of the nominal size.
Nominal size	Nominal size	Specifies nominal size.

NOTE

For the integral type, do not change the nominal size and its unit since they are set at factory shipment.

4.1.11 Density Setting

The density must be set in order to measure the mass flow rate. The density can be selected from the density compensated with fixed density or density corrected by temperature.

If density is set to "0" while the mass flow rate is mapped to PV, a setting error will result.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Pro var ► Density ► (see below)
Ethernet	Device root menu ► Detailed setup ► Process variables ► Density ► (see below)

Parameter		Description
Display	Ethernet	
Unit	Density unit	Specifies the unit of the density.
Fixed density	Density fixed value	Specifies the value of the fixed density.

4.1.12 Span Flow Velocity Display

The span of the PV-mapped process value in Subsection 4.1.2 can be displayed in the flow velocity unit.

This information can be viewed with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Pro var ► Velocity check
Ethernet	Device root menu ► Detailed setup ► Process variables ► Velocity check

4.1.13 Zero Adjustment

The zero adjustment is carried out to set the output for zero flow velocity to 0%. Although the adjustment to zero is performed at the manufacturing factory prior to shipment, this procedure must be carried out once again following the installation of piping to match the product to its operating conditions.

This subsection describes the zero adjustment procedure using the display.

IMPORTANT

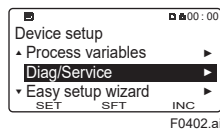
- The zero adjustment should be carried out before the actual operation. Note that setting and updating other parameters cannot be carried out during the zero adjustment (for approximately 30 seconds).
- The zero adjustment should be executed only after the sensor is filled with measuring fluid and the fluid velocity is reduced to zero by closing the valve.
- Each time the measuring fluid is changed, be sure to perform the zero adjustment for that changed fluid.

■ Execution of zero adjustment

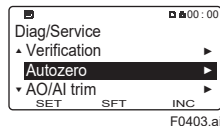
Zero adjustment using the display can be executed with the following parameters.

Menu path

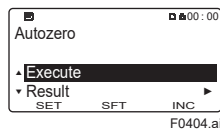
Display	Device setup ► Diag/Service ► Autozero ► Execute ► Execute
----------------	--



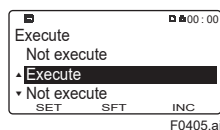
Select "Diag/Service" in accordance with the menu path above.



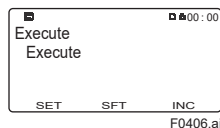
Select "Autozero".



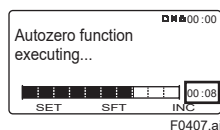
Select "Execute".



Select "Execute".

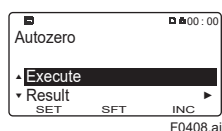


When "Execute" blinks, touch [SET] to execute.



The zero adjustment starts, and the progress is displayed with the remaining time and a bar graph. Wait for the zero adjustment to complete.

← The time remaining until the end.



After the zero adjustment is finished, the display returns to “Autozero” menu.

Zero adjustment by EtherNet/IP communication can be executed with the following parameters.

Menu path

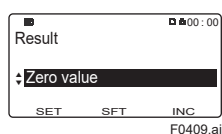
Ethernet	Device root menu ► Basic setup ► Autozero ► Autozero Exe
-----------------	--

■ Confirmation of zero adjustment result

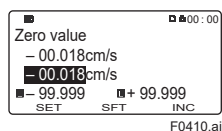
The zero adjustment result using the display can be confirmed with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Autozero ► Result ► Zero value
----------------	--



For the result of the zero adjustment, select “Result” and then “Zero value”.



The result of zero adjustment is displayed as on the left of the screen.

NOTE

When the zero adjustment result exceeds the defined value, the warning [092:AZ warn] is displayed.

The zero adjustment result using EtherNet/IP communication can be confirmed with the following parameters.

Menu path

Ethernet	Device root menu ► Basic setup ► Autozero ► Zero value
-----------------	--

4.2 Totalization Function

4.2.1 Totalized Value and Unit Setting

This function can totalize the volumetric flow rate and mass flow rate. This product has three totalizers and can totalize 3 process values at the same time.

Totalizer 1 totalizes the values in the unit of the PV-mapped process value in Subsection 4.1.2.

Totalizers 2 and 3 totalize the process value of the selected unit.

This setting can be displayed and configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Totalizer ► (see below)
Ethernet	Device root menu ► Detailed setup ► Totalizer ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1 ► Unit	Totalizer1 ► Total1 unit	Displays the unit of totalizer 1.
Totalizer 2 ► Unit	Totalizer2 ► Total2 unit	Specifies the unit of totalizer 2.
Totalizer 3 ► Unit	Totalizer3 ► Total3 unit	Specifies the unit of totalizer 3.

NOTE

The flow velocity and flow noise cannot be totalized. If flow velocity or flow noise is selected for the Primary Value, totalizer1 totalizes the volumetric flow rate and unit using "m³".

4.2.2 Totalized Value Display and Totalization Function

The totalization result can be displayed with a totalized value or a totalized value which is scaled with the conversion factor (totalized count value). When the totalized value is scaled with the conversion factor, a specific flow rate is totalized in 1-count increments, which can be used as a totalizer counter. However, note that the conversion factor cannot be set to "0".

The totalized value can be displayed and configured with the following parameters.

■ Displaying totalized value

Menu path

Display	Device setup ► Process variables ► Totalizer ► (see below)
Ethernet	Process variables root menu ► Device variables ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1	Totalizer1	Displays the totalized value of totalizer 1.
Totalizer 2	Totalizer2	Displays the totalized value of totalizer 2.
Totalizer 3	Totalizer3	Displays the totalized value of totalizer 3.

■ Setting conversion factor for scaling

Menu path

Display	Device setup ► Detailed setup ► Totalizer ► (see below)
Ethernet	Device root menu ► Detailed setup ► Totalizer ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1 ► Conv factor	Totalizer1 ► Total1 conv factor	Specifies the conversion factor of totalizer 1.
Totalizer 2 ► Conv factor	Totalizer2 ► Total2 conv factor	Specifies the conversion factor of totalizer 2.
Totalizer 3 ► Conv factor	Totalizer3 ► Total3 conv factor	Specifies the conversion factor of totalizer 3.

■ Display of the totalized count value that is scaled with the conversion factor

Menu path

Display	Device setup ► Process variables ► Totalizer ► (see below)
Ethernet	Process variables root menu ► Totalizer count ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1 count	Totalizer1 count	Displays the scaled totalized value of totalizer 1.
Totalizer 2 count	Totalizer2 count	Displays the scaled totalized value of totalizer 2.
Totalizer 3 count	Totalizer3 count	Displays the scaled totalized value of totalizer 3.

Example:

Set the unit of totalizer 2 to “m³” and the conversion factor to 2.

->If the totalized value of totalizer 2 is set to “10.123 m³”, the totalized value is scaled to “10.123÷2 = 5”.

4.2.3 Totalization Switch Function

This parameter is used to set High limit of Totalizer1/2/3 for Trend Graph that is shown to Section 4.5.5.

Menu path

Display	Device setup ► Detailed setup ► Totalizer ► (see below)
Ethernet	Device root menu ► Detailed setup ► Totalizer ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1 ► Set point	Totalizer1 ► Total1 set point	Specifies the target value of totalizer 1.
Totalizer 2 ► Set point	Totalizer2 ► Total2 set point	Specifies the target value of totalizer 2.
Totalizer 3 ► Set point	Totalizer3 ► Total3 set point	Specifies the target value of totalizer 3.

4.2.4 Totalizer Operation at Alarm Occurrence

The totalizer operation can be specified to deal with an alarm that affects the totalization function. This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Totalizer ► (see below)
Ethernet	Device root menu ► Detailed setup ► Totalizer ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1 ► Failure opts	Totalizer1 ► Total1 fail opts	Specifies totalizer 1 operation to be performed when an alarm occurs.
Totalizer 2 ► Failure opts	Totalizer2 ► Total2 fail opts	Specifies totalizer 2 operation to be performed when an alarm occurs.
Totalizer 3 ► Failure opts	Totalizer3 ► Total3 fail opts	Specifies totalizer 3 operation to be performed when an alarm occurs.

From the table below, select the operation of the totalization function.

Selection		Description
Display	Ethernet	
Measured value	Measured value	Continues the totalization function during an alarm.
Stop	Stop	Stops the totalization function during an alarm.
Last valid	Last valid	Continues the totalization function with the last valid value right before the alarm occurred during an alarm.

4.2.5 Start/Stop Setting for Totalization Function

The start/stop operation of the totalization function can be set. This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Totalizer ► (see below)
Ethernet	Device root menu ► Detailed setup ► Totalizer ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1 ► Start/Stop	Totalizer1 ► Total1 Start/Stop	Specifies Start/Stop to the totalization function of totalizer 1.
Totalizer 2 ► Start/Stop	Totalizer2 ► Total2 Start/Stop	Specifies Start/Stop to the totalization function of totalizer 2.
Totalizer 3 ► Start/Stop	Totalizer3 ► Total3 Start/Stop	Specifies Start/Stop to the totalization function of totalizer 3.

NOTE

The totalization function is set to “Stop” at shipment from the manufacturing factory. To start the totalization function, be sure to set it to “Start”.

4.2.6 Totalization Direction Setting

The totalization direction can be specified when using the totalization function. This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Totalizer ► (see below)
Ethernet	Device root menu ► Detailed setup ► Totalizer ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1 ► Options	Totalizer1 ► Total1 options	Specifies the totalization direction of totalizer 1.
Totalizer 2 ► Options	Totalizer2 ► Total2 options	Specifies the totalization direction of totalizer 2.
Totalizer 3 ► Options	Totalizer3 ► Total3 options	Specifies the totalization direction of totalizer 3.

From the table below, select the totalization direction.

Selection		Description
Display	Ethernet	
Balanced	Balanced	Totalizes the differential flow rate between the forward and reverse directions.
Absolute	Absolute	Totalizes the absolute value of the flow rate.
Only positive	Only positive	Totalizes only the flow rate in the forward direction.
Only negative	Only negative	Totalizes only the flow rate in the reverse direction.
Hold	Hold	Stops totalization processing (holds the current totalized value).

4.2.7 Totalized Value Reset/Preset Function

The reset/preset function can be specified for the totalized value. If the reset function is used, the function resets the totalized value to "0". If the preset function is used, it sets the preset value specified in advance to the totalized value. The preset function is used when starting to count totalization from the specified value.

This setting can be configured with the following parameters.

■ Use of the reset/preset function

Menu path

Display	Device setup ► Detailed setup ► Totalizer ► (see below)
Ethernet	Device root menu ► Detailed setup ► Totalizer ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1 ► Reset/Preset	Totalizer1 ► Total1 Reset/Preset	Uses the reset/preset function of totalizer 1.
Totalizer 2 ► Reset/Preset	Totalizer2 ► Total2 Reset/Preset	Uses the reset/preset function of totalizer 2.
Totalizer 3 ► Reset/Preset	Totalizer3 ► Total3 Reset/Preset	Uses the reset/preset function of totalizer 3.

From the table below, select the reset/preset function.

Selection		Description
Display	Ethernet	
Not execute	Not execute	Does not use the reset/preset function of the totalized value.
Reset	Reset	Uses the reset function of the totalized value.
Preset	Preset	Uses the preset function of the totalized value.

■ Preset value setting

Menu path

Display	Device setup ► Detailed setup ► Totalizer ► (see below)
Ethernet	Device root menu ► Detailed setup ► Totalizer ► (see below)

Parameter		Description
Display	Ethernet	
Totalizer 1 ► Preset value	Totalizer1 ► Total1 preset value	Specifies the preset value of totalizer 1.
Totalizer 2 ► Preset value	Totalizer2 ► Total2 preset value	Specifies the preset value of totalizer 2.
Totalizer 3 ► Preset value	Totalizer3 ► Total3 preset value	Specifies the preset value of totalizer 3.

NOTE

The parameter returns to "Not execute" after the reset/preset function of the totalized value has been completed.

4.3 Auxiliary Calculation Function

4.3.1 Fluid Flow Direction Setting

The arrow on the surface of the sensor indicates the fluid flow direction. Upon shipment from the manufacturing factory, the flow rate is measured assuming that the arrow direction is forward. By changing the parameter settings, this product can measure the flow rate, assuming that the reverse direction is forward against the arrow direction.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► AUX calculation ► Flow direct
Ethernet	Device root menu ► Detailed setup ► AUX calculation ► Flow direction

This parameter specifies the fluid flow direction.

From the table below, select the fluid flow direction.

Selection		Description
Display	Ethernet	
Forward	Forward	The arrow direction of the sensor is forward.
Reverse	Reverse	The reverse direction of the arrow of the sensor is forward.

4.3.2 Rate Limit Function Setting

If the rate limit function is used, it becomes possible to reduce noises that cannot all be cleared only by lengthening the damping time constant. When a step signal or a sudden signal due to a slurry fluid is input, this function judges whether the signal is a flow rate signal or a noise signal. This judgment is made based on the high/low limit value (rate limit value) and the rate limit function continuation time (dead time), causing the noise signal over the rate limit value to be cut off.

The rate limit value is specified with the percentage (%) for the span of the PV-mapped process value in Subsection 4.1.2. The dead time is set to "0" if the rate limit function is not used.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► AUX calculation ► (see below)
Ethernet	Device root menu ► Detailed setup ► AUX calculation ► (see below)

Parameter		Description
Display	Ethernet	
Rate limit	Rate limit	Specifies the rate limit value.
Dead time	Dead time	Specifies the dead time.
Noise filter	Noise filter	Specifies the noise filter (rate limit value and dead time). ^{*1}

*1: From the table below, select the noise filter (rate limit value and dead time).

Selection		Rate limit value	Dead time
Display	Ethernet		
Manual	Manual	The value is specified in the parameter "Rate limit".	The value is specified in the parameter "Dead time".
Level 1	Level 1	0.5%	0.5s
Level 2	Level 2	1.0%	1.0s
Level 3	Level 3	5.0%	3.0s

NOTE

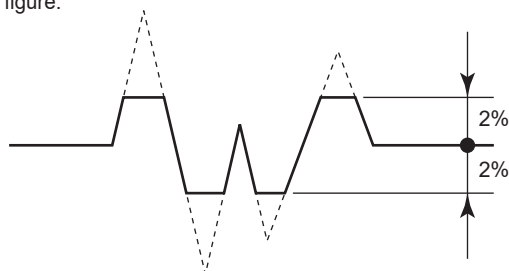
If either the rate limit value or the dead time is specified, the noise filter is set to "Manual".

NOTE

Determining the rate limit value and dead time

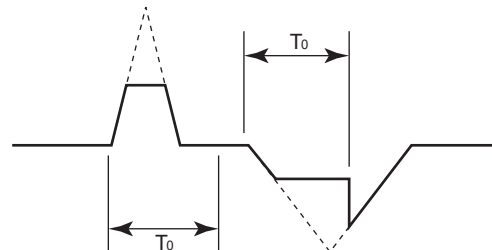
The Rate limit value:

Determine the level which should be cut the output fluctuation. For example, if its level is 2%, the noise of 2% or larger would be cut as shown in the following figure.



The Dead time (T_0):

Determine the value depending on the width of the output fluctuation. Choose the larger value when the noise which is over the dead time as shown in the following figure.



F0420.ai

NOTE

For the rate limit function, the dead time is set to "0" upon shipment from the manufacturing factory.

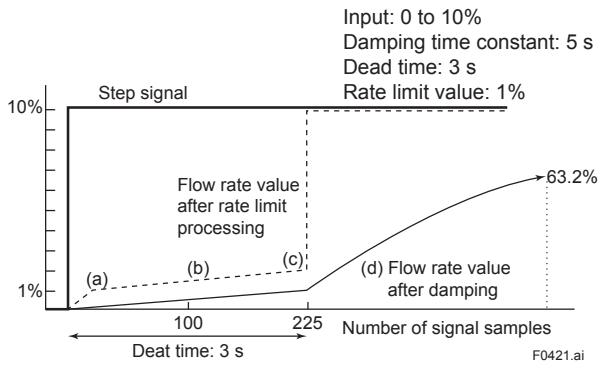
Be sure to set the dead time when the rate limit function is used.

Signal processing for rate limit function

The product calculates to set the specific rate limit value to the primary delay response value of the previously sampled flow rate value. If the flow rate value sampled at this time exceeds the rate limit value above, its high or low limit is set to the flow rate value at this time. Furthermore, if the sampling count occurs within the dead time while the signal over the high/low limit is in the same direction, this signal is judged to be a flow rate signal.

Example:

- (1) When input = 0 to 10%, Damping time constant = 5 seconds, Dead time = 3 seconds, and Rate limit value = 1%, the output for the step input is obtained as shown below.



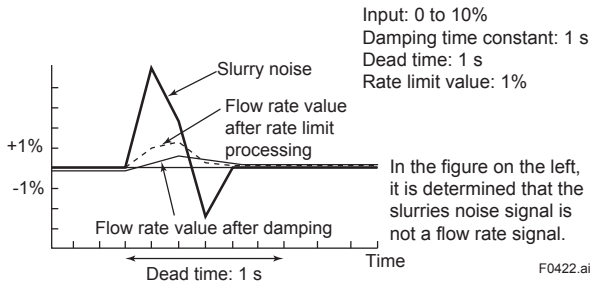
- In condition (a), the signal exceeds the rate limit value as compared with the previous value; therefore, the response is set to 1%.

The actual output, which is damped, is processed as indicated by the solid line.

- Then, the flow rate value in the dead time is set to “flow rate after damping calculation + signal of rate limit value (1%)”.
- The input signal does not return to the rate limit value or less within the dead time; therefore, it is judged to be a flow rate signal at the time of (c).
- The output signal starts following the step signal along the damping curve.

The figure below shows an output example when a slurry noise has occurred.

- (2) When input = 0 to 10%, Damping time constant = 1 second, Dead time = 1 seconds, and Rate limit value = 1%, the output for a slurry noise is obtained as shown below.



4.3.3 Pulsing Flow Support Function Setting

If a plunger pump is used, it may cause an error in the average of the flow rate due to the influence of the pulsing flow. If the pulsing flow support function is used, an error due to a pulsing flow can be reduced by following a flow change while controlling the flow rate calculation. This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► AUX calculation ► Pulsing flow
Ethernet	Device root menu ► Detailed setup ► AUX calculation ► Pulsing flow

This parameter specifies the use of the pulsing flow support function.
From the table below, select the use of the pulsing flow support function.

Selection		Description
Display	Ethernet	
No	No	Do not use the pulsing flow support function.
Yes	Yes	Use the pulsing flow support function.

4.3.4 Power Frequency Synchronization Setting

This function can be specified whether the excitation frequency (internal signal processing frequency) and power frequency are synchronous or asynchronous.
When setting the excitation frequency and power frequency to asynchronous, the excitation frequency is determined by the set value of the power frequency.
The power frequency synchronous/asynchronous mode and the power frequency can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► AUX calculation ► (see below)
Ethernet	Device root menu ► Detailed setup ► AUX calculation ► (see below)

Parameter		Description
Display	Ethernet	
Power sync on/off	Power synchronize	Sets the excitation frequency and power frequency to synchronous.*1
Set power freq	Set power frequency	Sets the power frequency when the excitation frequency and power frequency are asynchronous.

*1: Sets the synchronous/asynchronous mode of power frequency from the table below.

Selection		Description
Display	Ethernet	
Off	Off	Sets the excitation frequency and power frequency asynchronous.
On	On	Sets the excitation frequency and power frequency synchronous.

IMPORTANT

When using the DC power as the transmitter power, set the commercially available power frequency of the place where the transmitter will be used.
In this case, set "Power sync on/off" to Off first before setting "Set power freq".

The excitation frequency and power frequency can be checked with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► AUX calculation ► (see below)
Ethernet	Device root menu ► Detailed setup ► AUX calculation ► (see below)

Parameter		Description
Display	Ethernet	
IEX power frequency	IEX power frequency	Displays the power frequency (synchronous with the excitation frequency).
Meas power freq	Measured power frequency	Displays the measured power frequency.

4.4 Alarm

4.4.1 Errors and Countermeasures

Explanation of NE107 status:

NE107 status		Status of the device
F	Failure	Device malfunction, Parts malfunction
C	Function Check	The output signal is temporarily invalid for the local operation or manual operation input.
S	Out of specification	The device works in out of specification. The output signal is uncertain for the process or the ambiance.
M	Maintenance required	The maintenance is required in the near future.
N	No Effect	State other than mentioned above

The following table shows possible countermeasures.

■ System alarm

The device breaks down and causes abnormal measurement.

Device replacement is needed.

NE107 Status	Error Message		Error Description	Countermeasure
	Display	Ethernet		
F	010:Main CPU FAIL	10 Main board CPU failure	CPU (Main board) failure was detected.	Contact Yokogawa service center.
F	011:Rev calc FAIL	11 Reverse calculation failure	Failure of reverse calculation was detected.	Contact Yokogawa service center.
F	012:Main EEP FAIL	12 Main board EEPROM failure	Failure of EEPROM (Main board) was detected.	Turn on the power again within the range of the temperature specifications. If the situation does not improve, contact Yokogawa service center.
F	013:Main EEP dflt	13 Main board EEPROM default	EEPROM (Main board) was reset to default values.	Contact Yokogawa service center.
F	014:Snsr bd FAIL	14 Sensor board failure	Failure of sensor board was detected.	Contact Yokogawa service center.
F	015:Snsr comm ERR	15 Sensor communication error	Communication error of the sensor was detected.	Contact Yokogawa service center.
F	016:AD 1 FAIL[Sig]	16 A/D1 failure[Signal]	Failure of A/D transmitter 1 [flow velocity signal] was detected.	Contact Yokogawa service center.
F	017:AD 2 FAIL[Excit]	17 A/D2 failure[Exciter]	Failure of A/D transmitter 2 [Exciting current] was detected.	Contact Yokogawa service center.
F	018:Coil open	18 Coil open	Coil of sensor was disconnected.	Turn off the power, check coil of sensor and excitation cable.
F	019:Coil short	19 Coil short	Coil of sensor was shorted.	Contact Yokogawa service center.
F	020:Exciter FAIL	20 Exciter failure	Failure of the excitation circuit was detected.	Contact Yokogawa service center.
F	027:Restore FAIL	27 Parameter restore incomplete	Restore of parameters was failed.	Retry the restore function of the parameter.

NE107 Status	Error Message			Error Description	Countermeasure
	Display		Ethernet		
F	028:Ind bd FAIL	28	Indicator board failure	Failure of display board was detected.	Check that the ambient temperature of display is within the range. If the situation does not improve, contact Yokogawa service center.
F	029:Ind bd EEP FAIL	29	Indicator board EEPROM failure	Failure of EEPROM (display board) was detected.	Turn on the power again within the range of the temperature specifications. If the situation does not improve, contact Yokogawa service center.
F	030:LCD drv FAIL	30	LCD driver failure	Failure of display driver was detected.	Contact Yokogawa service center.
F	031:Ind bd mismatch	31	Indicator board mismatch	Mismatch of display board was detected.	Contact Yokogawa service center.
F	032:Ind comm ERR	32	Indicator communication error	Communication error of display board was detected.	Check that the main and display boards are connected.
F	033:microSD FAIL	33	microSD card Failure	Failure of microSD card was detected.	Replace the microSD card.
F	200:Opt bd comm ERR1	200	Option board comm error1	Communication error of Option board was detected.	Contact Yokogawa service center.
F	201:Opt bd comm ERR2	201	Option board comm error2	Communication error of Option board was detected.	Contact Yokogawa service center.

■ Process alarm

The device works normally, but some issue of the process causes abnormal measurement. Maintenance work is needed.

NE107 Status	Error Message			Error Description	Countermeasure
	Display		Ethernet		
S	050:Signal overflow	50	Signal overflow	Failure of input signal was detected.	Check the signal and grounding cables are connected.
S	051:Empty detect	51	Empty pipe detection	Inside of sensor was detected to be empty. (Empty check)	Fill the sensor with water.
N	052:H/L HH/LL alm	52	H/L or HH/LL alarm	A flow rate exceeds the high/low limits or high-high/low-low limits.	Check the parameter setting related to flow rate and alarm high/low limit function.
S	053:Adh over lv 4	53	Adhesion over level 4	The resistance value of the electrodes exceeded Level 4. (Adhesion detection of insulation to the electrode)	Recommend cleaning electrode.

■ Setting alarm

The device works normally, but the parameter setting error occurs.
Parameter setting is needed.

parameter setting is necessary.

NE107 Status	Error Message		Error Description	Countermeasure	
	Display	Ethernet			
S	060:Span cfg ERR	60	Span configuration error	Setting error of flow span was detected. (fulfill "0.05 m/s < span flow rate < 16 m/s")	Check the parameter setting related to span.
S	061:PV F cfg ERR	61	PV flow select configuration error	Flow noise was set to PV when flow noise could not be used.	Check or change the PV FLOW SEL parameter setting.
N	065:H/L cfg ERR	65	H/L HH/LL configuration error	Setting error of the alarm high/low limit function was detected. (fulfill "HRV - LRV > Hysteresis" and "HHRV - LLRV > Hysteresis")	Check the parameter setting related to the alarm high/low limit function.
S	066:Density cfg ERR	66	Density configuration error	Setting error of density value was detected when PV was set to mass flow rate.	Check the parameter setting related to density.
C	069:Nomi size cfg	69	Nominal size configuration error	Configuration error of nominal size was detected. (fulfill "0.99 mm < nominal size of sensor < 3000.10 mm (0.01 inch < nominal size of sensor < 120.10 inch)")	Check the parameter setting related to nominal size.
C	070:Adh cfg ERR	70	Adhesion configuration error	Setting error of electrode adhesion detection function was detected. (fulfill "Level1 < Level2 < Level3 < Level4")	Check the parameter setting related to adhesion detection.
C	071:FLN cfg ERR	71	Flow noise configuration error	Setting error of flow noise verification function was detected. (fulfill "Level1 < Level2 < Level3 < Level4")	Change the parameter settings related to flow noise.
C	072:Log not start	72	Data logging not started	Data logging failed to start.	Insert the microSD card.

Warning

The device works normally and measurement is also normal but warning occurs.

NE107 Status	Error Message		Error Description	Countermeasure
	Display	Ethernet		
C	085:Cable miscon	85	Cable misconnect	Misconnection of cable was detected. Check the signal cable and excitation cable connection.
C	086:Coil insulation	86	Coil insulation warning	Insulation deterioration of the coil was detected. Contact Yokogawa service center.
M	087:Adhesion lv 3	87	Adhesion over level 3	The resistance value of the electrodes exceeded Level 3. (Adhesion detection of insulation to the electrode) Recommend cleaning electrode.
N	088:LC warn	88	Low conductivity warning	Decrease of conductivity was detected. Check fluid conductivity.
M	089:Insu detect	89	Insulation detection	Insulation deterioration of electrode was detected. Contact Yokogawa service center.
N	090:FLN over lv 3	90	Flow noise over level 3	Flow noise exceeded Level 3. (Detection of flow noise) Check if there is a problem with the fluid (conductivity, bubble, etc.).
N	091:FLN over lv 4	91	Flow noise over level 4	Flow noise exceeded Level 4. (Detection of flow noise) Check if there is a problem with the fluid (conductivity, bubble, etc.).
C	092:AZ warn	92	Autozero warning	Result of zero adjustment exceeded 10 cm/s. Check fluid is stopped when executing zero adjustment.
C	093:Verif warn	93	Verification warning	Interruption of verification function was detected. Execute Verification again.
C	094:Fact noise warn	94	Factory noise warning	The fluctuation of flow became larger. Check if there is a problem with the fluid.
C	095:Simulate active	95	Simulation active	A test mode for the flow velocity, volumetric flow rate, mass flow rate was executed. Release simulation or test mode.
C	101:Param restore run	101	Parameter restore running	The restore function of the parameter was executed. —
N	102:Disp over	102	Display over warning	The number of digits available for display exceeded the limit. Check the parameter setting related to display.
N	103:SD size warn	103	microSD card size warning	Free space of microSD card decreased to less than 10%. Increase the free space of the microSD card.
M	104:Bkup incmplt	104	Parameter backup incomplete	Parameter backup failed. Retry the backup function of the parameter.
S	105:SD mismatch	105	microSD card mismatch	Mismatch of microSD card was detected. Replace the microSD card.
M	106:SD removal ERR	106	microSD card removal procedure error	Removal of microSD card failed. After executing the removal of the microSD card with parameter, remove the microSD card from the product.
N	131:Trans mismatch	107	Transmitter type mismatch	Mismatch of the sensor and transmitter was detected. Contact Yokogawa service center.

Information

The device works normally and measurement is also normal. These messages are just reference information.

NE107 Status	Error Message		Error Description	Countermeasure
	Display	Ethernet		
N	120:Watchdog	120 Watchdog	Error of Watchdog timer was detected.	Contact Yokogawa service center.
N	121:Power off	121 Power off	Power-off was detected.	—
N	122:Inst power FAIL	122 Instant power failure	Instantaneous power failure was detected.	—
N	123:Param bkup run	123 Parameter backup running	Parameter backup is running.	—
N	124:Data log run	124 Data logging running	Data log is running.	—

4.4.2 Operation at the Time of Error

The following table shows the behavior of outputs and readings at the time of error.

System alarm

NE 107	Error Message	Totalizer	Process Value	Display
F	010:Main CPU FAIL	Stop	Stop	Not defined
F	011:Rev calc FAIL	Based on "FailOpts"	Normal Operation	Alarm
F	012:Main EEP FAIL	Based on "FailOpts"	Normal Operation	Alarm
F	013:Main EEP dflt	Based on "FailOpts"	Normal Operation	Alarm
F	014:Snsr bd FAIL	Based on "FailOpts"	Hold Prior setting	Alarm
F	015:Snsr comm ERR	Based on "FailOpts"	Hold Prior setting	Alarm
F	016:AD 1 FAIL[Sig]	Based on "FailOpts"	Hold Prior setting	Alarm
F	017:AD 2 FAIL[Excit]	Based on "FailOpts"	Hold Prior setting	Alarm
F	018:Coil open	Based on "FailOpts"	Hold Prior setting	Alarm
F	019:Coil short	Based on "FailOpts"	Hold Prior setting	Alarm
F	020:Exciter FAIL	Based on "FailOpts"	Normal Operation	Alarm
F	027:Restore FAIL	Based on "FailOpts"	Normal Operation	Alarm
F	028:Ind bd FAIL	Based on "FailOpts"	Normal Operation	Alarm
F	029:Ind bd EEP FAIL	Based on "FailOpts"	Normal Operation	Alarm
F	030:LCD drv FAIL	Based on "FailOpts"	Normal Operation	Alarm
F	031:Ind bd mismatch	Based on "FailOpts"	Normal Operation	Alarm
F	032:Ind comm ERR	Based on "FailOpts"	Normal Operation	Alarm
F	033:microSD FAIL	Based on "FailOpts"	Normal Operation	Alarm
F	200:Opt bd comm ERR1	Based on "FailOpts"	Hold Prior setting	Alarm
F	201:Opt bd comm ERR2	Based on "FailOpts"	Hold Prior setting	Alarm

■ Process alarm

NE 107	Error Message	Totalizer	Process Value	Display
S	050:Signal overflow	Based on "FailOpts"	Hold Prior setting	Alarm
S	051:Empty detect	Based on "FailOpts"	Zero*1	Alarm
N	052:H/L HH/LL alm	Continue	Normal Operation	Alarm
S	053:Adh over lv 4	Based on "FailOpts"	Normal Operation	Alarm

*1: When Main soft rev (Main board revision/Main soft rev) is R2.01.01 or earlier, it is "Hold Prior setting".

■ Setting alarm

NE 107	Error Message	Totalizer	Process Value	Display
S	060:Span cfg ERR	Based on "FailOpts"	Normal Operation	Alarm
S	061:PV F cfg ERR	Based on "FailOpts"	Normal Operation	Alarm
N	065:H/L cfg ERR	Based on "FailOpts"	Normal Operation	Alarm
S	066:Density cfg ERR	Based on "FailOpts"	Normal Operation	Alarm
C	069:Nomi size cfg	Based on "FailOpts"	Normal Operation	Alarm
C	070:Adh cfg ERR	Continue	Normal Operation	Alarm
C	071:FLN cfg ERR	Continue	Normal Operation	Alarm
C	072:Log not start	Continue	Normal Operation	Alarm

■ Warning

NE 107	Error Message	Totalizer	Process Value	Display
C	085:Cable miscon	Continue	Normal Operation	Warning
C	086:Coil insulation	Continue	Normal Operation	Warning
M	087:Adhesion lv 3	Continue	Normal Operation	Warning
N	088:LC warn	Continue	Normal Operation	Warning
M	089:Insu detect	Continue	Normal Operation	Warning
N	090:FLN over lv 3	Continue	Normal Operation	Warning
N	091:FLN over lv 4	Continue	Normal Operation	Warning
C	092:AZ warn	Continue	Normal Operation	Warning
C	093:Verif warn	Continue	Normal Operation	Warning
C	094:Fact noise warn	Continue	Normal Operation	Warning
C	095:Simulate active	Continue	Normal Operation	Warning
C	101:Param restore run	Continue	Normal Operation	Execute
N	102:Disp over	Continue	Normal Operation	Warning
N	103:SD size warn	Continue	Normal Operation	Warning
M	104:Bkup incmplt	Continue	Normal Operation	Warning
S	105:SD mismatch	Continue	Normal Operation	Warning
M	106:SD removal ERR	Continue	Normal Operation	Warning
N	131:Trans mismatch	Continue	Normal Operation	Normal

Information

NE 107	Error Message	Totalizer	Process Value	Display
N	120:Watchdog	Continue	Normal Operation	Normal
N	121:Power off	Continue	Normal Operation	Normal
N	122:Inst power FAIL	Continue	Normal Operation	Normal
N	123:Param bkup run	Continue	Normal Operation	Execute
N	124:Data log run	Continue	Normal Operation	Icon

4.4.3 Alarm Display Setting

(1) Alarm display

If an error occurs on this product, an alarm appears on the display. The alarm display modes are classified into two types: one mode to display a process value and alarm name, and another mode to display an alarm name and action.

If multiple alarms occur on this product, they will be displayed in sequence on the display.

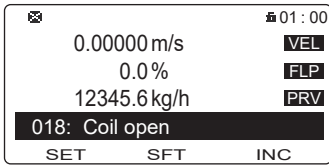
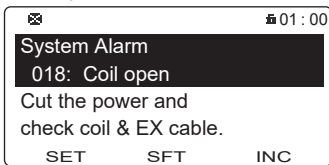
This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► Alarm display
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display alarm

This parameter sets the alarm display.

From the table below, select the alarm display.

Selection		Description
Display	Ethernet	
Normal	Normal	Displays the process value and alarm name.  F0425.ai
Detail	Detail	Displays the alarm name and action.  F0426.ai

(2) Alarm display based on NAMUR NE107

A prefix can be assigned to the alarm name based on NAMUR NE107.
This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► NE107 display
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display NE107

This parameter sets the alarm display based on NAMUR NE107.

From the table below, select the alarm display.

Selection		Description
Display	Ethernet	
Normal	Normal	Sets to the normal alarm display.
NE107	NE107	Sets the alarm display based on NAMUR NE107.

4.4.4 Alarm History Function

The alarm history function can record an alarm that occurred in the past in the history.
This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record ► (see below)
Ethernet	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record ► (see below)

Parameter		Description
Display	Ethernet	
Record alarm 1	Alarm record 1	Displays the name of new alarm 1.
Record time 1	Alarm record time 1	Displays the operation time when the first new alarm occurs.
Record alarm 2	Alarm record 2	Displays the name of new alarm 2.
Record time 2	Alarm record time 2	Displays the operation time when the second new alarm occurs.
Record alarm 3	Alarm record 3	Displays the name of new alarm 3.
Record time 3	Alarm record time 3	Displays the operation time when the third new alarm occurs.
Record alarm 4	Alarm record 4	Displays the name of new alarm 4.
Record time 4	Alarm record time 4	Displays the operation time when the fourth new alarm occurs.

The operation time when an alarm occurred is displayed in the format of “dddddD hh:mm”.
“dddddD” indicates the day, “hh” indicates the hour, and “mm” indicates the minute.

Example:

“00031D 12:34” is displayed.

This example shows that an alarm has occurred when the product has been operated for 31 days, 12 hours, and 34 minutes.

4.4.5 Alarm Mask Function

The alarm mask function can be configured so that a set alarm is masked, alarm notifications are hidden, and the alarm history is not recorded. The mask function can be set for both the alarm notification and alarm record, respectively.

This setting can be configured with the following parameters.

■ Alarm notification mask

If the alarm notification mask function is turned “On”, it disables alarm notification.

Setting example for alarm “50:Signal overflow”:

To disable the alarm notification, set “50: Signal overflow on” of Alarm out mask 2 to “On”.

To enable the alarm notification, set “Signal overflow” of Alarm out mask 2 to “Off”.

Menu path

Display	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm out mask ► (see below)
Ethernet	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm out mask ► (see below)

Parameter		Description
Display	Ethernet	
Mask 1-1	Alarm out mask 1	Specifies the mask function for alarm notification 1-1.
Mask 1-2		Specifies the mask function for alarm notification 1-2.
Mask 2-1	Alarm out mask 2	Specifies the mask function for alarm notification 2-1.
Mask 2-2		Specifies the mask function for alarm notification 2-2.
Mask 3-1	Alarm out mask 3	Specifies the mask function for alarm notification 3-1.
Mask 3-2		Specifies the mask function for alarm notification 3-2.
Mask 4-1	Alarm out mask 4	Specifies the mask function for alarm notification 4-1.
Mask 4-2		Specifies the mask function for alarm notification 4-2.

■ Alarm record mask

If the alarm record mask function is turned “On”, it disables the alarm record.

Setting example for alarm “51:Empty pipe detection”:

To disable the alarm record, set “51: Empty pipe detection on” of Alarm record mask 2 to “On”.

To enable the alarm record, set “51: Empty pipe detection on” of Alarm record mask 2 to “Off”.

Menu path

Display	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record mask ► (see below)
Ethernet	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record mask ► (see below)

Parameter		Description
Display	Ethernet	
Mask 1-1	Alarm record mask 1	Specifies the mask function for alarm record 1-1.
Mask 1-2		Specifies the mask function for alarm record 1-2.
Mask 2-1	Alarm record mask 2	Specifies the mask function for alarm record 2-1.
Mask 2-2		Specifies the mask function for alarm record 2-2.
Mask 3-1	Alarm record mask 3	Specifies the mask function for alarm record 3-1.
Mask 3-2		Specifies the mask function for alarm record 3-2.

NOTE

Note that an alarm masked by the alarm notification mask function is not recorded in the alarm record.

The alarm mask function setting is as follows:

Parameter name	Indicates the name of the mask setting parameter.
Alarm name	Indicates the alarm name.
Default value	Indicates the default value (upon shipment from the manufacturing factory). (✓: Masked, -: Not masked)
Attribute	Indicates whether the mask setting is enabled or disabled. (✓: Setting enabled, -: Setting disabled)

■ Alarm notification mask function

Display		Ethernet		Default value	Attribute
Parameter name	Alarm name	Parameter name	Alarm name		
—	010:Main CPU FAIL	—	10 Main board CPU failure	—	—
—	011:Rev calc FAIL	—	11 Reverse calculation failure	—	—
—	012:Main EEP FAIL	—	12 Main board EEPROM failure	—	—
Mask 1-1	013:Main EEP dflt	Alarm out mask 1	13 Main board EEPROM default	—	✓
—	014:Snsr bd FAIL	—	14 Sensor board failure	—	—
—	015:Snsr comm ERR	—	15 Sensor communication error	—	—
—	016:AD 1 FAIL[Sig]	—	16 A/D1 failure[Signal]	—	—
—	017:AD 2 FAIL[Excit]	—	17 A/D2 failure[Exciter]	—	—
—	018:Coil open	—	18 Coil open	—	—
—	019:Coil short	—	19 Coil short	—	—
—	020:Exciter FAIL	—	20 Exciter failure	—	—
—	027:Restore FAIL	—	27 Parameter restore incomplete	—	—
Mask 1-2	028:Ind bd FAIL	Alarm out mask 1	28 Indicator board failure	✓	✓
Mask 1-2	029:Ind bd EEP FAIL	Alarm out mask 1	29 Indicator board EEPROM failure	—	✓
Mask 1-2	030:LCD drv FAIL	Alarm out mask 1	30 LCD driver failure	—	✓
Mask 1-2	031:Ind bd mismatch	Alarm out mask 1	31 Indicator board mismatch	—	✓
Mask 1-2	032:Ind comm ERR	Alarm out mask 1	32 Indicator communication error	—	✓
Mask 1-2	033:microSD FAIL	Alarm out mask 1	33 microSD failure	—	✓
Mask 2-1	050:Signal overflow	Alarm out mask 2	50 Signal overflow	—	✓
Mask 2-1	051:Empty detect	Alarm out mask 2	51 Empty pipe detection	—	✓
Mask 2-1	052:H/L HH/LL alm	Alarm out mask 2	52 H/L or HH/LL alarm	✓	✓
Mask 2-1	053:Adh over lv 4	Alarm out mask 2	53 Adhesion over level 4	✓	✓
Mask 2-1	060:Span cfg ERR	Alarm out mask 2	60 Span configuration error	—	✓
Mask 2-1	061:PV F cfg ERR	Alarm out mask 2	61 PV flow select configuration error	—	✓
Mask 2-1	065:H/L cfg ERR	Alarm out mask 2	65 H/L HH/LL configuration error	—	✓
Mask 2-1	066:Density cfg ERR	Alarm out mask 2	66 Density configuration error	—	✓

Display		Ethernet			Default value	Attribute
Parameter name	Alarm name	Parameter name	Alarm name			
Mask 2-2	069:Nomi size cfg	Alarm out mask 2	69	Nominal size configuration error	—	✓
Mask 2-2	070:Adh cfg ERR	Alarm out mask 2	70	Adhesion configuration error	—	✓
Mask 2-2	071:FLN cfg ERR	Alarm out mask 2	71	Flow noise configuration error	—	✓
Mask 2-2	072:Log not start	Alarm out mask 2	72	Data logging not started	—	✓
Mask 2-2	085:Cable miscon	Alarm out mask 2	85	Cable misconnect	—	✓
Mask 2-2	086:Coil insulation	Alarm out mask 2	86	Coil insulation warning	✓	✓
Mask 2-2	131:Trans mismatch	Alarm out mask 2	131	Transmitter type mismatch	—	✓
Mask 3-1	087:Adhesion lv 3	Alarm out mask 3	87	Adhesion over level 3	✓	✓
Mask 3-1	088:LC warn	Alarm out mask 3	88	Low conductivity warning	✓	✓
Mask 3-1	089:Insu detect	Alarm out mask 3	89	Insulation detection	✓	✓
Mask 3-1	090:FLN over lv 3	Alarm out mask 3	90	Flow noise over level 3	✓	✓
Mask 3-1	091:FLN over lv 4	Alarm out mask 3	91	Flow noise over level 4	✓	✓
Mask 3-1	092:AZ warn	Alarm out mask 3	92	Autozero warning	✓	✓
Mask 3-1	093:Verif warn	Alarm out mask 3	93	Verification warning	✓	✓
Mask 3-1	094:Fact noise warn	Alarm out mask 3	94	Factory noise warning	✓	✓
Mask 3-1	095:Simulate active	Alarm out mask 3	95	Simulation active	—	✓
Mask 3-2	101:Param restore run	Alarm out mask 3	101	Parameter restore running	✓	✓
Mask 3-2	102:Disp over	Alarm out mask 3	102	Display over warning	✓	✓
Mask 3-2	103:SD size warn	Alarm out mask 3	103	microSD card size warning	✓	✓
Mask 3-2	104:Bkup incmplt	Alarm out mask 3	104	Parameter backup incomplete	—	✓
Mask 3-2	105:SD mismatch	Alarm out mask 3	105	microSD card mismatch	✓	✓
Mask 3-2	106:SD removal ERR	Alarm out mask 3	106	microSD card removal procedure error	✓	✓
Mask 3-2	120:Watchdog*1	Alarm out mask 3	120	Watchdog*1	✓	✓
Mask 3-2	121:Power off*1	Alarm out mask 3	121	Power off*1	✓	✓
Mask 3-2	122:Inst power FAIL*1	Alarm out mask 3	122	Instant power failure*1	✓	✓
Mask 3-2	123:Param bkup run	Alarm out mask 3	123	Parameter backup running	✓	✓
Mask 3-2	124:Data log run	Alarm out mask 3	124	Data logging running	✓	✓
Mask 4-2	200:Opt bd comm ERR1	Alarm out mask 4	200	Option board comm error1	—	✓
Mask 4-2	201:Opt bd comm ERR2	Alarm out mask 4	201	Option board comm error2	—	✓

*1: Recorded in the alarm record regardless of the settings of the alarm notification mask function.

■ Alarm record mask function

Display		Ethernet		Default value	Attribute
Parameter name	Alarm name	Parameter name	Alarm name		
—	010:Main CPU FAIL	—	10 Main board CPU failure	—	—
—	011:Rev calc FAIL	—	11 Reverse calculation failure	—	—
—	012:Main EEP FAIL	—	12 Main board EEPROM failure	—	—
Mask 1-1	013:Main EEP dft	Alarm record mask 1	13 Main board EEPROM default	—	✓
—	014:Snsr bd FAIL	—	14 Sensor board failure	—	—
—	015:Snsr comm ERR	—	15 Sensor communication error	—	—
—	016:AD 1 FAIL[Sig]	—	16 A/D1 failure[Signal]	—	—
—	017:AD 2 FAIL[Excit]	—	17 A/D2 failure[Exciter]	—	—
—	018:Coil open	—	18 Coil open	—	—
—	019:Coil short	—	19 Coil short	—	—
—	027:Restore FAIL	—	27 Parameter restore incomplete	—	—
Mask 1-2	028:Ind bd FAIL	Alarm record mask 1	28 Indicator board failure	—	✓
Mask 1-2	029:Ind bd EEP FAIL	Alarm record mask 1	29 Indicator board EEPROM failure	—	✓
Mask 1-2	030:LCD drv FAIL	Alarm record mask 1	30 LCD driver failure	—	✓
Mask 1-2	031:Ind bd mismatch	Alarm record mask 1	31 Indicator board mismatch	—	✓
Mask 1-2	032:Ind comm ERR	Alarm record mask 1	32 Indicator communication error	—	✓
Mask 1-2	033:microSD FAIL	Alarm record mask 1	33 microSD failure	—	✓
Mask 2-1	050:Signal overflow	Alarm record mask 2	50 Signal overflow	—	✓
Mask 2-1	051:Empty detect	Alarm record mask 2	51 Empty pipe detection	—	✓
Mask 2-1	052:H/L HH/LL alm	Alarm record mask 2	52 H/L or HH/LL alarm	—	✓
Mask 2-1	053:Adh over lv 4	Alarm record mask 2	53 Adhesion over level 4	—	✓
—	060:Span cfg ERR	—	60 Span configuration error	✓	—
—	061:PV F cfg ERR	—	61 PV flow select configuration error	✓	—
—	065:H/L cfg ERR	—	65 H/L HH/LL configuration error	✓	—
—	066:Density cfg ERR	—	66 Density configuration error	✓	—
—	069:Nomi size cfg	—	69 Nominal size configuration error	✓	—
—	070:Adh cfg ERR	—	70 Adhesion configuration error	✓	—
—	071:FLN cfg ERR	—	71 Flow noise configuration error	✓	—
—	072:Log not start	—	72 Data logging not started	✓	—
Mask 2-2	085:Cable miscon	Alarm record mask 2	85 Cable misconnect	—	✓
—	086:Coil insulation	—	86 Coil insulation warning	✓	—
—	131:Trans mismatch	—	131 Transmitter type mismatch	✓	—

Display		Ethernet		Default value	Attribute
Parameter name	Alarm name	Parameter name	Alarm name		
—	087:Adhesion lv 3	—	87 Adhesion over level 3	✓	—
—	088:LC warn	—	88 Low conductivity warning	✓	—
—	089:Insu detect	—	89 Insulation detection	✓	—
—	090:FLN over lv 3	—	90 Flow noise over level 3	✓	—
—	091:FLN over lv 4	—	91 Flow noise over level 4	✓	—
—	092:AZ warn	—	92 Autozero warning	✓	—
—	093:Verif warn	—	93 Verification warning	✓	—
—	094:Fact noise warn	—	94 Factory noise warning	✓	—
—	095:Simulate active	—	95 Simulation active	✓	—
—	101:Param restore run	—	101 Parameter restore running	✓	—
—	102:Disp over	—	102 Display over warning	✓	—
—	103:SD size warn	—	103 microSD card size warning	✓	—
—	104:Bkup incmplt	—	104 Parameter backup incomplete	✓	—
—	105:SD mismatch	—	105 microSD card mismatch	✓	—
—	106:SD removal ERR	—	106 microSD card removal procedure error	✓	—
—	120:Watchdog*1	—	120 Watchdog*1	—	—
—	121:Power off*1	—	121 Power off*1	—	—
—	122:Inst power FAIL*1	—	122 Instant power failure*1	—	—
—	123:Param bkup run	—	123 Parameter backup running	✓	—
—	124:Data log run	—	124 Data logging running	✓	—
Mask 3-2	200:Opt bd comm ERR1	Alarm record mask 3	200 Option board comm error1	—	✓
Mask 3-2	201:Opt bd comm ERR2	Alarm record mask 3	201 Option board comm error2	—	✓

*1: Recorded in the alarm record regardless of the settings of the alarm notification mask function.

4.5 Display

4.5.1 Language

The language to be shown on the display can be checked.
This information can be checked with the following parameters.

■ Display of language

Menu path

Display	Device setup ► Language
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Language

This parameter indicates the language to be used on the display.
Only English is available.

■ Display of language package

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► Language package
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Language package

This parameter indicates the language package for the display.
Only Package 1 is available.

4.5.2 Display Item Setting

This product can show up to eight items on the display by scrolling it. Each display item is to be set to the eight-line mode.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Line select ► (see below)
Ethernet	Device root menu ► Detailed setup ► Display ► Line select ► (see below)

Parameter		Description
Display	Ethernet	
Line 1	Display select1	Specifies item 1 to be shown on the display.
Line 2	Display select2	Specifies item 2 to be shown on the display.
Line 3	Display select3	Specifies item 3 to be shown on the display.
Line 4	Display select4	Specifies item 4 to be shown on the display.
Line 5	Display select5	Specifies item 5 to be shown on the display.
Line 6	Display select6	Specifies item 6 to be shown on the display.
Line 7	Display select7	Specifies item 7 to be shown on the display.
Line 8	Display select8	Specifies item 8 to be shown on the display.

From the table below, select the items to be shown on the display.

Selection		Description
Display	Ethernet	
None	None	Does not display items (item 1 is not selectable).
Flow rate(%)	Flow rate(%)	Displays the flow rate for the span of the PV-mapped process value of Subsection 4.1.2.
PV	PV	Displays the PV-mapped process value of Subsection 4.1.2.
Velocity	Velocity	Displays the flow velocity.
Volume flow	Volume flow	Displays the volumetric flow rate.
Mass flow	Mass flow	Displays the mass flow rate.
Flow rate(%Bar)	Flow rate(%Bar)	Displays the flow rate for the span of the PV-mapped process value of Subsection 4.1.2 by using a bar graph.
Totalizer 1	Totalizer1	Displays the totalized value of totalizer 1.
Totalizer 2	Totalizer2	Displays the totalized value of totalizer 2.
Totalizer 3	Totalizer3	Displays the totalized value of totalizer 3.
Tag number	Tag number	Displays the tag number.
Long tag	Long tag	Displays the long tag.
Commun protocol	Commun Protocol	Displays the communication protocol.
Adhesion	Adhesion	Displays the adhesion level of the electrode adhesion detecting function.
Flow noise level	Flow noise level	Displays the noise level of the flow noise diagnosis function. (Only available for AXG, not for AXW)
Totalizer 1 count	Totalizer1 count	Displays the count value of totalizer 1.
Totalizer 2 count	Totalizer2 count	Displays the count value of totalizer 2.
Totalizer 3 count	Totalizer3 count	Displays the count value of totalizer 3.

4.5.3 Decimal-Point Position Setting

The number of decimal places can be set to the automatic adjustment or fix mode for the PV-mapped totaled value or process value of Subsection 4.1.2.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Disp format ► (see below)
Ethernet	Device root menu ► Detailed setup ► Display ► Display format ► (see below)

Parameter		Description
Display	Ethernet	
Format PV	Display format PV	Specifies the decimal-point position for the PV-mapped process value of Subsection 4.1.2.
Format total 1	Display format total 1	Specifies the decimal-point position for the totaled value of totalizer 1.
Format total 2	Display format total 2	Specifies the decimal-point position for the totaled value of totalizer 2.
Format total 3	Display format total 3	Specifies the decimal-point position for the totaled value of totalizer 3.

From the table below, select the position of the decimal point.

Process variable

Selection		Description
Display	Ethernet	
Auto	Auto	Automatically adjusts the number of digits after the decimal point with the PV-mapped process value.*1
0 digit	0 digit	Fixes the number of decimal places to "0".
1 digit	1 digit	Fixes the number of decimal places to "1".
2 digit	2 digit	Fixes the number of decimal places to "2".
3 digit	3 digit	Fixes the number of decimal places to "3".
4 digit	4 digit	Fixes the number of decimal places to "4".
5 digit	5 digit	Fixes the number of decimal places to "5".
Auto 2	Auto 2	Automatically adjusts the number of digits after the decimal point with the span of the PV-mapped process value.*2

Totalized value

Selection		Description
Display	Ethernet	
Auto	Auto	Automatically adjusts the number of digits after the decimal point with a totaled value.
0 digit	0 digit	Fixes the number of decimal places to "0".
1 digit	1 digit	Fixes the number of decimal places to "1".
2 digit	2 digit	Fixes the number of decimal places to "2".
3 digit	3 digit	Fixes the number of decimal places to "3".
4 digit	4 digit	Fixes the number of decimal places to "4".
5 digit	5 digit	Fixes the number of decimal places to "5".
6 digit	6 digit	Fixes the number of decimal places to "6".
7 digit	7 digit	Fixes the number of decimal places to "7".

- *1: When "Auto" is selected, the display format is automatically switched in response to the process value selected for PV. The table below shows details.

Judgment range			Supported display format
	process value ≥	100000	0digit
100000	> process value ≥	10000.0	1digit
10000.0	> process value ≥	1000.00	2digit
1000.00	> process value ≥	100.000	3digit
100.000	> process value ≥	10.0000	4digit
10.0000	> process value ≥	0.00000	5digit

Since the display format is switched in response to the process values, the display format may be switched when the product is used near the threshold listed in the above table.

- *2: When "Auto 2" is selected, the display format is automatically switched in response to the span value of the process selected for PV. The table below shows details.

Judgment range			Supported display format
	span value >	900	0digit
900	≥ span value >	90	1digit
90	≥ span value >	9	2digit
9	≥ span value >	0	3digit

Since the display format is switched in response to span values of the process, the display format is not changed as long as the span is not changed.

4.5.4 Display Line Count and Scroll Settings

This product can show up to eight items on the display by scrolling, with four lines max. shown at a time. The scroll method can be selected from the automatic display switching or the display switching using the IR switch.

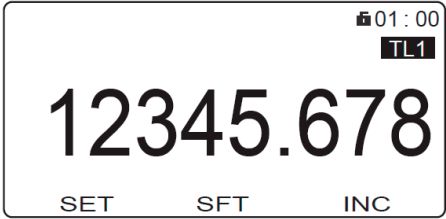
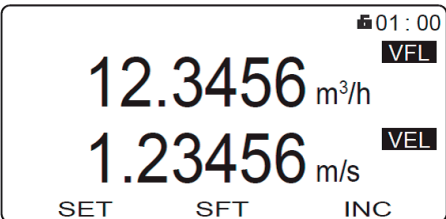
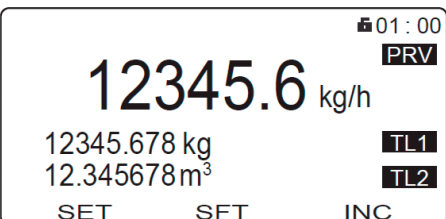
This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► (see below)
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► (see below)

Parameter		Description
Display	Ethernet	
Line mode	Display line	Specifies the number of lines to be shown on the display.*1
Scroll mode	Display scroll	Specifies the display scroll method.*2

*1: From the table below, select the number of display lines.
The font size is automatically adjusted depending on the number of the displayed line.

Selection		Description
Display	Ethernet	
1 line(big)	1 Line(Big)	1-line display without unit. The numeric value is displayed in a large font. 
1 line	1 Line	1-line display with unit. 
2 line	2 Line	2-line display with units 
3 line	3 Line	3-line display with units 

Selection		Description
Display	Ethernet	
4 line	4 Line	4-line display with units. F0431.ai

*2: From the table below, select the scroll method.

Selection		Description
Display	Ethernet	
Off	Off	Does not scroll.
Manual	Manual	Specifies to the scroll using the IR switch.
Auto(2 s)	Auto(2s)	Specifies to the automatic scroll at 2-second intervals.
Auto(4 s)	Auto(4s)	Specifies to the automatic scroll at 4-second intervals.
Auto(8 s)	Auto(8s)	Specifies to the automatic scroll at 8-second intervals.

NOTE

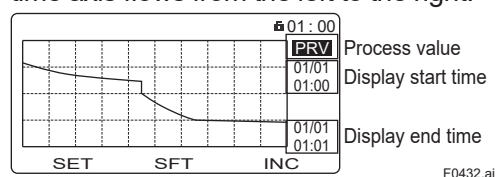
The default value of the scroll method (Display scroll/Scroll mode) is "Off".

If the value of the scroll method is set to "Off", the 5th line and beyond cannot be checked on the display.

To display the 5th line and beyond, set an option other than "Off".

4.5.5 Trend Graph Setting

The trend graph display function displays the time change of the selected item as a trend graph. Up to four items can be selected for a trend graph. A trend graph is scaled automatically, and the time axis flows from the left to the right.



(1) Trend graph display setting

The process value and low limit value/high limit value that can be shown in a trend graph are as follows:

Process value	Display	Low limit	High limit
Flow rate (%)	FLP	0%	100%
PV	PRV	0	Span value specified in Subsection 4.1.5
Flow velocity	VEL		
Volumetric flow rate	VFL		
Mass flow rate	MFL		
Totalizer 1	TL1	Preset value specified in Subsection 4.2.7	Target value of the totalizer specified in Subsection 4.2.3
Totalizer 2	TL2		
Totalizer 3	TL3		

A trend graph can be set with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► Display mode
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display measure mode

From the table below, select the trend graph display.

Selection		Description
Display	Ethernet	
Normal	Normal	Does not display a trend graph (normal display).
Trend	Trend	Displays a trend graph.

(2) Trend graph display item setting

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Trend select ► (see below)
Ethernet	Device root menu ► Detailed setup ► Display ► Trend select ► (see below)

Parameter		Description
Display	Ethernet	
Trend 1	Trend select 1	Specifies item 1 to be shown in a trend graph.
Trend 2	Trend select 2	Specifies item 2 to be shown in a trend graph.
Trend 3	Trend select 3	Specifies item 3 to be shown in a trend graph.
Trend 4	Trend select 4	Specifies item 4 to be shown in a trend graph.

From the table below, select the display item of trend graph.

Selection		Description
Display	Ethernet	
None	None	Does not set any items (item 1 is not selectable).
Flow rate(%)	Flow rate(%)	Specifies the flow rate for the span of the PV-mapped process value of Subsection 4.1.2.
PV	PV	Specifies the PV-mapped process value of Subsection 4.1.2.
Velocity	Velocity	Specifies the display item to the flow velocity.
Volume flow	Volume flow	Specifies the display item to the volumetric flow rate.
Mass flow	Mass flow	Specifies the display item to the mass flow rate.
Totalizer 1	Totalizer1	Specifies the totalized value of totalizer 1.
Totalizer 2	Totalizer2	Specifies the totalized value of totalizer 2.
Totalizer 3	Totalizer3	Specifies the totalized value of totalizer 3.

(3) Trend graph high/low limit setting

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► (see below)
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► (see below)

Parameter		Description
Display	Ethernet	
Trend offln URV	Trend offline urv	Specifies the high limit to display in a trend graph.
Trend offln LRV	Trend offline lrv	Specifies the low limit to display in a trend graph.

4.5.6 Update period setting

The update period of the process value and the trend graph on the display can be set. This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► Period
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display period

From the table below, select the trend graph update period.

Selection		Description
Display	Ethernet	
0.2 s	0.2s	Sets the update period to 0.2 sec.
0.4 s	0.4s	Sets the update period to 0.4 sec.
1.0 s	1.0s	Sets the update period to 1 sec.
2.0 s	2.0s	Sets the update period to 2 sec.
4.0 s	4.0s	Sets the update period to 4 sec.
8.0 s	8.0s	Sets the update period to 8 sec.

4.5.7 Other Settings

(1) Display contrast setting

The contrast of the display can be adjusted to 11 levels (+5 to -5).
This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► Contrast
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display contrast

+5 +4 +3 +2 +1 0 -1 -2 -3 -4 -5
High ← → Low

(2) Display damping time constant setting

This function can specify the damping time constant for the display independently of that specified in Subsection 4.1.6.
This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► Damp
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display damping

NOTE

The damping time constant of the display is effective only for the display. Read Subsection 4.1.6 to specify the damping time constant for the output of the physical quantity.

(3) Date display format setting

The date display format can be set.
This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► Format date
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display format date

From the table below, specify the date display format.

Selection		Description
Display	Ethernet	
MM/DD/YYYY	MM/DD/YYYY	Displays the date as "month/day/year".
DD/MM/YYYY	DD/MM/YYYY	Displays the date as "day/month/year".
YYYY/MM/DD	YYYY/MM/DD	Displays the date as "year/month/day".

(4) Display black/white inverse setting

The black/white inverse is available for the display.
This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Display set ► Optional config ► Inversion
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display inversion

From the table below, select the display black/white inverse mode.

Selection		Description
Display	Ethernet	
Normal	Normal	Does not set the display to the black/white inverse mode. (Character color: Black, Background color: White)
Invert	Invert	Sets the display to the black/white inverse mode. (Character color: White, Background color: Black)

(5) Display squawk setting (squawk)

The back light of the display can be blinked (squawked) at 4-second intervals to identify a communicating product if a number of the same model is installed.
This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Disp indicator ► Squawk
Ethernet	Maintenance root menu ► Display indication ► Squawk

From the table below, select whether or not to blink the display.

Selection		Description
Display	Ethernet	
Off	Off	Does not blink the display.
On	On	Blinks the display (continuously).
Squawk once	Squawk Once	Blinks the display (only once).

(6) IR switch function

The IR switch function is a function to drive the IR switch for display operation. For the basic operations of the IR switch, read Subsection 2.2.1.
This setting can be configured with the following parameters.

Menu path

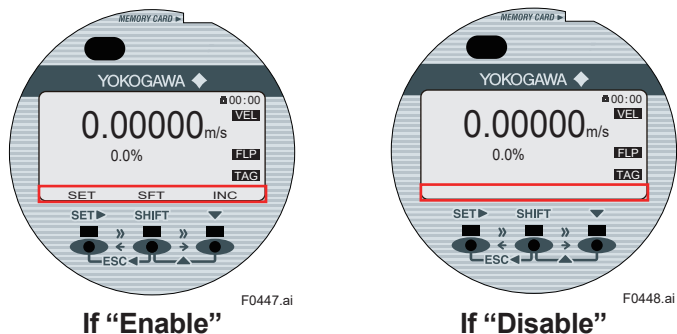
Ethernet	Device root menu ► Detailed setup ► Display ► Display operation configuration ► IRSW operation
-----------------	--

From the table below, select how the IR switch function is to be used.

Selection	Description
Disable	Disables the IR switch function.
Enable	Enables the IR switch function.

NOTE

If the IR switch function is set to “Disable”, the switch function is not displayed on the display, and the IR switch cannot be operated.



4.5.8 microSD Card Setting

If the optional code MC is selected, the backup parameters and logging data can be used by inserting the dedicated microSD card into the display.

For details about backing up parameters and logging data, read Section 4.9.

(1) Removing the microSD card

IMPORTANT

If the microSD card is removed without executing “Unmount” on the software, it may cause data stored on the microSD card to be erased or the device to operate abnormally.

The microSD card can be removed with the following parameters.

Menu path

Display	Device setup ► microSD ► Unmount
----------------	----------------------------------

From the table below, select whether to remove the microSD card.

Selection	Description
Cancel	Cancels the removal of the microSD card.
Execute	Makes it possible to remove the microSD card in safety.

(2) microSD card format**IMPORTANT**

If the format function of this product is not used to format a microSD card, it may cause a device operation failure.

Formatting is possible with the following parameters.

Menu path

Display	Device setup ► microSD ► Format
----------------	---------------------------------

From the table below, select whether to format the microSD card.

Selection	Description
Cancel	Cancels formatting.
Execute	Executes formatting.

(3) Checking microSD contents

Data on the microSD card can be checked with the following parameters.

Menu path

Display	Device setup ► microSD ► Contents
----------------	-----------------------------------

(4) Checking the property of microSD Card

The total space, available space and file system of the microSD card can be checked with the following parameters.

■ Total space**Menu path**

Display	Device setup ► microSD ► Property ► Total space
----------------	---

■ Displaying available space**Menu path**

Display	Device setup ► microSD ► Property ► Available space
----------------	---

■ Displaying file system**Menu path**

Display	Device setup ► microSD ► Property ► File system
----------------	---

Menu path

Display	Device setup ► Detailed setup ► Device info ► Ver/Num info ► (see below)
Ethernet	Device root menu ► Detailed setup ► Device information ► Version/Number information ► (see below)

Parameter		Description
Display	Ethernet	
Trans serial No	Transmitter serial No	Displays the serial number (device No.) of the transmitter.
Sensor serial No	Sensor serial No	Displays the serial number (device No.) of the sensor.

NOTE

When any parameters related to the order information about the product are changed, the order information upon shipment from the manufacturing factory cannot be referred to. To store the order information defined upon shipment from the manufacturing factory, it is recommended to read Section 4.9 to make a backup.

4.6.2 Device Revision

The revision of the software used for this product can be checked. This information can be viewed with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Device info ► Ver/Num info ► (see below)
Ethernet	Device root menu ► Detailed setup ► Device information ► Version/Number information ► (see below)

Parameter		Description
Display	Ethernet	
Transmitter type	Transmitter type	Displays the type of the transmitter.
Option board ID	Option board ID	Displays the type of the option board.
Main soft rev	Main board revision	Displays the software revision of the main board.
Snsr soft rev	Sensor board revision	Displays the software revision of the sensor board.
Ind soft rev	Indicator board revision	Displays the software revision of the display board.

4.6.3 Memo Function

Three parameters can be used for the memo function. The memo function can be set to up to 16 characters.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Device info ► Memo ► (see below)
Ethernet	Device root menu ► Detailed setup ► Device information ► Memo ► (see below)

Parameter		Description
Display	Ethernet	
Memo 1	Memo 1	Specifies memo 1.
Memo 2	Memo 2	Specifies memo 2.
Memo 3	Memo 3	Specifies memo 3.

4.6.4 Date and Time Information

The present date and time can be set. The display format for date and time is the format set in Subsection 4.5.6.

This setting can be displayed and configured with the following parameters.

■ Displaying date and time

Menu path

Display	Device setup ► Detailed setup ► Device info ► Date/Time ► (see below)
Ethernet	Maintenance root menu ► Time stamp ► (see below)

Parameter		Description
Display	Ethernet	
Current date	Current Date	Displays current date.
Current time	Current Time	Displays current time.

■ Setting date and time

Menu path

Display	Device setup ► Detailed setup ► Device info ► Date/Time ► (see below)
Ethernet	Maintenance root menu ► Time stamp ► (see below)

Parameter		Description
Display	Ethernet	
Set date	-	Sets the current date.
Set time	-	Sets the current time.
-	Set current day	Sets day.
-	Set current month	Sets month.
-	Set current year	Sets year.
-	Set current hour	Sets hour.
-	Set current min	Sets minute.
-	Set current sec	Sets sec.

4.6.5 Display Operation Time

Displays operation time. Operation time refers to the operation time up to the present from the time when the power was turned on for the first time. However, time is not counted when power is not turned on.

This information can be viewed with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Device info ► Date/Time ► Operation time
Ethernet	Maintenance root menu ► Time stamp ► Operation time

The operation time is displayed in the format of “ddddD hh:mm”. “ddddD” indicates the day, “hh” indicates the hour, and “mm” indicates the minute.

Example:

“00031D 12:34”

This example shows that the product has been operated for 31 days, 12 hours, and 34 minutes.

4.6.6 Explosion Protection Setting

Whether the product is a standard product or an explosion protection product can be set.

When using an explosion protection sensor, set the following parameter to “Yes”.

Menu path

Display	Device setup ► Detailed setup ► Device info ► Order info ► Explosion protection
Ethernet	Device root menu ► Detailed setup ► Device information ► Order information ► Explosion protection

From the table below, select explosion protection setting.

Selection		Description
Display	Ethernet	
No	No	No explosion protection setting.
Yes	Yes	Explosion protection.

4.7 Self-diagnostic Function

4.7.1 Types of Diagnosis Functions

This product has a self-diagnostic function for diagnosing device failures or process states. Diagnostic functions of this product are as follows:

Diagnosis function	Description
Alarm high/low limit function	Displays an alarm when the specified value is exceeded and outputs it as the status output.
Electrode adhesion detection	Diagnoses an electrode adhesion from the resistance value of the electrode, and displays a warning or alarm if adhesion is detected.
Sensor empty check	Checks whether the sensor is in the empty pipe state, and displays an alarm if the empty pipe state is detected.
Misconnection detection	Checks whether the transmitter signal line and the excitation line are correctly connected, and displays a warning if a misconnection is detected.
Verification (device health diagnosis) function	Diagnoses the health of the product, and displays its result.
Electrode insulation deterioration diagnosis	Diagnoses deterioration of insulation from a resistance value of the electrode, and displays a warning if it is detected. (Only available for AXG, not for AXW)
Flow noise diagnosis	Measures a flow noise detected in the sensor, and displays a warning if the measured value exceeds the specified value. (Only available for AXG, not for AXW)
Low conductivity diagnosis	Obtains the conductivity from the resistance value and size of the electrode, and displays a warning if the conductivity falls below the specified value. (Only available for AXG, not for AXW)
Coil insulation diagnosis	Diagnoses the current value of exciting current, and displays warning if insulation is detected.

4.7.2 Alarm High/Low Limit Function

The high/low limit function of the alarm displays an alarm when the PV-mapped physical quantity of Subsection 4.1.2 exceeds the specified value. This function also can output an alarm occurrence as a status output.

As a value to judge an alarm, the following four values can be set: high limit, high-high limit, low limit, and low-low limit.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► H/L alarm cfg ► (see below)
Ethernet	Maintenance root menu ► High/Low alarm configuration ► (see below)

Parameter		Description
Display	Ethernet	
High alarm	High alarm	Specifies the high limit to judge an alarm.
Low alarm	Low alarm	Specifies the low limit to judge an alarm.
HH alarm	High high alarm	Specifies the high-high limit to judge an alarm.
LL alarm	Low low alarm	Specifies the low-low limit to judge an alarm.

When the high and low limit alarms are reset, each has a hysteresis. The hysteresis width should be set with the percentage (%) for the span of the PV-mapped physical quantity of Subsection 4.1.2. The hysteresis in each case can be specified with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► H/L alarm cfg ► H/L alarm hyst
Ethernet	Maintenance root menu ► High/Low alarm configuration ► Hi/Lo alarm hysteresis

NOTE

The alarm "052:H/L HH/LL alm" is masked at the factory shipment. When using this function, be sure to set the alarm notification mask to "Off". For details about the alarm mask function, refer to Subsection 4.8.5.

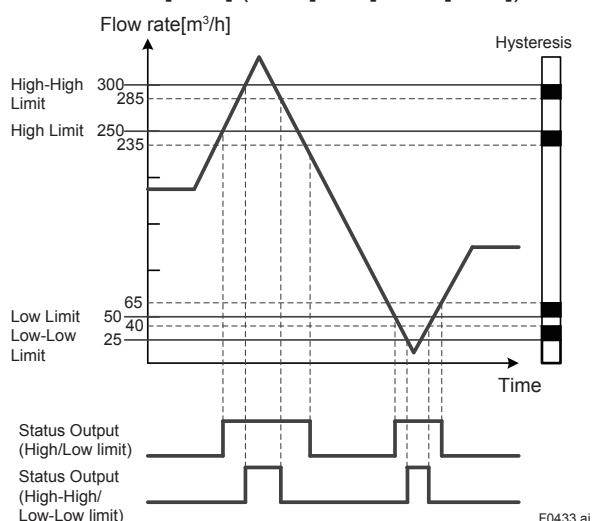
The alarm high/low limit function can be configured with the following procedure.

- (1) Specify the high limit, high-high limit, low limit or low-low limit to judge an alarm.
- (2) Specify the hysteresis when alarms are reset.
- (3) Refer to Subsection 4.3.9 to specify the status output function to H/L alarm or HH/LL alarm, if the status output is used for alarm notification.

Example:

Span of volumetric flow rate = 300 m³/h,
 High-high limit = 300 m³/h, Low-low limit = 25 m³/h,
 High limit value = 250 m³/h, Low limit value = 50 m³/h,
 When set to Hysteresis width = 5 %

- (1) Hysteresis value = Span or max. range x Hysteresis width [%]
 = 300 [m³/h] × 5 [%] = 15 [m³/h]
- (2-1) Value that causes a high-high limit alarm to be reset
 = Specified high-high limit value - Hysteresis value
 = 285 [m³/h] (= 300 [m³/h] – 15 [m³/h])
- (2-2) Value that causes a high limit alarm to be reset
 = Specified high limit value - Hysteresis value
 = 235 [m³/h] (= 250 [m³/h] – 15 [m³/h])
- (3-1) Value that causes a low limit alarm to be reset
 = Specified low limit value + Hysteresis value
 = 65 [m³/h] (= 50 [m³/h] + 15 [m³/h])
- (3-2) Value that causes a low-low limit alarm to be reset
 = Specified low-low limit value + Hysteresis value
 = 40 [m³/h] (= 25 [m³/h] + 15 [m³/h])

**NOTE**

When the physical quantity to be output is changed, specify the alarm judgment value again.

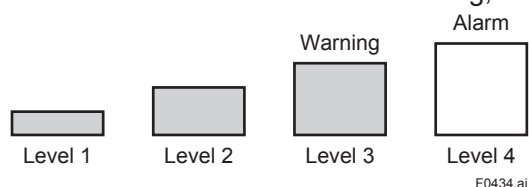
4.7.3 Electrode Adhesion Detection

The electrode adhesion detecting function diagnoses an electrode adhesion with the resistance value of the electrode, and displays a warning or alarm if an adhesion is detected.

The electrode adhesion detection is displayed on the display in four levels: level 1 to level 4.

A value to judge each level can be specified individually. Display a warning when adhesion exceeds level 3, and an alarm when adhesion exceeds level 4.

For details about the alarm and warning, read Subsection 4.4.1.



This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► Adhesion ► (see below)
Ethernet	Diagnostic rootmenu ► Diagnosis ► Adhesion ► (see below)

Parameter		Description
Display	Ethernet	
Function	Adhesion function	Specifies the use of the electrode adhesion detecting function.*1
Threshold level 1	Adhesion level 1	Specifies the value to judge level 1.
Threshold level 2	Adhesion level 2	Specifies the value to judge level 2.
Threshold level 3	Adhesion level 3	Specifies the value to judge level 3.
Threshold level 4	Adhesion level 4	Specifies the value to judge level 4.
Result ► Value	Result ► Adhesion value	Displays the resistance value of the electrode.
Result ► Status	Result ► Adhesion status	Displays the electrode adhesion detection level.
Check cycle	Adhesion check cycle	Specifies the data update cycle for electrode adhesion detection.

*1: From the table below, select the use of the electrode adhesion detection function.

Selection		Description
Display	Ethernet	
Disable	Disable	Does not use the electrode adhesion detecting function.
Enable	Enable	Uses the electrode adhesion detecting function.

NOTE

If the electrode adhesion detecting function is not used, the electrode resistance value and level are cleared.

NOTE

Be sure to use the electrode adhesion detecting function when the sensor is in the full pipe state. If the sensor is in the empty pipe state, the function to detect adhesion may not run normally.

NOTE

The electrode adhesion detecting function restricts fluid conductivity. The recommended conductivities are as follows.

Size	Conductivity
2.5 to 10 mm	30 μ S/cm or larger
15 to 450 mm (0.5 to 18 in.)	10 μ S/cm or larger
500 mm	20 μ S/cm or larger

NOTE

If the data update cycle for the adhesion detection is shortened, the error of the electrode resistance value increases. Do not change the default value unless especially specified.

4.7.4 Sensor Empty Check

The sensor empty check function checks whether the sensor is in the empty pipe state, and displays an alarm if the empty pipe state is detected.

For details about the alarm and warning, read Subsection 4.4.1.

This information can be viewed with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► Empty check ► (see below)
Ethernet	Diagnostic root menu ► Diagnosis ► Empty ► (see below)

Parameter		Description
Display	Ethernet	
Empty status	Result ► Empty status	Display the result of the sensor empty check function.*1
Electrode voltage A	Electrode voltage A	Displays the voltage of electrode A.
Electrode voltage B	Electrode voltage B	Displays the voltage of electrode B.

*1: From the table below, check the result of the sensor empty check function.

Selection		Description
Display	Ethernet	
Full	Full	Indicates that the sensor is in the full pipe state.
Empty	Empty	Indicates that the sensor is in the empty pipe state.

IMPORTANT

- If the sensor is in the empty pipe state, output fluctuation or empty check alarm may occur. Be sure to use this product being filled with liquid fully.
- The empty check is determined by measuring the resistance between the electrode and the ground. For that reason, the empty pipe state may not be detected due to the piping condition, electrode condition, and environmental noise. In particular, note that the empty check function may not operate properly for high-viscosity fluids and adhesive fluids.
- It takes 10 to 15 minutes to diagnose the empty pipe state. Other process alarms may occur before the empty check alarm occurs after the pipe is in the empty pipe state.

4.7.5 Wiring Connection Diagnosis

The wiring connection diagnostic function diagnoses whether the signal line and the excitation line between the remote type sensor and transmitter are correctly connected, and displays a warning if a misconnection is detected.

For example, if there are two sets (A and B) of remote sensors and remote transmitters, this function checks whether the signal line of transmitter A is misconnected to the signal terminal of sensor B, or the excitation line of transmitter A is misconnected to the excitation terminal of sensor B.

It takes approximately 10 seconds to diagnose the wiring connection.

For details about the alarm and warning, read Subsection 4.4.1.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► (see below)
Ethernet	Diagnostic root menu ► Diagnosis ► (see below)

Parameter		Description
Display	Ethernet	
Diagnostic execute	Diagnostic Exe	Specifies the use of the wiring connection diagnostic function.*1
Diagnostic output	Diagnostic output	Specifies the output to use the wiring connection diagnostic function.*2

*1: From the table below, select the use of the wiring connection diagnostic function.

Selection		Description
Display	Ethernet	
Connect check exe	Connection check execute	Starts the wiring connection diagnostic function.

*2: From the table below, select the output for which the wiring connection diagnostic function is executed.

Selection		Totalizer
Display	Ethernet	
Zero	Zero	Input 0 (Output fixed)
Measured value	Measured value	Totalization of calculated value (Undefined)
Hold	Hold	Totalizes the last valid value before the diagnosis starts.

IMPORTANT

Before using the wiring connection diagnostic function, be sure to disconnect this product from the control loop.

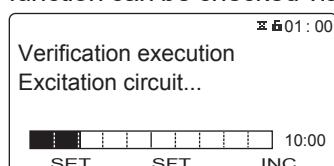
NOTE

When using the wiring connection diagnostic function, the following conditions must be satisfied. If the conditions are not satisfied, this product may not correctly diagnose the wiring connection state.

- The sensor is in the full pipe state.
- No influence of noise.
- The magnetic flowmeter transmitter and AM012 (calibrator) are not connected.

4.7.6 Verification (Device Health Diagnosis) Function

The verification function diagnoses the health of the product and displays the diagnosis result. It takes about 15 minutes to complete the verification function, and the progress of the verification function can be checked via the bar graph and the remaining time on the display.



This function can inspect conditions of the magnetic circuit, excitation circuit and calculation circuit, and executes the device health diagnosis of the product based on their internal alarm record along with their wiring misconnection. This function evaluates the diagnosis result based on the conditions of the product and shows “Passed” if no problem is found or “Failed” if a problem is found on the display.

The following execution results are shown on the display.

- Examples of “Passed” results**

VF check results	Passed
VF Operation time	00001D 10:01
Magnetic circuit result	Passed
Exciting circuit result	Passed
Calculation circuit result	Passed
Device status result	Passed
Connection status result	Passed

- Examples of “Failed” results**

VF check results	Failed
VF Operation time	00001D 10:01
Magnetic circuit result	Passed
Exciting circuit result	Passed
Calculation circuit result	Failed
Device status result	Passed
Connection status result	Passed

Contact Yokogawa service center if the “Failed” message is displayed for items from “Magnetic circuit result” to “Device status result”.

If “Failed” is displayed for “Connection status result”, check for wiring misconnection between the sensor and transmitter (read Subsection 4.7.5 for detail) and damage on the cables.

The verification function can be used in two ways depending on the state of the fluid; one state where a fluid is flowing and another state where no fluid is flowing.

The two diagnosis results (current and previous) are stored in the device memory, and they can be checked later.

If the verification function is used, the following results can be displayed.

Total judgment result	Calculation circuit diagnosis result
Device operation time at the start of verification execution	Device alarm diagnosis result
Magnetic circuit diagnosis result	Wiring connection diagnosis result
Excitation circuit diagnosis result	

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► (see below)
Ethernet	Maintenance root menu ► Verification ► (see below)

Parameter		Description
Display	Ethernet	
Diagnostic output	Diagnostic output	Specifies the output to execute the verification function.*1

Menu path

Display	Device setup ► Diag/Service ► Verification ► (see below)
Ethernet	Maintenance root menu ► Verification ► (see below)

Parameter		Description
Display	Ethernet	
Mode	VF mode	Specifies the fluid state when performing the verification function.*2
Execute	Verification Exe	Specifies the execution of the verification function.*3
VF No	VF No	Specifies the diagnosis result display time.*4
VF target select	VF target select	Specifies the target for diagnosis*5
Result	Result	Displays the diagnosis result of the time set by the VF number.*6

*1: From the table below, select the output to execute the verification function.

Selection		Totalizer
Display	Ethernet	
Zero	Zero	Input 0 (Output fixed)
Measured value	Measured value	Totalization of calculated value (Undefined)
Hold	Hold	Totalizes the last valid value before the diagnosis starts.

*2: From the table below, select the fluid status required to execute the verification function.

Selection		Description
Display	Ethernet	
No flow	No flow	Executes the verification function with the fluid not flowing.
Flow	Flow	Executes the verification function with the fluid flowing.

*3: From the table below, select whether or not to execute the verification function.

Selection		Description
Display	Ethernet	
Not execute	Not execute	Does not execute the verification function.
Execute	Execute	Executes the verification function.

*4: From the table below, select the execution result of the verification function.

Selection		Description
Display	Ethernet	
Factory	Factory	Displays the result obtained upon shipment from the manufacturing factory.
Previous	Previous	Displays the previous result.
Present	Present	Displays the result at this time.

*5: From the table below, select the target for diagnosis.

Selection		Description
Display	Ethernet	
Magnetic circuit	Magnetic circuit	Magnetic circuit diagnosis
Excite circuit	Excitation circuit	Excitation circuit diagnosis
Calc circuit	Calculation circuit	Calculation circuit diagnosis
Device status	Device status	Device alarm diagnosis
Connect status	Conn status	Wiring misconnection check

In the default state, all of the diagnosis results are reflected in the final results of the verification. Even if an item is set on VF target select so as not to reflect the diagnosis results to the final results of the verification, execution time for the verification does not change because the diagnosis itself is executed. In addition, the diagnosis results selected to "0" with VF target select are displayed as "Skip".

Note that verification itself cannot be executed if all diagnoses are unchecked on VF target select (0x0000).

*6: From the table below, select the result.

Parameter		Description
Display	Ethernet	
Failed/Passed	VF check result	Execution result ^{*7}
VF operate time	VF operation time	The time at the start of verification execution (displays the device operation time at that time)
Magnetic circuit	Magnetic circuit result	Magnetic circuit diagnosis result ^{*7}
Excite circuit	Excitation circuit result	Excitation circuit diagnosis result ^{*7}
Calc circuit	Calculation circuit result	Calculation circuit diagnosis result ^{*7}
Device status	VF device status result	Device alarm diagnosis result ^{*7}
Connect status	Connection status result	Wiring misconnection check result ^{*7}

*7: From the table below, select the result of the verification function.

Result		Description
Display	Ethernet	
Passed	Passed	There are no problems concerning the diagnosis result.
Failed	Failed	There is a problem concerning the diagnosis result.
Canceled	Canceled	Cancels the diagnosis.
No data	No Data	No diagnosis result data (The verification function is not used.)
Unknown	Unknown	Cannot perform a diagnosis.
Skip	Skip	Out of verification target

IMPORTANT

- Before using the verification function, be sure to disconnect this product from the control loop.
- Note that parameters cannot be changed while the verification function is executed.

NOTE

- Be sure to use the verification function when the sensor is in the full pipe state. If the sensor is in the empty pipe state, the function to detect adhesion may not run normally.
- When using the verification function, correctly specify the fluid status with the parameter.
- If there is a problem with the verification result, read the Maintenance Manual.

4.7.7 Electrode Insulation Deterioration Diagnosis

This function is only available for AXG, not for AXW.

The electrode insulation deterioration diagnosis function diagnoses a deterioration of insulation with a resistance value of the electrode and displays a warning if deterioration of insulation is detected. It takes approximately 5 minutes to complete this diagnosis.

For details about the alarm and warning, read Subsection 4.4.1.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► (see below)
Ethernet	Diagnostic root menu ► Diagnosis ► (see below)

Parameter		Description
Display	Ethernet	
Diagnostic execute	Diagnostic Exe	Specifies the execution of the electrode insulation deterioration diagnostic function.*1
Diagnostic output	Diagnostic output	Specifies the output to execute the electrode insulation deterioration diagnostic function.*2

*1: From the table below, select the use of the electrode insulation deterioration diagnostic function.

Selection		Description
Display	Ethernet	
Electrode insul exe	Electronics insulation execute	Starts the electrode insulation deterioration diagnosis function.

*2: From the table below, select the output while the electrode insulation deterioration diagnostic function is executed.

Selection		Totalizer
Display	Ethernet	
Zero	Zero	Input 0 (Output fixed)
Measured value	Measured value	Totalization of calculated value (Undefined)
Hold	Hold	Totalizes the last valid value before the diagnosis starts.

IMPORTANT

Before using the electrode insulation deterioration diagnosis function, be sure to disconnect this product from the control loop.

NOTE

Be sure to use the electrode insulation deterioration diagnostic function when the sensor is in the full pipe state. If the sensor is in the empty pipe state, the electrode insulation deterioration diagnosis function may not run normally.

4.7.8 Flow Noise Diagnosis

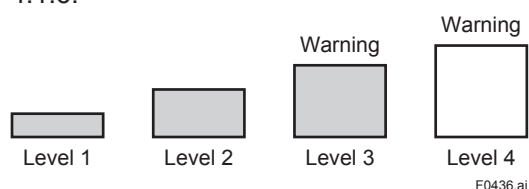
This function is only available for AXG, not for AXW.

This function measures a flow noise detected in the sensor, and displays a warning if it exceeds the specified value.

The flow noise diagnosis is shown on the display in four levels: level 1 to level 4. A value to judge each level can be specified individually. If an output exceeds the level 3 or level 4 value, a warning message is displayed.

For details about the alarm and warning, read Subsection 4.4.1.

For details about the flow noise span and damping time constant, read Subsections 4.1.5 and 4.1.6.



This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► (see below)
Ethernet	Diagnostic root menu ► Diagnosis ► Flow noise ► (see below)

Parameter		Description
Display	Ethernet	
Function	Flow noise function	Specifies the use of the flow noise diagnosis function.*1
Threshold level 1	Flow noise level 1	Specifies the value to judge level 1.
Threshold level 2	Flow noise level 2	Specifies the value to judge level 2.
Threshold level 3	Flow noise level 3	Specifies the value to judge level 3.
Threshold level 4	Flow noise level 4	Specifies the value to judge level 4.
Result ► Value	Result ► Flow noise	Displays the flow noise value.
Result ► Status	Result ► Flow noise status	Displays the flow noise level.

*1: From the table below, select the use of the flow noise function.

Selection		Description
Display	Ethernet	
Disable	Disable	Does not use the flow noise diagnosis function.
Enable	Enable	Uses the flow noise diagnosis function.

NOTE

If the flow noise diagnosis function is set to “Disable”, the flow noise value and level are cleared.

4.7.9 Low Conductivity Diagnosis

This function is only available for AXG, not for AXW.

The low conductivity diagnosis function calculates conductivity from the resistance value and size of the electrode and displays a warning if the conductivity falls below the specified value.

For details about the alarm and warning, read Subsection 4.4.1.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► Conductivity ► (see below)
Ethernet	Diagnostic root menu ► Diagnosis ► Conductivity ► (see below)

Parameter		Description
Display	Ethernet	
Function	Low conductivity function	Specifies the use of the low conductivity diagnosis function.*1
Result ► Value	Result ► Conductivity value	Displays the calculated conductivity.
Low limit	Conductivity low limit	Specifies the value used to judge the low conductivity.

Menu path

Display	Device setup ► Detailed setup ► Device info ► Order info ► (see below)
Ethernet	Device root menu ► Detailed setup ► Device information ► Order information ► (see below)

Parameter		Description
Display	Ethernet	
Electrode size	Electrode size	Displays the electrode size.

*1: From the table below, select the use of the low conductivity diagnosis function.

Selection		Description
Display	Ethernet	
Disable	Disable	Does not use the low conductivity diagnosis function.
Enable	Enable	Uses the low conductivity diagnosis function.

NOTE

The electrode size is specified upon shipment from the manufacturing factory. When any parameters related to the order information about the product are changed, the order information upon shipment from the manufacturing factory cannot be referred to. To store the order information defined upon shipment from the manufacturing factory, it is recommended to read Section 4.9 to make a backup.

NOTE

Before using the low conductivity diagnosis function, always make sure that the sensor is in the full pipe state. If the sensor is in the empty pipe state or the transmitter is connected with AM012 (calibrator), the function to diagnose conductivity may not run normally.

NOTE

If this function is set to "Disable", the low conductivity value is cleared.

4.7.10 Coil Insulation Diagnosis

Coil Insulation Diagnosis is the function to display a warning when the insulation is deteriorated by diagnosing the current value of the exciting current.

For details about the alarm and warning, read Subsection 4.4.1.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► (see below)
Ethernet	Diagnostic root menu ► Diagnosis ► (see below)

Parameter		Description
Display	Ethernet	
IEX compare	IEX compare	Displays the current value of Exciting current to judge coil insulation.
Coil insul threshold	Coil insulation threshold	Sets the value to judge coil insulation.

4.7.11 Other Setting

In addition, the maximum voltage values of the flow rate signal and coil resistance value are displayed as diagnostic information.

This information can be viewed with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Diagnosis ► (see below)
Ethernet	Diagnostic root menu ► Diagnosis ► (see below)

Parameter		Description
Display	Ethernet	
V peak hold	V peak hold value	Displays the maximum voltage of the flow signal. (Only available for AXG, not for AXW)
IEX resistance	IEX coil resistance	Displays the coil resistance value.

4.8 Test Mode

4.8.1 Test Mode Setting

If the test mode is executed, a process value or the value to be output from a connection terminal can be arbitrarily set, and a response from the device can be tested.

A warning is displayed to indicate that the test mode is in use while this test mode is used.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Test ► Input test ► Test mode
Ethernet	Maintenance root menu ► Test ► Test mode

From the table below, select the input/output and process value to test.

Selection		Description
Display	Ethernet	
Velocity test	Velocity test on	Starts testing the flow velocity.
Volume test	Volume flow test on	Starts testing the volumetric flow rate.
Mass test	Mass flow test on	Starts testing the mass flow rate.
-	Flow noise test on	Starts testing the flow noise. (Only available for AXG, not for AXW)
-	Total1 test on	Starts testing the total1.
-	Total2 test on	Starts testing the total2.
-	Total3 test on	Starts testing the total3.

A test mode value is transmitted in the order of the flow velocity, volumetric flow rate, mass flow rate, flow noise and total 1 - 3. For example, if the volumetric flow rate is set as a test value, the mass flow rate can be obtained from the test value. In this case, the test value of the flow velocity is executed with the normal measurement value.

4.8.2 Test Value Setting

It is necessary to set test values for the process value to test.

This setting can be configured with the following parameters.

However, the unit of the process value to test is the same as the unit specified in Subsection 4.1.4. If the unit is changed, the process value is also changed to match to the changed unit.

■ Input test

Menu path

Display	Device setup ► Diag/Service ► Test ► Input test ► (see below)
Ethernet	Maintenance root menu ► Test ► Input test ► (see below)

Parameter		Description
Display	Ethernet	
Velocity	Velocity	Specifies the flow velocity.
Volume	Volume flow	Specifies the volumetric flow rate.
Mass	Mass flow	Specifies the mass flow rate.
-	Flow noise value	Specifies the flow noise value. (Only available for AXG, not for AXW)
-	Total1 value	Specifies the total 1 value.*
-	Total2 value	Specifies the total 2 value.*
-	Total3 value	Specifies the total 3 value.*

* If the volume flow is integrated, the unit is m3. If the mass flow is integrated, the unit is kg.

4.8.3 Test 2 Mode

The test 2 mode is the function to collectively test a process value, and totalized value.

The test value can be set in the range between -10.0% and 110.0%.

Input test values (%) are tested with a scale value in response to the span of each process value.

■ Test 2 mode setting

Selects whether to enable test 2 mode.

Menu path

Display	Device setup ► Diag/Service ► Test ► Test 2 mode
Ethernet	Maintenance root menu ► Test ► Test 2 mode

Selection	
Display	Ethernet
Normal	Normal
Test	Test

■ Test 2 mode value setting

Test 2 mode value is set with the percentage (%) for the span.

Menu path

Display	Device setup ► Diag/Service ► Test ► Test 2 value
Ethernet	Maintenance root menu ► Test ► Test 2 output value

4.8.4 Test Mode Auto Reset

When a specific time lapses with no parameters changed after the test mode is enabled, the test mode will be reset automatically. When any test mode parameter is changed, the test mode release time is extended.

The time to automatically reset the test mode can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Test ► Release time
Ethernet	Maintenance root menu ► Test ► Release time

From the table below, select the test mode auto release time.

Selection		Description
Display	Ethernet	
10 min	10 min	Specifies the release time to 10 min.
30 min	30 min	Specifies the release time to 30 min.
1 h	1 h	Specifies the release time to 1 hr.
3 h	3 h	Specifies the release time to 3 hrs.
12 h	12 h	Specifies the release time to 12 hrs.

4.9 Event Management Function

4.9.1 Backup Function

The backup function can back up parameter settings in the display's built-in memory (display board) or microSD card (with the optional code MC selected). If the backup data is restored, the parameter settings can be duplicated to another device. The display's built-in memory can store the data for three backups and the microSD card can store as much data as the capacity allows. There are three backup methods available: backup from the main board of the product to the memory on the display board, backup from the main board of the product to the microSD card, and backup from the memory on the display board to the microSD card. The file name, backup name, and date can be specified using the backup function.

The data backed up to the microSD card is stored in the "YOKOGAWA" folder as a ".PAR" file.

This setting can be configured with the following parameters.

For details about the backup parameters, read Subsection 4.9.3.

Menu path

Display	Device setup ► Diag/Service ► Param bkup/restore ► (see below)
Ethernet	Maintenance root menu ► Param bkup/restore ► (see below)

Parameter		Description
Display	Ethernet	
F backup name	Factory backup name	Displays the backup name defined upon shipment from the manufacturing factory.
F backup date	Factory backup date	Displays the backup date upon shipment from the manufacturing factory.
SD backup name	SD backup name	Specifies the name of the file to be backed up to the microSD card.
Backup name 1	Backup name 1	Specifies backup name 1. Up to 16 characters
Backup date 1	Backup date 1	Specifies date 1.
Backup name 2	Backup name 2	Specifies backup name 2. Up to 16 characters
Backup date 2	Backup date 2	Specifies date 2.
Backup name 3	Backup name 3	Specifies backup name 3. Up to 16 characters
Backup date 3	Backup date 3	Specifies date 3.
Backup execute	Backup Exe	Specifies the use of the backup function.*1
Backup result	Backup result	Displays the backup result.*2

*1: From the table below, select how the backup function is to be used.

Selection		Description
Display	Ethernet	
Not execute	Not Execute	Does not back up data.
Store main to 1	Store Main to 1	Backs up parameter settings from the main board to memory 1 in the display's built-in memory.
Store main to 2	Store Main to 2	Backs up parameter settings from the main board to memory 2 in the display's built-in memory.
Store main to 3	Store Main to 3	Backs up parameter settings from the main board to memory 3 in the display's built-in memory.
Store main to SD	Store Main to SD	Backs up parameter settings from the main board to the microSD card.
Store EEP1 to SD	Store EEP1 to SD	Backs up parameter settings from memory 1 in the display's built-in memory to the microSD card.
Store EEP2 to SD	Store EEP2 to SD	Backs up parameter settings from memory 2 in the display's built-in memory to the microSD card.
Store EEP3 to SD	Store EEP3 to SD	Backs up parameter settings from memory 3 in the display's built-in memory to the microSD card.

*2: The result of the backup function is displayed as shown below.

Selection		Description
Display	Ethernet	
Unexecuted	Unexecuted	Backup not executed.
Success	Success	Backup successful.
Failure	Failure	Backup failed.
Running	Running	Parameter backup running.

The table below shows alarms whose parameters can be backed up when an alarm occurs.

✓: Executable when an alarm occurs.

—: Not executable when an alarm occurs.

Alarm name			Backup
Display	Ethernet		
010:Main CPU FAIL	10	Main board CPU failure	—
011:Rev calc FAIL	11	Reverse calculation failure	—
012:Main EEP FAIL	12	Main board EEPROM failure	—
013:Main EEP dflt	13	Main board EEPROM default	—
014:Snsr bd FAIL	14	Sensor board failure	✓
015:Snsr comm ERR	15	Sensor communication error	✓
016:AD 1 FAIL[Sig]	16	A/D1 failure[Signal]	✓
017:AD 2 FAIL[Excit]	17	A/D2 failure[Exciter]	✓
018:Coil open	18	Coil open	✓
019:Coil short	19	Coil short	✓
020:Exciter FAIL	20	Exciter failure	✓
027:Restore FAIL	27	Parameter restore incomplete	✓
028:Ind bd FAIL	28	Indicator board failure	—
029:Ind bd EEP FAIL	29	Indicator board EEPROM failure	—
030:LCD drv FAIL	30	LCD driver failure	—
031:Ind bd mismatch	31	Indicator board mismatch	—
032:Ind comm ERR	32	Indicator communication error	—
033:microSD FAIL	33	microSD failure	—
050:Signal overflow	50	Signal overflow	✓
051:Empty detect	51	Empty pipe detection	✓
052:H/L HH/LL alm	52	H/L or HH/LL alarm	✓
053:Adh over lv 4	53	Adhesion over level 4	✓
060:Span cfg ERR	60	Span configuration error	—
061:PV F cfg ERR	61	PV flow select configuration error	—
065:H/L cfg ERR	65	H/L HH/LL configuration error	—
066:Density cfg ERR	66	Density configuration error	—
069:Nomi size cfg	69	Nominal size configuration error	—
070:Adh cfg ERR	70	Adhesion configuration error	—
071:FLN cfg ERR	71	Flow noise configuration error	—
072:Log not start	72	Data logging not started	—
085:Cable miscon	85	Cable misconnect	✓
086:Coil insulation	86	Coil insulation warning	✓
131:Trans mismatch	131	Transmitter type mismatch	—
087:Adhesion lv 3	87	Adhesion over level 3	✓
088:LC warn	88	Low conductivity warning	✓
089:Insu detect	89	Insulation detection	✓
090:FLN over lv 3	90	Flow noise over level 3	✓
091:FLN over lv 4	91	Flow noise over level 4	✓
092:AZ warn	92	Autozero warning	✓
093:Verif warn	93	Verification warning	✓
094:Fact noise warn	94	Factory noise warning	✓
095:Simulate active	95	Simulation active	✓
101:Param restore run	101	Parameter restore running	—

Alarm name		Backup
Display	Ethernet	
102:Disp over	102 Display over warning	—
103:SD size warn	103 microSD card size warning	—
104:Bkup incmplt	104 Parameter backup incomplete	✓
105:SD mismatch	105 microSD card mismatch	—
106:SD removal ERR	106 microSD card removal procedure error	—
120:Watchdog	120 Watchdog	✓
121:Power off	121 Power off	✓
122:Inst power FAIL	122 Instant power failure	✓
123:Param bkup run	123 Parameter backup running	—
124>Data log run	124 Data logging running	✓
200:Opt bd comm ERR1	200 Option board comm error1	✓
201:Opt bd comm ERR2	201 Option board comm error2	✓

IMPORTANT

- Note that parameters cannot be changed when the backup function is executed. It takes approximately 20 seconds to complete backup processing.
- Take care not to duplicate the file name when backing up data to the microSD card.
- Note that if the microSD card runs out of free space, the subsequent data will not be stored.

NOTE

The backup name and date do not affect the backup function. Use this as the memo column when performing the backup function.

4.9.2 Restore/Duplicate Parameter

If the restore function is used, it becomes possible to restore parameter settings, which are backed up in the display's built-in memory or microSD card (with the optional code MC selected), to the product. In addition, it is possible to return parameters to default values defined when shipped from the factory and to duplicate the backed-up parameters to other device based on the same specifications.

IMPORTANT

- For the remote type, it is necessary to set the device information of the remote sensor to the parameters of the remote transmitter.
- Before using the restore function, be sure to remove this product from piping line or stop the line.
- After executing the restore function, check that backup data is set for the target parameter.

The restore method can be selected from the following four types.

Duplicate Data	Restores the target parameter (excluding the factory adjusted value of the transmitter) from the product for which the parameter is backed up. Restore is also executable for other products.
Restore Data	Restores the target parameter (including the factory adjusted value of the transmitter) from the product for which the parameter is backed up. Restore is not executable for other products.
Compulsion Data	Restores the target parameter (specified at factory shipping) from the product for which the parameter is backed up. Restore is also executable for other products.
Restore factory	Restores all the parameters (specified upon shipment from the manufacturing factory).

When using the restore function, always make sure that the backed-up device information matches the device information to be restored.

The table below shows the consistency of the device information.

✓: Items to be Matched.

Device Information	Duplicate Data	Restore Data	Compulsion Data
Option Board ID	✓	✓	-
Transmitter Serial No	-	✓	-
Sensor Serial No	-	✓	-
Main Board Software Rev.	✓	✓	-
Sensor Board Software Rev.	✓	✓	-
Display Board Software Rev.	✓	✓	-
Model (Note)	✓	✓	-
Communication and I/O Code	✓	✓	-

NOTE

Data can only be duplicated or restored between products of the same model.

This setting can be configured with the following parameters.
For details about the restorable parameters, read Subsection 4.9.3.

Menu path

Display	Device setup ► Diag/Service ► Param bkup/restore ► (see below)
Ethernet	Maintenance root menu ► Param bkup/restore ► (see below)

Parameter		Description
Display	Ethernet	
Restore execute	Restore Exe	Specifies the execution of the restore function. *1
Restore result	Restore result	Displays the restore result. *2

*1: From the table below, select the execution of the restore function.

Selection		Description
Display	Ethernet	
Not execute	Not Execute	Does not restore data.
Duplicate data 1	Duplicate Data1	Restores the parameter (Duplicate Data) setting from memory 1 on the display board to the main board of the product.
Duplicate data 2	Duplicate Data2	Restores the parameter (Duplicate Data) setting from memory 2 on the display board to the main board of the product.
Duplicate data 3	Duplicate Data3	Restores the parameter (Duplicate Data) setting from memory 3 on the display board to the main board of the product.
Duplicate SD	Duplicate SD	Restores the parameter (Duplicate Data) setting from the microSD card to the main board of the product.
Restore data 1	Restore Data1	Restores the parameter (Restore Data) setting from memory 1 on the display board to the main board of the product.
Restore data 2	Restore Data2	Restores the parameter (Restore Data) setting from memory 2 on the display board to the main board of the product.
Restore data 3	Restore Data3	Restores the parameter (Restore Data) setting from memory 3 on the display board to the main board of the product.
Restore SD	Restore SD	Restores the parameter (Restore Data) setting from the microSD card to the main board of the product.
Compulsion data 1	Compulsion Data1	Restores the parameter (Compulsion Data) setting from memory 1 on the display board to the main board of the product.
Compulsion data 2	Compulsion Data2	Restores the parameter (Compulsion Data) setting from memory 2 on the display board to the main board of the product.
Compulsion data 3	Compulsion Data3	Restores the parameter (Compulsion Data) setting from memory 3 on the display board to the main board of the product.
Compulsion SD	Compulsion SD	Restores the parameter (Compulsion Data) setting from the microSD card to the main board of the product.
Restore factory	Restore Factory	Restores to the status that is set upon shipment from the manufacturing factory.

*2: The result of the restore function is displayed as shown below.

Selection		Description
Display	Ethernet	
Unexecuted	Unexecuted	Have not restored
Success	Success	Succeeded in restoration.
Failure	Failure	Failed in restoration.
Running	Running	Restore running

The table below shows alarms whose parameters can be restored or duplicated when an alarm occurs.

✓: Executable when an alarm occurs.
—: Not executable when alarm occurs.

Display	Alarm name		Restore
		Ethernet	
010:Main CPU FAIL	10	Main board CPU failure	—
011:Rev calc FAIL	11	Reverse calculation failure	—
012:Main EEP FAIL	12	Main board EEPROM failure	—
013:Main EEP dflt	13	Main board EEPROM default	—
014:Snsr bd FAIL	14	Sensor board failure	✓
015:Snsr comm ERR	15	Sensor communication error	✓
016:AD 1 FAIL[Sig]	16	A/D1 failure[Signal]	✓
017:AD 2 FAIL[Excit]	17	A/D2 failure[Exciter]	✓
018:Coil open	18	Coil open	✓
019:Coil short	19	Coil short	✓
020:Exciter FAIL	20	Exciter failure	✓
027:Restore FAIL	27	Parameter restore incomplete	✓
028:Ind bd FAIL	28	Indicator board failure	—
029:Ind bd EEP FAIL	29	Indicator board EEPROM failure	—
030:LCD drv FAIL	30	LCD driver failure	—
031:Ind bd mismatch	31	Indicator board mismatch	—
032:Ind comm ERR	32	Indicator communication error	—
033:microSD FAIL	33	microSD failure	—
050:Signal overflow	50	Signal overflow	✓
051:Empty detect	51	Empty pipe detection	✓
052:H/L HH/LL alm	52	H/L or HH/LL alarm	✓
053:Adh over lv 4	53	Adhesion over level 4	✓
060:Span cfg ERR	60	Span configuration error	—
061:PV F cfg ERR	61	PV flow select configuration error	—
065:H/L cfg ERR	65	H/L HH/LL configuration error	—
066:Density cfg ERR	66	Density configuration error	—
069:Nomi size cfg	69	Nominal size configuration error	—
070:Adh cfg ERR	70	Adhesion configuration error	—
071:FLN cfg ERR	71	Flow noise configuration error	—
072:Log not start	72	Data logging not started	—
085:Cable miscon	85	Cable misconnect	✓
086:Coil insulation	86	Coil insulation warning	✓
131:Trans mismatch	131	Transmitter type mismatch	—
087:Adhesion lv 3	87	Adhesion over level 3	✓
088:LC warn	88	Low conductivity warning	✓
089:Insu detect	89	Insulation detection	✓
090:FLN over lv 3	90	Flow noise over level 3	✓
091:FLN over lv 4	91	Flow noise over level 4	✓
092:AZ warn	92	Autozero warning	✓
093:Verif warn	93	Verification warning	✓
094:Fact noise warn	94	Factory noise warning	✓
095:Simulate active	95	Simulation active	✓
101:Param restore run	101	Parameter restore running	—
102:Disp over	102	Display over warning	—
103:SD size warn	103	microSD card size warning	—
104:Bkup incmplt	104	Parameter backup incomplete	✓
105:SD mismatch	105	microSD card mismatch	—
106:SD removal ERR	106	microSD card removal procedure error	—
120:Watchdog	120	Watchdog	✓
121:Power off	121	Power off	✓
122:Inst power FAIL	122	Instant power failure	✓

Alarm name			Restore
Display	Ethernet		
123:Param bkup run	123	Parameter backup running	—
124:Data log run	124	Data logging running	✓
200:Opt bd comm ERR1	200	Option board comm error1	✓
201:Opt bd comm ERR2	201	Option board comm error2	✓

IMPORTANT

When using the restore function, be sure to prepare a backup file in the built-in memory or the microSD card. Note that the restore function is not executable if a backup file is not provided.

4.9.3 Backup and Restore Parameters

The list below shows the parameters that can be backed up or restored. However, the date to be restored with “Compulsion Data” is the value(s) specified by the customer upon shipment from the manufacturing factory. (Default value when not designated)

Parameter		Restore or Duplicate			
Display	Ethernet	Duplicate Data	Restore Data	Compulsion Data	Restore factory
Damp	Velocity damping	✓	✓	—	✓
Damp ttl	Velocity damping total	✓	✓	—	✓
Damp	Volume flow damping	✓	✓	—	✓
Damp ttl	Volume flow damping total	✓	✓	—	✓
Damp	Mass flow damping	✓	✓	—	✓
Damp ttl	Mass flow damping total	✓	✓	—	✓
Low MF	Low MF	✓	✓	✓	✓
High MF	High MF	✓	✓	✓	✓
Flow sensor sel	Flow sensor select	✓	✓	—	✓
Nominal size unit	Nominal size unit	✓	✓	✓	✓
Nominal size	Nominal size	✓	✓	✓	✓
PV flow select	PV flow select	✓	✓	✓	✓
Unit	Velocity unit	—	—	✓	✓
Unit	Volume flow unit	—	—	✓	✓
Unit	Mass flow unit	—	—	✓	✓
Time unit	Time unit	—	—	✓	✓
Span	Velocity span	✓	✓	✓	✓
Span	Volume flow span	✓	✓	✓	✓
Span	Mass flow span	✓	✓	✓	✓
Zero value	Zero value	✓	✓	—	✓
Conv factor	Total1 conv factor	—	—	✓	✓
Low cut	Total1 low cut	✓	✓	✓	✓
Failure opts	Total1 fail opts	✓	✓	—	✓
Options	Total1 options	✓	✓	—	✓
Start/Stop	Total1 Start/Stop	✓	✓	—	✓
Reset/Preset	Total1 Reset/Preset	✓	✓	—	✓
Preset value	Total1 preset value	✓	✓	—	✓
Set point	Total1 set point	✓	✓	—	✓
Low cut	Total2 low cut	✓	✓	—	✓
Failure opts	Total2 fail opts	✓	✓	—	✓
Options	Total2 options	✓	✓	—	✓
Start/Stop	Total2 Start/Stop	✓	✓	—	✓
Reset/Preset	Total2 Reset/Preset	✓	✓	—	✓
Preset value	Total2 preset value	✓	✓	—	✓
Set point	Total2 set point	✓	✓	—	✓
Low cut	Total3 low cut	✓	✓	—	✓
Failure opts	Total3 fail opts	✓	✓	—	✓
Options	Total3 options	✓	✓	—	✓
Start/Stop	Total3 Start/Stop	✓	✓	—	✓
Reset/Preset	Total3 Reset/Preset	✓	✓	—	✓
Preset value	Total3 preset value	✓	✓	—	✓
Set point	Total3 set point	✓	✓	—	✓
Flow direct	Flow direction	✓	✓	—	✓
Rate limit	Rate limit	✓	✓	—	✓
Dead time	Dead time	✓	✓	—	✓
Noise filter	Noise filter	✓	✓	—	✓
Pulsing flow	Pulsing flow	✓	✓	—	✓
Power sync on/off	Power synchronize	✓	✓	✓	✓

Parameter		Restore or Duplicate			
Display	Ethernet	Duplicate Data	Restore Data	Compulsion Data	Restore factory
Set power freq	Set power frequency	✓	✓	✓	✓
Fixed density	Density fixed value	✓	✓	✓	✓
High alarm	High alarm	✓	✓	—	✓
Low alarm	Low alarm	✓	✓	—	✓
HH alarm	High high alarm	✓	✓	—	✓
LL alarm	Low low alarm	✓	✓	—	✓
H/L alarm hyst	Hi/Lo alarm hysteresis	✓	✓	—	✓
Line 1	Display select1	—	—	✓	✓
Line 2	Display select2	—	—	✓	✓
Line 3	Display select3	—	—	✓	✓
Line 4	Display select4	—	—	✓	✓
Line 5	Display select5	—	—	✓	✓
Line 6	Display select6	—	—	✓	✓
Line 7	Display select7	—	—	✓	✓
Line 8	Display select8	—	—	✓	✓
Format PV	Display format PV	—	—	✓	✓
Line mode	Display line	—	—	✓	✓
Disp install	Display installation	—	—	✓	✓
Low cut	Display lowcut	✓	✓	—	✓
—	IRSW operation	—	—	✓	✓
Tag No	Tag	—	—	✓	✓
Long tag	Long tag	—	—	✓	✓
Electrode size	Electrode size	✓	✓	—	✓
Model code	Basic model code	✓	✓	—	✓
Suffix config 1	Suffix config 1	✓	✓	—	✓
Suffix config 2	Suffix config 2	✓	✓	—	✓
Option 1	Option 1	✓	✓	—	✓
Option 2	Option 2	✓	✓	—	✓
Option 3	Option 3	✓	✓	—	✓
Option 4	Option 4	✓	✓	—	✓
Model code	Remote sensor basic model code	✓	✓	—	✓
Suffix config 1	Remote sensor suffix config 1	✓	✓	—	✓
Suffix config 2	Remote sensor suffix config 2	✓	✓	—	✓
Option 1	Remote sensor option 1	✓	✓	—	✓
Option 2	Remote sensor option 2	✓	✓	—	✓
Option 3	Remote sensor option 3	✓	✓	—	✓
Option 4	Remote sensor option 4	✓	✓	—	✓
Trans serial No	Transmitter serial No	✓	✓	—	✓
Sensor serial No	Sensor serial No	✓	✓	—	✓
Function	Adhesion function	✓	✓	✓	✓
Threshold level 1	Adhesion level 1	✓	✓	—	✓
Threshold level 2	Adhesion level 2	✓	✓	—	✓
Threshold level 3	Adhesion level 3	✓	✓	—	✓
Threshold level 4	Adhesion level 4	✓	✓	—	✓
Check cycle	Adhesion check cycle	✓	✓	—	✓
Function	Flow noise function	✓	✓	—	✓
Threshold level 1	Flow noise level 1	✓	✓	—	✓
Threshold level 2	Flow noise level 2	✓	✓	—	✓
Threshold level 3	Flow noise level 3	✓	✓	—	✓
Threshold level 4	Flow noise level 4	✓	✓	—	✓
Damp	Flow noise damping	✓	✓	—	✓
Span	Flow noise span	✓	✓	✓	✓

Parameter		Restore or Duplicate			
Display	Ethernet	Duplicate Data	Restore Data	Compulsion Data	Restore factory
Function	Low conductivity function	✓	✓	—	✓
Low limit	Conductivity low limit	✓	✓	—	✓
Coil insul threshold	Coil insulation threshold	✓	✓	—	✓
IEX compare	IEX compare	✓	✓	—	✓
Diagnostic output	Diagnostic output	✓	✓	—	✓
Mode	VF mode	✓	✓	—	✓
VF No	VF No	✓	✓	—	✓
Release time	Release time	✓	✓	—	✓

4.9.4 Data Logging Function

When the optional code MC (microSD card) is selected, the data logging function can store up to four process values to the microSD card. To use this function, it is necessary to specify a file name, data storage interval, and ending time.

Stored data is saved in the "YOKOGAWA" folder as a ".TRD" file.

This setting can be configured with the following parameters.

Menu path

Display	Device setup ► Diag/Service ► Data log ► (see below)
Ethernet	Maintenance root menu ► Data logging ► (see below)

Parameter		Description
Display	Ethernet	
File name	File name	Specifies the name of the file to be stored.
Interval time	Interval time	Specifies the data storage interval.*1
Start date	Start date	Displays the date to start the data logging function.
Start time	Start time	Displays the time to start the data logging function.
End time	End time	Specifies the time to end the data logging function.*2
Log 1	Log1 select	Specifies process value 1 to be stored.*3
Log 2	Log2 select	Specifies process value 2 to be stored.*3
Log 3	Log3 select	Specifies process value 3 to be stored.*3
Log 4	Log4 select	Specifies process value 4 to be stored.*3
Execute	Logging Exe	Specifies the execution of the data logging function.*4

*1: From the table below, select the data storage interval.

Selection		Description
Display	Ethernet	
1 s	1 sec	Sets the storage interval to 1 sec.
10 s	10 sec	Sets the storage interval to 10 sec.
30 s	30 sec	Sets the storage interval to 30 sec.
1 min	1 min	Sets the storage interval to 1 min.
5 min	5 min	Sets the storage interval to 5 min.
30 min	30 min	Sets the storage interval to 30 min.
1 h	1 hour	Sets the storage interval to 1 hour.

*2: From the table below, select the ending time of the data logging function.

Selection		Description
Display	Ethernet	
10 min	10 min	Sets the ending time to 10 minutes later.
30 min	30 min	Sets the ending time to 30 minutes later.
1 h	1 h	Sets the ending time to 1 hour later.
3 h	3 h	Sets the ending time to 3 hours later.
12 h	12 h	Sets the ending time to 12 hours later.
24 h	24 h	Sets the ending time to 24 hours (1 day) later.
72 h	72 h	Sets the ending time to 72 hours (3 days) later.
240 h	240 h	Sets the ending time to 240 hours (10 days) later.
720 h	720 h	Sets the ending time to 720 hours (30 days) later.
1440 h	1440 h	Sets the ending time to 1440 hours (60 days) later.

*3: From the table below, select the process value to be stored.

Selection		Description
Display	Ethernet	
Velocity	Velocity	Stores the flow velocity.
Volume flow	Volume flow	Stores the volumetric flow rate.
Mass flow	Mass flow	Stores the mass flow rate.
PV	PV	Stores the PV-mapped process value of Subsection 4.1.2.
Adhesion	Adhesion	Stores the resistance value of the electrode adhesion detection.
Flow noise	Flow noise	Stores the flow noise value. (Only available for AXG, not for AXW)
Electrode A	Electrode A	Stores the voltage of electrode A.
Electrode B	Electrode B	Stores the voltage of electrode B.
V peak	V peak	Stores the peak value of the flow rate signal. (Only available for AXG, not for AXW)

*4: From the table below, select the use of the data logging function.

Selection		Description
Display	Ethernet	
Not execute	Not execute	Does not execute the data logging function.
Execute	Execute	Executes the data logging function.

Setting data is stored on the microSD card at a specified storage interval during a period from the start of the data logging function to the end. The file stored by the data logging function can be opened as a text file.

Example: If the storage interval is set to “1 min”, data is stored as shown below.

2017/01/0112:00:00	+9.9863E-01	+2.8235E+01	+1.4117E+04	+4.5600E-01
2017/01/0112:01:00	+9.9909E-01	+2.8248E+01	+1.4124E+04	+3.9717E-01
2017/01/0112:02:00	+9.9906E-01	+2.8248E+01	+1.4124E+04	+3.1753E-01
2017/01/0112:03:00	+9.9859E-01	+2.8234E+01	+1.4117E+04	+4.0430E-01
2017/01/0112:04:00	+9.9870E-01	+2.8237E+01	+1.4118E+04	+3.6609E-01
2017/01/0112:05:00	+9.9829E-01	+2.8226E+01	+1.4113E+04	+4.1892E-01

Date and time
Process value 1
Process value 2
Process value 3
Process value 4

F0437.ai

The access ongoing to the microSD card can be confirmed by the icon on the display. For example, the icons of “microSD card ready” and “Access to microSD card” are displayed alternately and repeatedly because the product accesses the microSD card periodically during its data logging.

When the microSD card cannot be accessed to remove, the icon of “Error accessing microSD card” is displayed.

Insert the microSD card again when it is necessary to use this function again. An alarm of “microSD failure” occurs when the microSD card has any problems.

	Ready for microSD card		Accessing microSD card
	Disable to access microSD card		

IMPORTANT

- When using the data logging function, be sure to set the date and time information.
- Before using the data logging function, make sure that the microSD card is prepared. It takes approximately 1 minute until the product is ready to store data on the microSD card after it has been turned on.
- Note that the date and time information are reset if this product is turned off.
- Note that if the microSD card runs out of free space, the subsequent data will not be stored.

4.10 Parameter Protection

4.10.1 Software Write Protection Function

Write protect can be specified by two methods; the hardware write protect switch and software write protect. When the write protect is set using one of these methods, data cannot be written to a parameter. For details about the hardware write protection switch, read the Installation Manual. To enable the software write protection function, it is necessary to specify a "New password" (eight alphanumeric characters, excluding lowercase). By inputting the password in "Enable write", it becomes possible to disable the write protection only for 10 minutes. The write protection function can be completely disabled by entering eight spaces in "New password" while the protection is disabled temporarily.

The write protection function can be configured with the following parameters.

Menu path

Display	Device setup ► Detailed setup ► Protection ► (see below)
Ethernet	Device root menu ► Detailed setup ► Protection ► (see below)

Parameter		Description
Display	Ethernet	
Write protect sts	Write protect	Indicates the use of the write protection function. *1
Enable write	Enable write 10 min	Cancels the write protection function only for 10 minutes.
New password	New password	Specifies a new password for the write protection function.

*1: Display of the use status of the write protection function

Value		Description
Display	Ethernet	
No	No	The write protection function is not in use. (Parameter can be changed)
Yes	Yes	The write protection function is being used. (Parameter cannot be changed)

NOTE

The usage status of the write protect function can be checked by the icon displayed on the parameter or display.

The following icons are displayed.

Icon	Description
	Write protect Disable (Parameters can be changed)
	Write protect Enable (Parameter cannot be changed)

NOTE

When the write protection switch on the amplifier board is turned on, no parameters can be changed.

To change a parameter, cancel the write protection function with the pre-specified password and specify a new password.

If the password is forgotten, it is possible to temporarily disable the software write protection function by using the Joker password.

When the write protection function is disabled using the Joker password, "Break" is displayed as the software seal (because the write protection is not disabled with the regular route). To set the software seal back to "Keep", it needs to set the write protection again. When the write protection is temporarily disabled using the formal password, the software seal is set back from "Break" to "Keep".

The use of the Joker password seal can be checked by the following parameter.

Menu path

Display	Device setup ► Detailed setup ► Protection ► Soft seal status
Ethernet	Device root menu ► Detailed setup ► Protection ► Software seal

Check the use of the Joker password depending on the following parameters.

Value		Description
Display	Ethernet	
Keep	Keep	Normal
Break	Break	Disable the write protection function using the Joker password.

NOTE

If it is necessary to use the Joker password, contact Yokogawa sales office or representative.

4.10.2 Display Restriction Function

This is a maintenance function and cannot be used.

Menu path

Display	Device setup ► Detailed setup ► Protection ► Key code
Ethernet	Device root menu ► Detailed setup ► Protection ► Maintenance

5. Parameter Lists

This chapter shows parameter lists of the display and EtherNet/IP communication.

Each parameter is set as specified at the time of ordering. Since other parameters have default values set, be sure to read this chapter when changing them.

IMPORTANT

If this product is turned off before 30 seconds after setting the parameters, the settings will not be saved correctly. Please keep the product turned on for over 30 seconds after setting the parameters.

NOTE

To obtain correct flow signals, it is necessary to set the nominal size, flow rate span and meter factor of the flow sensor. The nominal size and meter factor of the flow sensor are set on this product when shipped from the manufacturing factory, and a customer is not required to set them.

If particular parameters are specified at the time of order, this product is shipped with the parameter specified. If a parameter is not specified at the time of order, that parameter needs to be set by the customer.

The parameter list consists of the following items.

No.	Symbol ^(G) = only available for AXG, not for AXW
Parameter Name	Indicates a parameter name.
Data range	Indicates options for select type data. Indicates the setting range and the number of decimal places for numeric-type data. Indicates the limited number of characters for alphanumeric type data. Symbol ^(G) = only available for AXG, not for AXW
R/W	Indicates parameters which can be displayed and set. R: Displayed only, RW: Displayed and specified. However, when changing parameters on the display, a parameter which can be set depends on operation levels. Operator: Possible to set a display language on the display and parameters related to display items. Maintenance: Possible to set parameters allowed to set with the operator level and parameters related to zero adjustment. Specialist: Possible to set all writable parameters.
Default value	Indicates the default value upon shipment from the manufacturing factory.
Unit	Indicates the unit of the data range.
Reference	Reference page of parameter contents.

5.1 Display Parameters

These parameters are related to flow and totalizer display.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
1-1	Process variables root menu ► Dynamic variables ► PV % mge	Device setup ► Process variables ► Flow rate(%)	-999.999 to +999.999 Number of decimal places: 3	-99999.9 to +99999.9 Number of decimal places: 1	R	-	%	P.38
1-2	Process variables root menu ► Dynamic variables ► PV	Device setup ► Process variables ► Flow rate	-999999 to +999999 Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	R	-	Flow velocity No.3-13 Volumetric flow rate: No.3-14/ No.3-16 Mass flow rate: No.3-15/ No.3-16 Flow noise cm/s	P.38
1-3	Process variables root menu ► Device variables ► Totalizer1	Device setup ► Process variables ► Totalizer ► Totalizer 1	-999999 to +999999 Number of decimal places: 0 to 5	-99999999 to +99999999 Number of decimal places: 0 to 5	R	-	No.4-1	P.49
1-4	Process variables root menu ► Device variables ► Totalizer2	Device setup ► Process variables ► Totalizer ► Totalizer 2	-999999 to +999999 Number of decimal places: 0 to 5	-99999999 to +99999999 Number of decimal places: 0 to 5	R	-	No.4-10	P.49
1-5	Process variables root menu ► Device variables ► Totalizer3	Device setup ► Process variables ► Totalizer ► Totalizer 3	-999999 to +999999 Number of decimal places: 0 to 5	-99999999 to +99999999 Number of decimal places: 0 to 5	R	-	No.4-19	P.49
1-6	Process variables root menu ► Totalizer count ► Totalizer1 count	Device setup ► Process variables ► Totalizer ► Totalizer 1 count	-INF ⁻² to +INF ⁻² Number of decimal places: 0	-99999999 to +99999999 Number of decimal places: 0	R	-	-	P.50
1-7	Process variables root menu ► Totalizer count ► Totalizer2 count	Device setup ► Process variables ► Totalizer ► Totalizer 2 count	-INF ⁻² to +INF ⁻² Number of decimal places: 0	-99999999 to +99999999 Number of decimal places: 0	R	-	-	P.50
1-8	Process variables root menu ► Totalizer count ► Totalizer3 count	Device setup ► Process variables ► Totalizer ► Totalizer 3 count	-INF ⁻² to +INF ⁻² Number of decimal places: 0	-99999999 to +99999999 Number of decimal places: 0	R	-	-	P.50
1-9	Process variables root menu ► Device variables ► Velocity	Device setup ► Process variables ► Velocity	-999999 to +999999 Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	R	-	No.3-13	P.38
1-10	Process variables root menu ► Device variables ► Volume flow	Device setup ► Process variables ► Volume	-999999 to +999999 Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	R	-	No.3-14/ No.3-16	P.38
1-11	Process variables root menu ► Device variables ► Mass flow	Device setup ► Process variables ► Mass	-999999 to +999999 Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	R	-	No.3-15/ No.3-16	P.38

*2: The range of single precision float (IEEE 754).

5.2 Easy Configuration Parameters

These parameters are frequently used general functions. Parameters for No.2-2 to 2-10 can be set by using the Easy setup wizard function.

No.	Parameter Name		Data Range		RW	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
2-1	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Language	Device setup ► Language	English	English	RW	English	-	P.72
2-2	Device root menu ► Basic setup ► Volume flow ► Volume flow damping	Device setup ► Easy setup wizard ► Volume ► Damp	+0.1 to +200.0 Number of decimal places: 1	+0.1 to +200.0 Number of decimal places: 1	RW	3.0	s	P.41
2-3	Device root menu ► Basic setup ► Volume flow ► Volume flow damping total	Device setup ► Easy setup wizard ► Volume ► Damp ttl	+0.1 to +200.0 Number of decimal places: 1	+0.1 to +200.0 Number of decimal places: 1	RW	3.0	s	P.41
2-4	Device root menu ► Basic setup ► Volume flow ► Volume flow unit	Device setup ► Easy setup wizard ► Volume ► Unit	Ml(Megaliter) m ³ kl(Kiloliter) l(liter) cm ³ kcf cf mcf Mgal(US) kgal(US) gal(US) mgal(US) kbb(US Oil) bbl(US Oil) mbb(US Oil) ubbl(US Oil) kbb(US Beer) bb(US Beer) mbb(US Beer) ubbl(US Beer)	Ml(Megaliter) m ³ kl(kiloliter) l(liter) cm ³ kcf cf mcf Mgal(US) kgal(US) gal(US) mgal(US) kbb(US Oil) bbl(US Oil) mbb(US Oil) ubbl(US Oil) kbb(US Beer) bb(US Beer) mbb(US Beer) ubbl(US Beer)	RW	m ³ *1	-	P.39
2-5	Device root menu ► Basic setup ► Volume flow ► Time unit	Device setup ► Easy setup wizard ► Volume ► Time unit	/s /min /h /d	/s /min /h /d	RW	/h *1	-	P.39
2-6	Device root menu ► Basic setup ► Volume flow ► Volume flow span	Device setup ► Easy setup wizard ► Volume ► Span	+0.00001 to +INF ^{*2} Number of decimal places: 0 to 5	+0.00001 to +999999 Number of decimal places: 0 to 5	RW	1.00 *1	No.3-14/ No.3-16	P.40
2-7	Device root menu ► Detailed setup ► Display ► Line select ► Display select1	Device setup ► Easy setup wizard ► Display set ► Line 1	Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer1 Totalizer2 Totalizer3 Tag number Long tag Commun Protocol Adhesion Flow noise level ^(G) Totalizer1 count Totalizer2 count Totalizer3 count	Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer 1 Totalizer 2 Totalizer 3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer 1 count Totalizer 2 count Totalizer 3 count	RW	PV	-	P.73

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
2-8	Device root menu ► Detailed setup ► Display ► Line select ► Display select2	Device setup ► Easy setup wizard ► Display set ► Line 2	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer1 Totalizer2 Totalizer3	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer 1 Totalizer 2 Totalizer 3	RW	Flow rate(%)	-	P.73
2-9	Device root menu ► Detailed setup ► Display ► Line select ► Display select3	Device setup ► Easy setup wizard ► Display set ► Line 3	Tag number Long tag Commun Protocol Adhesion Flow noise level ^(G) Totalizer1 count Totalizer2 count Totalizer3 count	Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer 1 count Totalizer 2 count Totalizer 3 count	RW	Tag number	-	P.73
2-10	Device root menu ► Basic setup ► Autozero ► Autozero Exe	Device setup ► Easy setup wizard ► Autozero exe	Not execute Execute	Not execute Execute	RW	Not execute	-	P.47

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

5.3 Basic Configuration Parameters

These parameters are related to basic settings, such as a flow sensor.

No.	Parameter Name		Data Range		RW	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
3-1	Device root menu ► Detailed setup ► Process variables ► Velocity ► Velocity damping	Device setup ► Detailed setup ► Pro var ► Velocity ► Damp	+0.1 to +200.0 Number of decimal places: 1	+0.1 to +200.0 Number of decimal places: 1	RW	3.0	s	P.41
3-2	Device root menu ► Detailed setup ► Process variables ► Velocity ► Velocity damping total	Device setup ► Detailed setup ► Pro var ► Velocity ► Damp ttl	+0.1 to +200.0 Number of decimal places: 1	+0.1 to +200.0 Number of decimal places: 1	RW	3.0	s	P.41
3-3	Device root menu ► Detailed setup ► Process variables ► Volume flow ► Volume flow damping	Device setup ► Detailed setup ► Pro var ► Volume ► Damp	+0.1 to +200.0 Number of decimal places: 1	+0.1 to +200.0 Number of decimal places: 1	RW	3.0	s	P.41
3-4	Device root menu ► Detailed setup ► Process variables ► Volume flow ► Volume flow damping total	Device setup ► Detailed setup ► Pro var ► Volume ► Damp ttl	+0.1 to +200.0 Number of decimal places: 1	+0.1 to +200.0 Number of decimal places: 1	RW	3.0	s	P.41
3-5	Device root menu ► Detailed setup ► Process variables ► Mass flow ► Mass flow damping	Device setup ► Detailed setup ► Pro var ► Mass ► Damp	+0.1 to +200.0 Number of decimal places: 1	+0.1 to +200.0 Number of decimal places: 1	RW	3.0	s	P.41
3-6	Device root menu ► Detailed setup ► Process variables ► Mass flow ► Mass flow damping total	Device setup ► Detailed setup ► Pro var ► Mass ► Damp ttl	+0.1 to +200.0 Number of decimal places: 1	+0.1 to +200.0 Number of decimal places: 1	RW	3.0	s	P.41
3-7	Device root menu ► Detailed setup ► Sensor ► Low MF	Device setup ► Detailed setup ► Sensor ► Low MF	+0.0100 to +3.0000 Number of decimal places: 4	+0.0100 to +3.0000 Number of decimal places: 4	RW	1.0000 ^{*1}	-	P.44
3-8	Device root menu ► Detailed setup ► Sensor ► High MF	Device setup ► Detailed setup ► Sensor ► High MF	+0.0100 to +3.0000 Number of decimal places: 4	+0.0100 to +3.0000 Number of decimal places: 4	RW	1.0000 ^{*1}	-	P.44
3-9	Device root menu ► Detailed setup ► Sensor ► Flow sensor select	Device setup ► Detailed setup ► Sensor ► Flow sensor sel	ADMAG AXG ^(G) ADMAG AXW ADMAG AXF ^(G) ADMAG AE ^(G) Calibrator Other1 Other2 Other3 ^(G)	ADMAG AXG ^(G) ADMAG AXW ADMAG AXF ^(G) ADMAG AE ^(G) Calibrator Other 1 Other 2 Other 3 ^(G)	RW	ADMAG AXG ^{*1}	-	P.45
3-10	Device root menu ► Detailed setup ► Sensor ► Nominal size unit	Device setup ► Detailed setup ► Sensor ► Nominal size unit	mm inch	mm inch	RW	mm	-	P.46
3-11	Device root menu ► Detailed setup ► Sensor ► Nominal size	Device setup ► Detailed setup ► Sensor ► Nominal size	+0.01000 to +3000.0 Number of decimal places: 0 to 5	+0.01000 to +3000.0 Number of decimal places: 0 to 5	RW	100 ^{*1}	No.3-10	P.46
3-12	Device root menu ► Detailed setup ► Process variables ► PV flow select	Device setup ► Detailed setup ► Pro var ► PV flow select	Velocity Volume Mass Diag ^(G)	Velocity Volume Mass Diag ^(G)	RW	Volume ^{*1}	-	P.37
3-13	Device root menu ► Detailed setup ► Process variables ► Velocity ► Velocity unit	Device setup ► Detailed setup ► Pro var ► Velocity ► Unit	m/s ft/s	m/s ft/s	RW	m/s ^{*1}	-	P.39

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		RW	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
3-14	Device root menu ► Detailed setup ► Process variables ► Volume flow ► Volume flow unit	Device setup ► Detailed setup ► Pro var ► Volume ► Unit	Ml(Megaliter) m³ kl(Kiloliter) l(liter) cm³ kcf cf mcf Mgal(US) kgal(US) gal(US) mgal(US) kbb(US Oil) bbl(US Oil) mbb(US Oil) ubbl(US Oil) kbb(US Beer) bbl(US Beer) mbb(US Beer) ubbl(US Beer)	Ml(Megaliter) m³ kl(kiloliter) l(liter) cm³ kcf cf mcf Mgal(US) kgal(US) gal(US) mgal(US) kbb(US Oil) bbl(US Oil) mbb(US Oil) ubbl(US Oil) kbb(US Beer) bbl(US Beer) mbb(US Beer) ubbl(US Beer)	RW	m³ ⁻¹	-	P.39
3-15	Device root menu ► Detailed setup ► Process variables ► Mass flow ► Mass flow unit	Device setup ► Detailed setup ► Pro var ► Mass ► Unit	t kg g klb lb	t kg g klb lb	RW	kg ⁻¹	-	P.39
3-16	Device root menu ► Detailed setup ► Process variables ► Volume flow ► Time unit or Device root menu ► Detailed setup ► Process variables ► Mass flow ► Time unit	Device setup ► Detailed setup ► Pro var ► Volume ► Time unit or Device setup ► Detailed setup ► Pro var ► Mass ► Time unit	/s /min /h /d	/s /min /h /d	RW	/h ⁻¹	-	P.39
3-17	Device root menu ► Detailed setup ► Process variables ► Velocity ► Velocity span	Device setup ► Detailed setup ► Pro var ► Velocity ► Span	+0.00001 to +INF ^{*2} Number of decimal places: 0 to 5	+0.00001 to +999999 Number of decimal places: 0 to 5	RW	1.00000 ⁻¹	No.3-13	P.40
3-18	Device root menu ► Detailed setup ► Process variables ► Volume flow ► Volume flow span	Device setup ► Detailed setup ► Pro var ► Volume ► Span	+0.00001 to +INF ^{*2} Number of decimal places: 0 to 5	+0.00001 to +999999 Number of decimal places: 0 to 5	RW	1.00000 ⁻¹	No.3-14/ No.3-16	P.40
3-19	Device root menu ► Detailed setup ► Process variables ► Mass flow ► Mass flow span	Device setup ► Detailed setup ► Pro var ► Mass ► Span	+0.00001 to +INF ^{*2} Number of decimal places: 0 to 5	+0.00001 to +999999 Number of decimal places: 0 to 5	RW	1.00000 ⁻¹	No.3-15/ No.3-16 [kg/h]	P.40
3-20	Device root menu ► Detailed setup ► Process variables ► Velocity check	Device setup ► Detailed setup ► Pro var ► Velocity check	-99.999 to +99.999 Number of decimal places: 3	-99.999 to +99.999 Number of decimal places: 3	R	-	m/s	P.46
3-21	Device root menu ► Basic setup ► Autozero ► Autozero Exe	Device setup ► Diag/Service ► Autozero ► Execute	Not execute Execute	Not execute Execute	RW	Not execute	-	P.47
3-22	Device root menu ► Basic setup ► Autozero ► Zero value	Device setup ► Diag/Service ► Autozero ► Result ► Zero value	-99.999 to +99.999 Number of decimal places: 3	-99.999 to +99.999 Number of decimal places: 3	RW	0.000	cm/s	P.48

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

5.4 Totalization Configuration Parameters

These parameters are related to the totalization function.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
4-1	Device root menu ► Detailed setup ► Totalizer ► Totalizer1 ► Total1 unit	Device setup ► Detailed setup ► Totalizer ► Totalizer 1 ► Unit	Ml(Megaliter) m ³ kl(Kiloliter) l(liter) cm ³ t kg g kcf cf mcf Mgal(US) kgal(US) gal(US) mgal(US) kbb(US Oil) bbl(US Oil) mbb(US Oil) ubbl(US Oil) kbb(US Beer) bbl(US Beer) mbb(US Beer) ubbl(US Beer) klb(US) lb(US)	Ml(Megaliter) m ³ kl(kiloliter) l(liter) cm ³ t kg g kcf cf mcf Mgal(US) kgal(US) gal(US) mgal(US) kbb(US Oil) bbl(US Oil) mbb(US Oil) ubbl(US Oil) kbb(US Beer) bbl(US Beer) mbb(US Beer) ubbl(US Beer) klb(US) lb(US)	R	-	-	P.49
4-2	Device root menu ► Detailed setup ► Totalizer ► Totalizer1 ► Total1 conv factor	Device setup ► Detailed setup ► Totalizer ► Totalizer 1 ► Conv factor	-INF ² to +INF ² Unable to input 0 Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	1.00000	No.4-1	P.50
4-3	Device root menu ► Detailed setup ► Totalizer ► Totalizer1 ► Total1 low cut	Device setup ► Detailed setup ► Totalizer ► Totalizer 1 ► Low cut	0.00000 to +INF ² Number of decimal places: 0 to 5	0.00000 to +999999 Number of decimal places: 0 to 5	RW	0.00000 ^{*1}	Volumetric flow rate: No.3-14/ No.3-16 Mass flow rate: No.3-15/ No.3-16	P.42
4-4	Device root menu ► Detailed setup ► Totalizer ► Totalizer1 ► Total1 fail opts	Device setup ► Detailed setup ► Totalizer ► Totalizer 1 ► Failure opts	Measured value Stop Last valid	Measured value Stop Last valid	RW	Stop	-	P.51
4-5	Device root menu ► Detailed setup ► Totalizer ► Totalizer1 ► Total1 options	Device setup ► Detailed setup ► Totalizer ► Totalizer 1 ► Options	Balanced Absolute Only positive Only negative Hold	Balanced Absolute Only positive Only negative Hold	RW	Only positive	-	P.52
4-6	Device root menu ► Detailed setup ► Totalizer ► Totalizer1 ► Total1 Start/Stop	Device setup ► Detailed setup ► Totalizer ► Totalizer 1 ► Start/Stop	Stop Start	Stop Start	RW	Stop	-	P.51
4-7	Device root menu ► Detailed setup ► Totalizer ► Totalizer1 ► Total1 Reset/Preset	Device setup ► Detailed setup ► Totalizer ► Totalizer 1 ► Reset/Preset	Not execute Reset Preset	Not execute Reset Preset	RW	Not execute	-	P.53
4-8	Device root menu ► Detailed setup ► Totalizer ► Totalizer1 ► Total1 preset value	Device setup ► Detailed setup ► Totalizer ► Totalizer 1 ► Preset value	-INF ² to +INF ² Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.00000	Volumetric flow rate: No.3-14 Mass flow rate: No.3-15	P.53
4-9	Device root menu ► Detailed setup ► Totalizer ► Totalizer1 ► Total1 set point	Device setup ► Detailed setup ► Totalizer ► Totalizer 1 ► Set point	0.00000 to +INF ² Number of decimal places: 0 to 5	0.00000 to +999999 Number of decimal places: 0 to 5	RW	0.00000	Volumetric flow rate: No.3-14 Mass flow rate: No.3-15	P.50

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
4-10	Device root menu ► Detailed setup ► Totalizer ► Totalizer2 ► Total2 unit	Device setup ► Detailed setup ► Totalizer ► Totalizer 2 ► Unit	Ml(Megaliter) m³ kl(Kiloliter) l(liter) cm³ t kg g kcf cf mcf Mgal(US) kgal(US) gal(US) mgal(US) kbb(US Oil) bbl(US Oil) mbb(US Oil) ubbl(US Oil) kbb(US Beer) bbl(US Beer) mbb(US Beer) ubbl(US Beer) klb(US) lb(US)	Ml(Megaliter) m³ kl(kiloliter) l(liter) cm³ t kg g kcf cf mcf Mgal(US) kgal(US) gal(US) mgal(US) kbb(US Oil) bbl(US Oil) mbb(US Oil) ubbl(US Oil) kbb(US Beer) bbl(US Beer) mbb(US Beer) ubbl(US Beer) klb(US) lb(US)	RW	m³	-	P.49
4-11	Device root menu ► Detailed setup ► Totalizer ► Totalizer2 ► Total2 conv factor	Device setup ► Detailed setup ► Totalizer ► Totalizer 2 ► Conv factor	-INF ^{*2} to +INF ^{*2} Unable to input 0 Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	1.00000	No.4-10	P.50
4-12	Device root menu ► Detailed setup ► Totalizer ► Totalizer2 ► Total2 low cut	Device setup ► Detailed setup ► Totalizer ► Totalizer 2 ► Low cut	0.00000 to +INF ^{*2} Number of decimal places: 0 to 5	0.00000 to +999999 Number of decimal places: 0 to 5	RW	0.00000	No.4-10/ No.3-16	P.42
4-13	Device root menu ► Detailed setup ► Totalizer ► Totalizer2 ► Total2 fail opts	Device setup ► Detailed setup ► Totalizer ► Totalizer 2 ► Failure opts	Measured value Stop Last valid	Measured value Stop Last valid	RW	Stop	-	P.51
4-14	Device root menu ► Detailed setup ► Totalizer ► Totalizer2 ► Total2 options	Device setup ► Detailed setup ► Totalizer ► Totalizer 2 ► Options	Balanced Absolute Only positive Only negative Hold	Balanced Absolute Only positive Only negative Hold	RW	Only negative	-	P.52
4-15	Device root menu ► Detailed setup ► Totalizer ► Totalizer2 ► Total2 Start/Stop	Device setup ► Detailed setup ► Totalizer ► Totalizer 2 ► Start/Stop	Stop Start	Stop Start	RW	Stop	-	P.51
4-16	Device root menu ► Detailed setup ► Totalizer ► Totalizer2 ► Total2 Reset/Preset	Device setup ► Detailed setup ► Totalizer ► Totalizer 2 ► Reset/Preset	Not execute Reset Preset	Not execute Reset Preset	RW	Not execute	-	P.53
4-17	Device root menu ► Detailed setup ► Totalizer ► Totalizer2 ► Total2 preset value	Device setup ► Detailed setup ► Totalizer ► Totalizer 2 ► Preset value	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.00000	No.4-10	P.53
4-18	Device root menu ► Detailed setup ► Totalizer ► Totalizer2 ► Total2 set point	Device setup ► Detailed setup ► Totalizer ► Totalizer 2 ► Set point	0.00000 to +INF ^{*2} Number of decimal places: 0 to 5	0.00000 to +999999 Number of decimal places: 0 to 5	RW	0.00000	No.4-10	P.50

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
4-19	Device root menu ► Detailed setup ► Totalizer ► Totalizer3 ► Total3 unit	Device setup ► Detailed setup ► Totalizer ► Totalizer 3 ► Unit	Ml(Megaliter) m³ kl(Kiloliter) l(liter) cm³ t kg g kcf cf mcf Mgal(US) kgal(US) gal(US) mgal(US) kbb(US Oil) bbl(US Oil) mbb(US Oil) ubbl(US Oil) kbb(US Beer) bbl(US Beer) mbb(US Beer) ubbl(US Beer) klb(US) lb(US)	Ml(Megaliter) m³ kl(kiloliter) l(liter) cm³ t kg g kcf cf mcf Mgal(US) kgal(US) gal(US) mgal(US) kbb(US Oil) bbl(US Oil) mbb(US Oil) ubbl(US Oil) kbb(US Beer) bbl(US Beer) mbb(US Beer) ubbl(US Beer) klb(US) lb(US)	RW	m³	-	P.49
4-20	Device root menu ► Detailed setup ► Totalizer ► Totalizer3 ► Total3 conv factor	Device setup ► Detailed setup ► Totalizer ► Totalizer 3 ► Conv factor	-INF ^{*2} to +INF ^{*2} Unable to input 0 Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	1.00000	No.4-19	P.50
4-21	Device root menu ► Detailed setup ► Totalizer ► Totalizer3 ► Total3 low cut	Device setup ► Detailed setup ► Totalizer ► Totalizer 3 ► Low cut	0.00000 to +INF ^{*2} Number of decimal places: 0 to 5	0.00000 to +999999 Number of decimal places: 0 to 5	RW	0.00000	No.4-19/ No.3-16	P.42
4-22	Device root menu ► Detailed setup ► Totalizer ► Totalizer3 ► Total3 fail opts	Device setup ► Detailed setup ► Totalizer ► Totalizer 3 ► Failure opts	Measured value Stop Last valid	Measured value Stop Last valid	RW	Stop	-	P.51
4-23	Device root menu ► Detailed setup ► Totalizer ► Totalizer3 ► Total3 options	Device setup ► Detailed setup ► Totalizer ► Totalizer 3 ► Options	Balanced Absolute Only positive Only negative Hold	Balanced Absolute Only positive Only negative Hold	RW	Balanced	-	P.52
4-24	Device root menu ► Detailed setup ► Totalizer ► Totalizer3 ► Total3 Start/Stop	Device setup ► Detailed setup ► Totalizer ► Totalizer 3 ► Start/Stop	Stop Start	Stop Start	RW	Stop	-	P.51
4-25	Device root menu ► Detailed setup ► Totalizer ► Totalizer3 ► Total3 Reset/Preset	Device setup ► Detailed setup ► Totalizer ► Totalizer 3 ► Reset/Preset	Not execute Reset Preset	Not execute Reset Preset	RW	Not execute	-	P.53
4-26	Device root menu ► Detailed setup ► Totalizer ► Totalizer3 ► Total3 preset value	Device setup ► Detailed setup ► Totalizer ► Totalizer 3 ► Preset value	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.00000	No.4-19	P.53
4-27	Device root menu ► Detailed setup ► Totalizer ► Totalizer3 ► Total3 set point	Device setup ► Detailed setup ► Totalizer ► Totalizer 3 ► Set point	0.00000 to +INF ^{*2} Number of decimal places: 0 to 5	0.00000 to +999999 Number of decimal places: 0 to 5	RW	0.00000	No.4-19	P.50

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

5.5 Auxiliary Function Configuration Parameters

These parameters are related to the flow direction, rate limit, low cut, temperature correction for density.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
5-1	Device root menu ► Detailed setup ► AUX calculation ► Flow direction	Device setup ► Detailed setup ► AUX calculation ► Flow direct	Forward Reverse	Forward Reverse	RW	Forward	-	P.54
5-2	Device root menu ► Detailed setup ► AUX calculation ► Rate limit	Device setup ► Detailed setup ► AUX calculation ► Rate limit	0.0 to 10.0 Number of decimal places: 1	0.0 to 10.0 Number of decimal places: 1	RW	5.0	%	P.54
5-3	Device root menu ► Detailed setup ► AUX calculation ► Dead time	Device setup ► Detailed setup ► AUX calculation ► Dead time	0.0 to 15.0 Number of decimal places: 1	0.0 to 15.0 Number of decimal places: 1	RW	0.0	s	P.54
5-4	Device root menu ► Detailed setup ► AUX calculation ► Noise filter	Device setup ► Detailed setup ► AUX calculation ► Noise filter	Manual Level1 Level2 Level3	Manual Level 1 Level 2 Level 3	RW	Manual	-	P.54
5-5	Device root menu ► Detailed setup ► AUX calculation ► Pulsing flow	Device setup ► Detailed setup ► AUX calculation ► Pulsing flow	No Yes	No Yes	RW	No	-	P.57
5-6	Device root menu ► Detailed setup ► AUX calculation ► Power synchronize	Device setup ► Detailed setup ► AUX calculation ► Power sync on/off	Off On	Off On	RW	On	-	P.57
5-7	Device root menu ► Detailed setup ► AUX calculation ► Set power frequency	Device setup ► Detailed setup ► AUX calculation ► Set power freq	47.00 to 63.00 Number of decimal places: 2	47.00 to 63.00 Number of decimal places: 2	RW	50.00	Hz	P.57
5-8	Device root menu ► Detailed setup ► AUX calculation ► IEX power frequency	Device setup ► Detailed setup ► AUX calculation ► IEX power frequency	0.00 to 99.99 Number of decimal places: 2	0.00 to 99.99 Number of decimal places: 2	R	-	Hz	P.57
5-9	Device root menu ► Detailed setup ► AUX calculation ► Measured power frequency	Device setup ► Detailed setup ► AUX calculation ► Meas power freq	0.00 to 99.99 Number of decimal places: 2	0.00 to 99.99 Number of decimal places: 2	R	-	Hz	P.57
5-10	Device root menu ► Detailed setup ► Process variables ► Density ► Density unit	Device setup ► Detailed setup ► Pro var ► Density ► Unit	kg/m ³ lb/gal lb/cf	kg/m ³ lb/gal lb/cf	RW	kg/m ³	-	P.46
5-11	Device root menu ► Detailed setup ► Process variables ► Density ► Density fixed value	Device setup ► Detailed setup ► Pro var ► Density ► Fixed density	0.00000 to 999999 Number of decimal places: 0 to 5	0.00000 to 999999 Number of decimal places: 0 to 5	RW	0 ⁻¹	No.5-10	P.46

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

5.6 Alarm Configuration Parameters

These parameters are related to the history.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
6-1	Maintenance root menu ► High/Low alarm configuration ► High alarm	Device setup ► Diag/Service ► H/L alarm cfg ► High alarm	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	300.000	Flow velocity No.3-13 Volumetric flow rate: No.3-14/ No.3-16 Mass flow rate: No.3-15/ No.3-16 Flow noise cm/s	P.88
6-2	Maintenance root menu ► High/Low alarm configuration ► Low alarm	Device setup ► Diag/Service ► H/L alarm cfg ► Low alarm	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	-300.000	Flow velocity No.3-13 Volumetric flow rate: No.3-14/ No.3-16 Mass flow rate: No.3-15/ No.3-16 Flow noise cm/s	P.88
6-3	Maintenance root menu ► High/Low alarm configuration ► High high alarm	Device setup ► Diag/Service ► H/L alarm cfg ► HH alarm	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	300.000	Flow velocity No.3-13 Volumetric flow rate: No.3-14/ No.3-16 Mass flow rate: No.3-15/ No.3-16 Flow noise cm/s	P.88
6-4	Maintenance root menu ► High/Low alarm configuration ► Low low alarm	Device setup ► Diag/Service ► H/L alarm cfg ► LL alarm	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	-300.000	Flow velocity No.3-13 Volumetric flow rate: No.3-14/ No.3-16 Mass flow rate: No.3-15/ No.3-16 Flow noise cm/s	P.88
6-5	Maintenance root menu ► High/Low alarm configuration ► Hi/Lo alarm hysteresis	Device setup ► Diag/Service ► H/L alarm cfg ► H/L alarm hyst	0 to 10 Number of decimal places: 0	0 to 10 Number of decimal places: 0	RW	5	%	P.88
6-6	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm out mask ► Alarm out mask 1	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm out mask ► Mask 1-1	13: Main board EEPROM default on	013:Main EEP dflt	RW	All Off	-	P.67
		Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm out mask ► Mask 1-2	28: Indicator board failure on 29: Ind EEP FAIL on 30: LCD driver failure on 31: Indicator board mismatch on 32: Indicator communication error on 33: microSD failure on	028:Ind bd FAIL 029:Ind bd EEP FAIL 030:LCD drv FAIL 031:Ind bd mismatch 032:Ind comm ERR 033:microSD FAIL	RW	028:Ind bd FAIL	-	P.67
	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm out mask ► Alarm out mask 2	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm out mask ► Mask 2-1	50: Signal overflow on 51: Empty pipe detection on 52: H/L HH/LL alarm on 53: Adhesion over level 4 on 60: Span configuration error on 61:PV flow configuration error on ^(*) 65: H/L HH/LL configuration error on 66: Density configuration error on	050:Signal overflow 051:Empty detect 052:H/L HH/LL alm 053:Adh over lv 4 060:Span cfg ERR 061:PV F cfg ERR ^(*) 065:H/L cfg ERR 066:Density cfg ERR	RW	052:H/L HH/LL alm 053:Adh over lv 4	-	P.67
		Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm out mask ► Mask 2-2	69: Nominal size configuration error on 70: Adhesion configuration error on 71: Flow noise config error on ^(*) 72: Data logging not started on 85: Cable misconnect on 86: Coil insulation warning on 131: Transmitter type mismatch on	069:Nomi size cfg 070:Adh cfg ERR 071:FLN cfg ERR ^(*) 072:Log not start 085:Cable miscon 086:Coil insulation 131:Trans mismatch	RW	086:Coil insulation	-	P.67

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
6-6	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm out mask ► Alarm out mask 3	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm out mask ► Mask 3-1	87: Adhesion over level 3 on 88: Low conductivity warning on ^(*) 89: Insulation detection on ^(*) 90: Flow noise over level 3 on ^(*) 91: Flow noise over level 4 on ^(*) 92: Autozero warning on 93: Verification warning on 94: Factory noise warning on ^(*) 95: Simulation active on	087:Adhesion lv 3 088:LC warn ^(*) 089:Insu detect ^(*) 090:FLN over lv 3 ^(*) 091:FLN over lv 4 ^(*) 092:AZ warn 093:Verif warn 094:Fact noise warn ^(*) 095:Simulate active	RW	087:Adhesion lv 3 088:LC warn 089:Insu detect 090:FLN over lv 3 091:FLN over lv 4 092:AZ warn 093:Verif warn 094:Fact noise warn	-	P.67
		Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm out mask ► Mask 3-2	101: Parameter restore running on 102: Display over warning on 103: microSD card size warning on 104: Parameter backup incomplete on 105: microSD card mismatch on 106: microSD card removal error on 120: Watchdog on 121: Power off on 122: Instant power failure on 123: Parameter backup running on 124: Data logging running on	101:Param restore run 102:Disp over 103:SD size warn 104:Bkup incmplt 105:SD mismatch 106:SD removal ERR 120:Watchdog 121:Power off 122:Inst power FAIL 123:Param bkup run 124:Data log run	RW	101:Param restore run 102:Disp over 103:SD size warn 105:SD mismatch 106:SD removal ERR 120:Watchdog 121:Power off 122:Inst power FAIL 123:Param bkup run 124:Data log run	-	P.67
	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm out mask ► Alarm out mask 4	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm out mask ► Mask 4-1	-	133:G/A mismatch	RW	All Space	-	P.67
		Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm out mask ► Mask 4-2	200:Option board comm error1 201:Option board comm error2	200:Opt bd comm ERR1 201:Opt bd comm ERR2	RW	All Space	-	P.67
	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record mask ► Alarm record mask 1	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record mask ► Mask 1-1	13:Main board EEPROM default on	013:Main EEP dfilt	RW	All Space	-	P.67
		Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record mask ► Mask 1-2	28:Indicator board failure on 29:Ind EEP FAIL on 30:LCD driver failure on 31:Indicator board mismatch on 32:Indicator communication error on 33:microSD failure on	028:Ind bd FAIL 029:Ind bd EEP FAIL 030:LCD drv FAIL 031:Ind bd mismatch 032:Ind comm ERR 033:microSD FAIL	RW	All Space	-	P.67
6-7	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record mask ► Alarm record mask 2	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record mask ► Mask 2-1	50: Signal overflow on 51: Empty pipe detection on 52: H/L HH/LL alarm on 53: Adhesion over level 4 on	050:Signal overflow 051:Empty detect 052:H/L HH/LL alm 053:Adh over lv 4	RW	All Space	-	P.67
		Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record mask ► Mask 2-2	85: Cable misconnect on	085:Cable miscon	RW	All Space	-	P.67
	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record mask ► Alarm record mask 3	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record mask ► Mask 3-1	-	133:G/A mismatch	RW	133:G/A mismatch	-	P.67
		Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record mask ► Mask 3-2	200:Option board comm error1 201:Option board comm error2	200:Opt bd comm ERR1 201:Opt bd comm ERR2	RW	All Space	-	P.67
	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record mask ► Alarm record mask 4	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record mask ► Mask 4-1	-	133:G/A mismatch	RW	133:G/A mismatch	-	P.67
		Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record mask ► Mask 4-2	200:Option board comm error1 201:Option board comm error2	200:Opt bd comm ERR1 201:Opt bd comm ERR2	RW	All Space	-	P.67

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
6-8	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record ► Alarm record 1	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record ► Record alarm 1	All Space 10: Main board CPU failure 11: Reverse calculation failure 12: Main board EEPROM failure 13: Main board EEPROM default 14: Sensor board failure 15: Sensor communication error 16: A/D1 failure[Signal] 17: A/D2 failure[Exciter] 18: Coil open 19: Coil short 20: Exciter failure 27: Parameter restore incomplete 28: Indicator board failure 29: Indicator board EEPROM failure 30: LCD driver failure 31: Indicator board mismatch 32: Indicator communication error 33: microSD failure 50: Signal overflow 51: Empty pipe detection 52: H/L or HH/LL alarm 53: Adhesion over level 4 85: Cable misconnect 120: Watchdog on 121: Power off on 122: Instant power failure on 200: Option board comm error1 201: Option board comm error2	All Space 010: Main CPU FAIL 011: Rev calc FAIL 012: Main EEP FAIL 013: Main EEP dft 014: Snsr bd FAIL 015: Snsr comm ERR 016: AD 1 FAIL[Sig] 017: AD 2 FAIL[Excit] 018: Coil open 019: Coil short 020: Exciter FAIL 027: Restore FAIL 028: Ind bd FAIL 029: Ind bd EEP FAIL 030: LCD drv FAIL 031: Ind bd mismatch 032: Ind comm ERR 033: microSD FAIL 050: Signal overflow 051: Empty detect 052: H/L HH/LL alm 053: Adh over lv 4 085: Cable miscon 120: Watchdog 121: Power off 122: Inst power FAIL 200: Opt bd comm ERR1 201: Opt bd comm ERR2	R	All Space	-	P.66
6-9	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record ► Alarm record time 1	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record ► Record time 1	00000D 00: 00 to 99999D 23: 59	00000D 00: 00 to 99999D 23: 59	R	00000D 00: 00	-	P.66
6-10	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record ► Alarm record 2	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record ► Record alarm 2	All Space 10: Main board CPU failure 11: Reverse calculation failure 12: Main board EEPROM failure 13: Main board EEPROM default 14: Sensor board failure 15: Sensor communication error 16: A/D1 failure[Signal] 17: A/D2 failure[Exciter] 18: Coil open 19: Coil short 20: Exciter failure 27: Parameter restore incomplete 28: Indicator board failure 29: Indicator board EEPROM failure 30: LCD driver failure 31: Indicator board mismatch 32: Indicator communication error 33: microSD failure 50: Signal overflow 51: Empty pipe detection 52: H/L or HH/LL alarm 53: Adhesion over level 4 85: Cable misconnect 120: Watchdog on 121: Power off on 122: Instant power failure on 200: Option board comm error1 201: Option board comm error2	All Space 010: Main CPU FAIL 011: Rev calc FAIL 012: Main EEP FAIL 013: Main EEP dft 014: Snsr bd FAIL 015: Snsr comm ERR 016: AD 1 FAIL[Sig] 017: AD 2 FAIL[Excit] 018: Coil open 019: Coil short 020: Exciter FAIL 027: Restore FAIL 028: Ind bd FAIL 029: Ind bd EEP FAIL 030: LCD drv FAIL 031: Ind bd mismatch 032: Ind comm ERR 033: microSD FAIL 050: Signal overflow 051: Empty detect 052: H/L HH/LL alm 053: Adh over lv 4 085: Cable miscon 120: Watchdog 121: Power off 122: Inst power FAIL 200: Opt bd comm ERR1 201: Opt bd comm ERR2	R	All Space	-	P.66
6-11	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record ► Alarm record time 2	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record ► Record time 2	00000D 00: 00 to 99999D 23: 59	00000D 00: 00 to 99999D 23: 59	R	00000D 00: 00	-	P.66

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
6-12	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record ► Alarm record 3	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record ► Record alarm 3	All Space 10: Main board CPU failure 11: Reverse calculation failure 12: Main board EEPROM failure 13: Main board EEPROM default 14: Sensor board failure 15: Sensor communication error 16: A/D1 failure[Signal] 17: A/D2 failure[Exciter] 18: Coil open 19: Coil short 20: Exciter failure 27: Parameter restore incomplete 28: Indicator board failure 29: Indicator board EEPROM failure 30: LCD driver failure 31: Indicator board mismatch 32: Indicator communication error 33: microSD failure 50: Signal overflow 51: Empty pipe detection 52: H/L or HH/LL alarm 53: Adhesion over level 4 85: Cable misconnect 120: Watchdog on 121: Power off on 122: Instant power failure on 200: Option board comm error1 201: Option board comm error2	All Space 010: Main CPU FAIL 011: Rev calc FAIL 012: Main EEP FAIL 013: Main EEP dft 014: Snsr bd FAIL 015: Snsr comm ERR 016: AD 1 FAIL[Sig] 017: AD 2 FAIL[Excit] 018: Coil open 019: Coil short 020: Exciter FAIL 027: Restore FAIL 028: Ind bd FAIL 029: Ind bd EEP FAIL 030: LCD drv FAIL 031: Ind bd mismatch 032: Ind comm ERR 033: microSD FAIL 050: Signal overflow 051: Empty detect 052: H/L HH/LL alm 053: Adh over lv 4 085: Cable miscon 120: Watchdog 121: Power off 122: Inst power FAIL 200: Opt bd comm ERR1 201: Opt bd comm ERR2	R	All Space	-	P.66
6-13	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record ► Alarm record time 3	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record ► Record time 3	00000D 00: 00 to 99999D 23: 59	00000D 00: 00 to 99999D 23: 59	R	00000D 00: 00	-	P.66
6-14	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record ► Alarm record 4	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record ► Record alarm 4	All Space 10: Main board CPU failure 11: Reverse calculation failure 12: Main board EEPROM failure 13: Main board EEPROM default 14: Sensor board failure 15: Sensor communication error 16: A/D1 failure[Signal] 17: A/D2 failure[Exciter] 18: Coil open 19: Coil short 20: Exciter failure 27: Parameter restore incomplete 28: Indicator board failure 29: Indicator board EEPROM failure 30: LCD driver failure 31: Indicator board mismatch 32: Indicator communication error 33: microSD failure 50: Signal overflow 51: Empty pipe detection 52: H/L or HH/LL alarm 53: Adhesion over level 4 85: Cable misconnect 120: Watchdog on 121: Power off on 122: Instant power failure on 200: Option board comm error1 201: Option board comm error2	All Space 010: Main CPU FAIL 011: Rev calc FAIL 012: Main EEP FAIL 013: Main EEP dft 014: Snsr bd FAIL 015: Snsr comm ERR 016: AD 1 FAIL[Sig] 017: AD 2 FAIL[Excit] 018: Coil open 019: Coil short 020: Exciter FAIL 027: Restore FAIL 028: Ind bd FAIL 029: Ind bd EEP FAIL 030: LCD drv FAIL 031: Ind bd mismatch 032: Ind comm ERR 033: microSD FAIL 050: Signal overflow 051: Empty detect 052: H/L HH/LL alm 053: Adh over lv 4 085: Cable miscon 120: Watchdog 121: Power off 122: Inst power FAIL 200: Opt bd comm ERR1 201: Opt bd comm ERR2	R	All Space	-	P.66
6-15	Diagnostic root menu ► Status/Self test ► Alarm ► Alarm record ► Alarm record time 4	Device setup ► Diag/Service ► Sts/Self test ► Alarm ► Alarm record ► Record time 4	00000D 00: 00 to 99999D 23: 59	00000D 00: 00 to 99999D 23: 59	R	00000D 00: 00	-	P.66

*2: The range of single precision float (IEEE 754).

5.7 Display Configuration Parameters

These parameters are related to display settings.

No.	Parameter Name		Data Range		RW	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
7-1	Device root menu ► Detailed setup ► Display ► Line select ► Display select1	Device setup ► Detailed setup ► Display set ► Line select ► Line 1	Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer1 Totalizer2 Totalizer3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer1 count Totalizer2 count Totalizer3 count	Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer 1 Totalizer 2 Totalizer 3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer 1 count Totalizer 2 count Totalizer 3 count	RW	PV	-	P.73
7-2	Device root menu ► Detailed setup ► Display ► Line select ► Display select2	Device setup ► Detailed setup ► Display set ► Line select ► Line 2	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer1 Totalizer2 Totalizer3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer1 count Totalizer2 count Totalizer3 count	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer 1 Totalizer 2 Totalizer 3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer 1 count Totalizer 2 count Totalizer 3 count	RW	Flow rate(%)	-	P.73
7-3	Device root menu ► Detailed setup ► Display ► Line select ► Display select3	Device setup ► Detailed setup ► Display set ► Line select ► Line 3	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer1 Totalizer2 Totalizer3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer1 count Totalizer2 count Totalizer3 count	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer 1 Totalizer 2 Totalizer 3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer 1 count Totalizer 2 count Totalizer 3 count	RW	Tag number	-	P.73
7-4	Device root menu ► Detailed setup ► Display ► Line select ► Display select4	Device setup ► Detailed setup ► Display set ► Line select ► Line 4	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer1 Totalizer2 Totalizer3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer1 count Totalizer2 count Totalizer3 count	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer 1 Totalizer 2 Totalizer 3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer 1 count Totalizer 2 count Totalizer 3 count	RW	None	-	P.73
7-5	Device root menu ► Detailed setup ► Display ► Line select ► Display select5	Device setup ► Detailed setup ► Display set ► Line select ► Line 5	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer1 Totalizer2 Totalizer3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer1 count Totalizer2 count Totalizer3 count	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer 1 Totalizer 2 Totalizer 3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer 1 count Totalizer 2 count Totalizer 3 count	RW	None	-	P.73
7-6	Device root menu ► Detailed setup ► Display ► Line select ► Display select6	Device setup ► Detailed setup ► Display set ► Line select ► Line 6	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer1 Totalizer2 Totalizer3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer1 count Totalizer2 count Totalizer3 count	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer 1 Totalizer 2 Totalizer 3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer 1 count Totalizer 2 count Totalizer 3 count	RW	None	-	P.73
7-7	Device root menu ► Detailed setup ► Display ► Line select ► Display select7	Device setup ► Detailed setup ► Display set ► Line select ► Line 7	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer1 Totalizer2 Totalizer3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer1 count Totalizer2 count Totalizer3 count	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer 1 Totalizer 2 Totalizer 3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer 1 count Totalizer 2 count Totalizer 3 count	RW	None	-	P.73
7-8	Device root menu ► Detailed setup ► Display ► Line select ► Display select8	Device setup ► Detailed setup ► Display set ► Line select ► Line 8	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer1 Totalizer2 Totalizer3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer1 count Totalizer2 count Totalizer3 count	None Flow rate(%) PV Velocity Volume flow Mass flow Flow rate(%Bar) Totalizer 1 Totalizer 2 Totalizer 3 Tag number Long tag Commun protocol Adhesion Flow noise level ^(G) Totalizer 1 count Totalizer 2 count Totalizer 3 count	RW	None	-	P.73
7-9	Device root menu ► Detailed setup ► Display ► Display format ► Display format PV	Device setup ► Detailed setup ► Display set ► Disp format ► Format PV	Auto 0 digit 1 digit 2 digit 3 digit 4 digit 5 digit Auto 2	Auto 0 digit 1 digit 2 digit 3 digit 4 digit 5 digit Auto 2	RW	Auto 2	-	P.74
7-10	Device root menu ► Detailed setup ► Display ► Display format ► Display format total 1	Device setup ► Detailed setup ► Display set ► Disp format ► Format total 1	Auto 0 digit 1 digit 2 digit 3 digit 4 digit 5 digit 6 digit 7 digit	Auto 0 digit 1 digit 2 digit 3 digit 4 digit 5 digit 6 digit 7 digit	RW	Auto	-	P.74
7-11	Device root menu ► Detailed setup ► Display ► Display format ► Display format total 2	Device setup ► Detailed setup ► Display set ► Disp format ► Format total 2	Auto 0 digit 1 digit 2 digit 3 digit 4 digit 5 digit 6 digit 7 digit	Auto 0 digit 1 digit 2 digit 3 digit 4 digit 5 digit 6 digit 7 digit	RW	Auto	-	P.74
7-12	Device root menu ► Detailed setup ► Display ► Display format ► Display format total 3	Device setup ► Detailed setup ► Display set ► Disp format ► Format total 3	Auto 0 digit 1 digit 2 digit 3 digit 4 digit 5 digit 6 digit 7 digit	Auto 0 digit 1 digit 2 digit 3 digit 4 digit 5 digit 6 digit 7 digit	RW	Auto	-	P.74

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
7-13	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Display contrast	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ Contrast	-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5	-5 -4 -3 -2 -1 0 1 2 3 4 5	RW	0	-	P.80
7-14	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Display line	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ Line mode	1 Line(Big) 1 Line 2 Line 3 Line 4 Line	1 line(big) 1 line 2 line 3 line 4 line	RW	3 line	-	P.76
7-15	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Display period	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ Period	0.2 s 0.4 s 1.0 s 2.0 s 4.0 s 8.0 s	0.2 s 0.4 s 1.0 s 2.0 s 4.0 s 8.0 s	RW	0.4 s	-	P.79
7-16	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Display NE107	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ NE107 display	Normal NE107	Normal NE107	RW	Normal	-	P.66
7-17	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Display alarm	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ Alarm display	Normal Detail	Normal Detail	RW	Normal	-	P.65
7-18	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Display scroll	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ Scroll mode	Off Manual Auto(2 s) Auto(4 s) Auto(8 s)	Off Manual Auto(2 s) Auto(4 s) Auto(8 s)	RW	Off	-	P.76
7-19	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Display damping	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ Damp	0.0 to 200.0 Number of decimal places: 1	0.0 to 200.0 Number of decimal places: 1	RW	0.0	s	P.80
7-20	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Display format date	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ Format date	MM/DD/YYYY DD/MM/YYYY YYYY/MM/DD	MM/DD/YYYY DD/MM/YYYY YYYY/MM/DD	RW	MM/DD/YYYY	-	P.80
7-21	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Language	Device setup ▶ Language	English	English	RW	English	-	P.72
7-22	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Display measure mode	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ Display mode	Normal Trend	Normal Trend	RW	Normal	-	P.78
7-23	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Trend offline lrv	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ Trend offin LRV	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.0	-	P.79
7-24	Device root menu ▶ Detailed setup ▶ Display ▶ Display operation configuration ▶ Trend offline urv	Device setup ▶ Detailed setup ▶ Display set ▶ Optional config ▶ Trend offin URV	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	10.0	-	P.79

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
7-25	Device root menu ► Detailed setup ► Display ► Trend select ► Trend select 1	Device setup ► Detailed setup ► Display set ► Trend select ► Trend 1	Flow rate(%) PV Velocity Volume flow Mass flow Totalizer1 Totalizer2 Totalizer3	Flow rate(%) PV Velocity Volume flow Mass flow Totalizer 1 Totalizer 2 Totalizer 3	RW	PV	-	P.78
7-26	Device root menu ► Detailed setup ► Display ► Trend select ► Trend select 2	Device setup ► Detailed setup ► Display set ► Trend select ► Trend 2	None Flow rate(%) PV Velocity Volume flow Mass flow Totalizer1 Totalizer2 Totalizer3	None Flow rate(%) PV Velocity Volume flow Mass flow Totalizer 1 Totalizer 2 Totalizer 3	RW	None	-	P.78
7-27	Device root menu ► Detailed setup ► Display ► Trend select ► Trend select 3	Device setup ► Detailed setup ► Display set ► Trend select ► Trend 3			RW	None	-	P.78
7-28	Device root menu ► Detailed setup ► Display ► Trend select ► Trend select 4	Device setup ► Detailed setup ► Display set ► Trend select ► Trend 4			RW	None	-	P.78
7-29	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display inversion	Device setup ► Detailed setup ► Display set ► Optional config ► Inversion	Normal Invert	Normal Invert	RW	Normal	-	P.80
7-30	Maintenance root menu ► Display indication ► LCD test	Device setup ► Diag/Service ► Disp indicator ► LCD test	Not execute Execute Show Pattern1 Show Pattern2 Show Pattern3 Show Pattern4	Not execute Execute Show pattern 1 Show pattern 2 Show pattern 3 Show pattern 4	RW	Not execute	-	-
7-31	Maintenance root menu ► Display indication ► Squawk	Device setup ► Diag/Service ► Disp indicator ► Squawk	Off On Squawk Once	Off On Squawk once	RW	Off	-	P.81
7-32	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Language package	Device setup ► Detailed setup ► Display set ► Optional config ► Language package	Package 1	Pack 1	R	Pack 1	-	P.72
7-33	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display installation	Device setup ► Detailed setup ► Device info ► Order info ► Disp install	No disp With disp	No disp With disp	RW	With disp *1	-	-
7-34	Device root menu ► Detailed setup ► Display ► Display operation configuration ► Display lowcut	Device setup ► Detailed setup ► Display set ► Optional config ► Low cut	0.00000 to +INF ^{*2} Number of decimal places: 0 to 5	0.00000 to +999999 Number of decimal places: 0 to 5	RW	0.0	Flow velocity No.3-13 Volumetric flow rate: No.3-14/ No.3-16 Mass flow rate: No.3-15/ No.3-16 Flow noise cm/s	P.42
7-35	Device root menu ► Detailed setup ► Display ► Display operation configuration ► IRSW operation	-	Disable Enable	-	RW	Enable	-	P.81

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*2: The range of single precision float (IEEE 754).

5.8 Device Information Configuration Parameters

These parameters are related to the device information.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
8-1	Device root menu ► Detailed setup ► Device information ► Order information ► Tag	Device setup ► Detailed setup ► ► Device info ► Order info ► Tag No	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
	Device root menu ► Detailed setup ► Device information ► Order information ► Long tag	Device setup ► Detailed setup ► ► Device info ► ► Order info ► Long tag	ASCII 32 characters	ASCII 32 characters	RW	All Space *1	-	P.84
8-2	Maintenance root menu ► Time stamp ► Operation time	Device setup ► Detailed setup ► ► Device info ► ► Date/Time ► Operation time	00000D 00: 00 to 99999D 23: 59	00000D 00: 00 to 99999D 23: 59	R	00000D 00: 00	-	P.87
8-3	Maintenance root menu ► Time stamp ► Current Date	Device setup ► Detailed setup ► ► Device info ► ► Date/Time ► Current date	01/01/1900 to 12/31/2155	01/01/1900 to 12/31/2155	R	1900/01/01	-	P.86
8-4	Maintenance root menu ► Time stamp ► Current Time	Device setup ► Detailed setup ► ► Device info ► ► Date/Time ► Current time	00: 00: 00 to 23: 59: 59	00: 00: 00 to 23: 59: 59	R	00: 00: 00	-	P.86
8-5	-	Device setup ► Detailed setup ► ► Device info ► ► Date/Time ► Set date	-	01/01/1900 to 12/31/2155	RW	01/01/1900	-	P.86
	-	Device setup ► Detailed setup ► ► Device info ► ► Date/Time ► Set time	-	00: 00: 00 to 23: 59: 59	RW	00: 00: 00	-	P.86
	Maintenance root menu ► Time stamp ► Set current day	-	1 to 31	-	RW	1	-	P.86
	Maintenance root menu ► Time stamp ► Set current month	-	1 to 12	-	RW	1	-	
	Maintenance root menu ► Time stamp ► Set current year	-	1900 to 2155	-	RW	2019	-	
	Maintenance root menu ► Time stamp ► Set current hour	-	0 to 23	-	RW	0	-	
	Maintenance root menu ► Time stamp ► Set current min	-	0 to 59	-	RW	0	-	
	Maintenance root menu ► Time stamp ► Set current sec	-	0 to 59	-	RW	0	-	
8-6	Device root menu ► Detailed setup ► Device information ► Version/Number information ► Transmitter type	Device setup ► Detailed setup ► ► Device info ► Ver/Num info ► Transmitter type	Non 4A Type	None 4A type	R	-	-	P.85
8-7	Device root menu ► Detailed setup ► Device information ► Version/Number information ► Option board ID	Device setup ► Detailed setup ► ► Device info ► Ver/Num info ► Option board ID	Non EtherNet/IP	None EtherNet/IP	R	-	-	P.85
8-8	Device root menu ► Detailed setup ► Device information ► Order information ► Electrode size	Device setup ► Detailed setup ► ► Device info ► ► Order info ► Electrode size	1 mm 3 mm 8 mm 10 mm 6 mm	1 mm 3 mm 8 mm 10 mm 6 mm	RW	3 mm	-	P.98

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*4: Set at the factory before shipment.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
8-9	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Basic model code	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ MS code ▶ Model code	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Suffix config 1	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ MS code ▶ Suffix config 1	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
8-10	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Suffix config 2	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ MS code ▶ Suffix config 2	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Option 1	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ MS code ▶ Option 1	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
8-11	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Option 2	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ MS code ▶ Option 2	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Option 3	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ MS code ▶ Option 3	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
8-12	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Option 4	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ MS code ▶ Option 4	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Remote sensor basic model code	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ RS MS code ▶ Model code	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
8-13	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Remote sensor suffix config 1	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ RS MS code ▶ Suffix config 1	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Remote sensor suffix config 2	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ RS MS code ▶ Suffix config 2	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*4: Set at the factory before shipment.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
8-14	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Remote sensor option 1	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ RS MS code ▶ Option 1	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Remote sensor option 2	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ RS MS code ▶ Option 2	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Remote sensor option 3	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ RS MS code ▶ Option 3	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Remote sensor option 4	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ RS MS code ▶ Option 4	ASCII 16 characters	ASCII 16 characters	RW	All Space *1	-	P.84
8-15	Device root menu ▶ Detailed setup ▶ Device information ▶ Version/Number information ▶ Transmitter serial No	Device setup ▶ Detailed setup ▶ Device info ▶ Ver/Num info ▶ Trans serial No	ASCII 16 characters	ASCII 16 characters	RW	All Space	-	P.84
8-16	Device root menu ▶ Detailed setup ▶ Device information ▶ Version/Number information ▶ Sensor serial No	Device setup ▶ Detailed setup ▶ Device info ▶ Ver/Num info ▶ Sensor serial No	ASCII 16 characters	ASCII 16 characters	RW	All Space	-	P.84
8-17	Device root menu ▶ Detailed setup ▶ Device information ▶ Memo ▶ Memo 1	Device setup ▶ Detailed setup ▶ Device info ▶ Memo ▶ Memo 1	ASCII 16 characters	ASCII 16 characters	RW	All Space	-	P.86
	Device root menu ▶ Detailed setup ▶ Device information ▶ Memo ▶ Memo 2	Device setup ▶ Detailed setup ▶ Device info ▶ Memo ▶ Memo 2	ASCII 16 characters	ASCII 16 characters	RW	All Space	-	P.86
	Device root menu ▶ Detailed setup ▶ Device information ▶ Memo ▶ Memo 3	Device setup ▶ Detailed setup ▶ Device info ▶ Memo ▶ Memo 3	ASCII 16 characters	ASCII 16 characters	RW	All Space	-	P.86
8-18	Device root menu ▶ Detailed setup ▶ Device information ▶ Version/Number information ▶ Main board revision	Device setup ▶ Detailed setup ▶ Device info ▶ Ver/Num info ▶ Main soft rev	R2.01.01*4	R2.01.01*4	R	-	-	P.85
8-19	Device root menu ▶ Detailed setup ▶ Device information ▶ Version/Number information ▶ Sensor board revision	Device setup ▶ Detailed setup ▶ Device info ▶ Ver/Num info ▶ Snsr soft rev	R1.01.01*4	R1.01.01*4	R	-	-	P.85
8-20	Device root menu ▶ Detailed setup ▶ Device information ▶ Version/Number information ▶ Indicator board revision	Device setup ▶ Detailed setup ▶ Device info ▶ Ver/Num info ▶ Ind soft rev	R2.01.01*4	R2.01.01*4	R	-	-	P.85
8-21	Device root menu ▶ Detailed setup ▶ Device information ▶ Order information ▶ Explosion protection	Device setup ▶ Detailed setup ▶ Device info ▶ Order info ▶ Explosion protection	No/Yes	No/Yes	RW	No	-	P.87

*1: Determined based on the information about specified items at the time of ordering and the sensor to be combined with.

*4: Set at the factory before shipment.

5.9 Diagnosis Function Configuration Parameters

These parameters are related to the electrode adhesion detection, flow noise diagnosis, and verification function settings.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
9-1	Diagnostic rootmenu ► Diagnosis ► Adhesion ► Adhesion function	Device setup ► Diag/Service ► Diagnosis ► Adhesion ► Function	Disable Enable	Disable Enable	RW	Enable	-	P.90
9-2	Diagnostic rootmenu ► Diagnosis ► Adhesion ► Adhesion level 1	Device setup ► Diag/Service ► Diagnosis ► Adhesion ► Threshold level 1	0.00 to +100.00 Number of decimal places: 2	0.00 to +100.00 Number of decimal places: 2	RW	0.10	M ohm	P.90
9-3	Diagnostic rootmenu ► Diagnosis ► Adhesion ► Adhesion level 2	Device setup ► Diag/Service ► Diagnosis ► Adhesion ► Threshold level 2	0.00 to +100.00 Number of decimal places: 2	0.00 to +100.00 Number of decimal places: 2	RW	0.50	M ohm	P.90
9-4	Diagnostic rootmenu ► Diagnosis ► Adhesion ► Adhesion level 3	Device setup ► Diag/Service ► Diagnosis ► Adhesion ► Threshold level 3	0.00 to +100.00 Number of decimal places: 2	0.00 to +100.00 Number of decimal places: 2	RW	4.00	M ohm	P.90
9-5	Diagnostic rootmenu ► Diagnosis ► Adhesion ► Adhesion level 4	Device setup ► Diag/Service ► Diagnosis ► Adhesion ► Threshold level 4	0.00 to +100.00 Number of decimal places: 2	0.00 to +100.00 Number of decimal places: 2	RW	12.00	M ohm	P.90
9-6	Diagnostic rootmenu ► Diagnosis ► Adhesion ► Result ► Adhesion value	Device setup ► Diag/Service ► Diagnosis ► Adhesion ► Result ► Value	0.00000 to +1000.0 Number of decimal places: 0 to 5	0.00000 to +1000.0 Number of decimal places: 0 to 5	R	-	M ohm	P.90
9-7	Diagnostic rootmenu ► Diagnosis ► Adhesion ► Result ► Adhesion status	Device setup ► Diag/Service ► Diagnosis ► Adhesion ► Result ► Status	Level0 Level1 Level2 Level3 Level4	Level 0 Level 1 Level 2 Level 3 Level 4	R	-	-	P.90
9-8	Diagnostic rootmenu ► Diagnosis ► Adhesion ► Adhesion check cycle	Device setup ► Diag/Service ► Diagnosis ► Adhesion ► Check cycle	0.5 min 1 min 2 min 10 min	0.5 min 1 min 2 min 10 min	RW	2 min	-	P.90
9-9 (G)	Diagnostic rootmenu ► Diagnosis ► Flow noise ► Flow noise function	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Function	Disable Enable	Disable Enable	RW	Disable	-	P.97
9-10 (G)	Diagnostic rootmenu ► Diagnosis ► Flow noise ► Flow noise level 1	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Threshold level 1	0.0 to +999.9 Number of decimal places: 1	0.0 to +999.9 Number of decimal places: 1	RW	5.0	cm/s	P.97
9-11 (G)	Diagnostic rootmenu ► Diagnosis ► Flow noise ► Flow noise level 2	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Threshold level 2	0.0 to +999.9 Number of decimal places: 1	0.0 to +999.9 Number of decimal places: 1	RW	10.0	cm/s	P.97
9-12 (G)	Diagnostic rootmenu ► Diagnosis ► Flow noise ► Flow noise level 3	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Threshold level 3	0.0 to +999.9 Number of decimal places: 1	0.0 to +999.9 Number of decimal places: 1	RW	30.0	cm/s	P.97
9-13 (G)	Diagnostic rootmenu ► Diagnosis ► Flow noise ► Flow noise level 4	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Threshold level 4	0.0 to +999.9 Number of decimal places: 1	0.0 to +999.9 Number of decimal places: 1	RW	400.0	cm/s	P.97
9-14 (G)	Diagnostic rootmenu ► Diagnosis ► Flow noise ► Result ► Flow noise	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Result ► Value	0.00000 to +100.00 Number of decimal places: 0 to 5	0.00000 to +100.00 Number of decimal places: 0 to 5	R	-	cm/s	P.97

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
9-15 (G)	Diagnostic rootmenu ► Diagnosis ► Flow noise ► Result ► Flow noise status	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Result ► Status	Level0 Level1 Level2 Level3 Level4	Level 0 Level 1 Level 2 Level 3 Level 4	R	-	-	P.97
9-16 (G)	Diagnostic rootmenu ► Diagnosis ► Flow noise ► Flow noise damping	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Damp	0.1 to 500.0 Number of decimal places: 1	0.1 to 500.0 Number of decimal places: 1	RW	3.0	s	P.41
9-17 (G)	Diagnostic rootmenu ► Diagnosis ► Flow noise ► Flow noise span	Device setup ► Diag/Service ► Diagnosis ► Flow noise ► Span	0.1 to 999.9 Number of decimal places: 1	0.1 to 999.9 Number of decimal places: 1	RW	150.0	cm/s	P.40
9-18 (G)	Diagnostic rootmenu ► Diagnosis ► Conductivity ► Low conductivity function	Device setup ► Diag/Service ► Diagnosis ► Conductivity ► Function	Disable Enable	Disable Enable	RW	Disable	-	P.98
9-19 (G)	Diagnostic rootmenu ► Diagnosis ► Conductivity ► Result ► Conductivity value	Device setup ► Diag/Service ► Diagnosis ► Conductivity ► Result ► Value	0.00000 to +INF ^{*2} Number of decimal places: 0 to 5	0.00000 to 999999 Number of decimal places: 0 to 5	R	-	mS/cm	P.98
9-20 (G)	Diagnostic rootmenu ► Diagnosis ► Conductivity ► Conductivity low limit	Device setup ► Diag/Service ► Diagnosis ► Conductivity ► Low limit	0.0000 to 99.9999 Number of decimal places: 4	0.0000 to 99.9999 Number of decimal places: 4	RW	0.0010	mS/cm	P.98
9-21	Diagnostic rootmenu ► Diagnosis ► Diagnostic Exe	Device setup ► Diag/Service ► Diagnosis ► Diagnostic execute	Not execute Elec ins exe Conn chk exe	Not execute Electrode insul exe Connect check exe	RW	Not execute	-	P.92 P.96
9-22	Diagnostic rootmenu ► Diagnosis ► Coil insulation threshold	Device setup ► Diag/Service ► Diagnosis ► Coil insul threshold	0.0 to 100.0 Number of decimal places: 1	0.0 to 100.0 Number of decimal places: 1	RW	25.0	%	P.99
9-23	Diagnostic rootmenu ► Diagnosis ► IEX compare	Device setup ► Diag/Service ► Diagnosis ► IEX compare	0.0 to 999.9 Number of decimal places: 1	0.0 to 999.9 Number of decimal places: 1	R	260.0	mA	P.99
9-24 (G)	Diagnostic rootmenu ► Diagnosis ► V peak hold value	Device setup ► Diag/Service ► Diagnosis ► V peak hold	0.000 to 3.000 Number of decimal places: 3	0.000 to 3.000 Number of decimal places: 3	R	-	V	P.99
9-25	Diagnostic rootmenu ► Diagnosis ► IEX coil resistance	Device setup ► Diag/Service ► Diagnosis ► IEX resistance	0 to +9999.9 Number of decimal places: 1	0 to +9999.9 Number of decimal places: 1	R	-	ohm	P.99
9-26	Diagnostic rootmenu ► Diagnosis ► Empty ► Electrode voltage A	Device setup ► Diag/Service ► Diagnosis ► Empty check ► Electrode voltage A	-3.00 to 3.00 Number of decimal places: 2	-3.00 to 3.00 Number of decimal places: 2	R	-	V	P.91
9-27	Diagnostic rootmenu ► Diagnosis ► Empty ► Electrode voltage B	Device setup ► Diag/Service ► Diagnosis ► Empty check ► Electrode voltage B	-3.00 to +3.00 Number of decimal places: 2	-3.00 to +3.00 Number of decimal places: 2	R	-	V	P.91
9-28	Diagnostic rootmenu ► Diagnosis ► Empty ► Result ► Empty status	Device setup ► Diag/Service ► Diagnosis ► Empty check ► Empty status	Full Empty	Full Empty	R	-	-	P.91
9-29	Diagnostic rootmenu ► Diagnosis ► Diagnostic output	Device setup ► Diag/Service ► Diagnosis ► Diagnostic output	Zero Measured value Hold	Zero Measured value Hold	RW	Zero	-	P.92 P.93 P.96
9-30	Maintenance root menu ► Verification ► VF target select	Device setup ► Diag/Service ► Verification ► VF target select	Magnetic Excitation Calculation Device status Conn status	Magnetic circuit Excite circuit Calc circuit Device status Connect status	RW	-	-	P.93
9-31	Maintenance root menu ► Verification ► VF mode	Device setup ► Diag/Service ► Verification ► Mode	No flow Flow	No flow Flow	RW	No flow	-	P.93
9-32	Maintenance root menu ► Verification ► Verification Exe	Device setup ► Diag/Service ► Verification ► Execute	Not execute Execute	Not execute Execute	RW	Not execute	-	P.93

*2: The range of single precision float (IEEE 754).

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
9-33	Maintenance root menu ► Verification ► VF No	Device setup ► Diag/Service ► Verification ► VF No	Factory Previous Present	Factory Previous Present	RW	Factory	-	P.93
9-34	Maintenance root menu ► Verification ► Result ► VF check result	Device setup ► Diag/Service ► Verification ► Result ► Failed/Passed	Passed Failed Canceled No Data Unknown	Passed Failed Canceled No data Unknown	R	No data	-	P.93
9-35	Maintenance root menu ► Verification ► Result ► VF operation time	Device setup ► Diag/Service ► Verification ► Result ► VF operate time	00000D 00: 00 to 99999D 23: 59	00000D 00: 00 to 99999D 23: 59	R	00000D 00: 00	-	P.93
9-36	Maintenance root menu ► Verification ► Result ► Magnetic circuit result	Device setup ► Diag/Service ► Verification ► Result ► Magnetic circuit	Passed Failed Canceled No Data Unknown Skip	Passed Failed Canceled No data Unknown Skip	R	No data	-	P.93
9-37	Maintenance root menu ► Verification ► Result ► Excitation circuit result	Device setup ► Diag/Service ► Verification ► Result ► Excite circuit	Passed Failed Canceled No Data Unknown Skip	Passed Failed Canceled No data Unknown Skip	R	No data	-	P.93
9-38	Maintenance root menu ► Verification ► Result ► Calculation circuit result	Device setup ► Diag/Service ► Verification ► Result ► Calc circuit	Passed Failed Canceled No Data Unknown Skip	Passed Failed Canceled No data Unknown Skip	R	No data	-	P.93
9-39	Maintenance root menu ► Verification ► Result ► VF device status result	Device setup ► Diag/Service ► Verification ► Result ► Device status	Passed Failed Canceled No Data Unknown Skip	Passed Failed Canceled No data Unknown Skip	R	No data	-	P.93
9-40	Maintenance root menu ► Verification ► Result ► Connection status result	Device setup ► Diag/Service ► Verification ► Result ► Connect status	Passed Failed Canceled No Data Unknown Skip	Passed Failed Canceled No data Unknown Skip	R	No data	-	P.93

*2: The range of single precision float (IEEE 754).

5.10 Test mode Configuration Parameters

These parameters are related to test mode settings.

No.	Parameter Name		Data Range		RW	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
10-1	Maintenance root menu ► Test ► Release time	Device setup ► Diag/Service ► Test ► Release time	10 min 30 min 1 h 3 h 12 h	10 min 30 min 1 h 3 h 12 h	RW	30 min	-	P.101
10-2	Maintenance root menu ► Test ► Test mode	-	Velocity test on Volume flow test on Mass flow test on Flow noise test on ^(G) Total 1 test on Total 2 test on Total 3 test on	-	RW	All Space	-	P.100
	-	Device setup ► Diag/Service ► Test ► Input test ► Test mode	-	Velocity test Volume test Mass test	RW	-	-	P.100
10-3	Maintenance root menu ► Test ► Input test ► Velocity	Device setup ► Diag/Service ► Test ► Input test ► Velocity	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.0	No.3-13	P.100
10-4	Maintenance root menu ► Test ► Input test ► Volume flow	Device setup ► Diag/Service ► Test ► Input test ► Volume	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.0	No.3-14/ No.3-16	P.100
10-5	Maintenance root menu ► Test ► Input test ► Mass flow	Device setup ► Diag/Service ► Test ► Input test ► Mass	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.0	No.3-15/ No.3-16	P.100
10-6 (G)	Maintenance root menu ► Test ► Input test ► Flow noise value	-	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.0	-	P.100
10-7	Maintenance root menu ► Test ► Input test ► Total1 value	-	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.0	No.4-1	P.100
10-8	Maintenance root menu ► Test ► Input test ► Total2 value	-	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.0	No.4-10	P.100
10-9	Maintenance root menu ► Test ► Input test ► Total3 value	-	-INF ^{*2} to +INF ^{*2} Number of decimal places: 0 to 5	-999999 to +999999 Number of decimal places: 0 to 5	RW	0.0	No.4-19	P.100
10-10	Maintenance root menu ► Test ► Test 2 mode	Device setup ► Diag/Service ► Test ► Test 2 mode	Normal Test	Normal Test	RW	Normal	-	P.101
10-11	Maintenance root menu ► Test ► Test 2 output value	Device setup ► Diag/Service ► Test ► Test 2 value	-10.0 to 110.0	-10.0 to 110.0	RW	0.0	%	P.101

*2: The range of single precision float (IEEE 754).

5.11 Backup/Restore/Data Logging Configuration Parameters

These parameters are related to the backup function, restore function and data logging function of parameters.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
11-1	Maintenance root menu ► Param bkup/restore ► Factory backup name	Device setup ► Diag/Service ► Param bkup/restore ► F backup name	ASCII 16 characters	ASCII 16 characters	R	Factory Delivery	-	P.102
11-2	Maintenance root menu ► Param bkup/restore ► Factory backup date	Device setup ► Diag/Service ► Param bkup/restore ► F backup date	ASCII 16 characters	ASCII 16 characters	R	01/01/2019 *4	-	P.102
11-3	Maintenance root menu ► Param bkup/restore ► SD backup name	Device setup ► Diag/Service ► Param bkup/restore ► SD backup name	ASCII 8 characters	ASCII 8 characters	RW	SD_FILE	-	P.102
11-4	Maintenance root menu ► Param bkup/restore ► Backup name 1	Device setup ► Diag/Service ► Param bkup/restore ► Backup name 1	ASCII 16 characters	ASCII 16 characters	RW	Backup 1	-	P.102
11-5	Maintenance root menu ► Param bkup/restore ► Backup date 1	Device setup ► Diag/Service ► Param bkup/restore ► Backup date 1	ASCII 16 characters	ASCII 16 characters	RW	01/01/2019	-	P.102
11-6	Maintenance root menu ► Param bkup/restore ► Backup name 2	Device setup ► Diag/Service ► Param bkup/restore ► Backup name 2	ASCII 16 characters	ASCII 16 characters	RW	Backup 2	-	P.102
11-7	Maintenance root menu ► Param bkup/restore ► Backup date 2	Device setup ► Diag/Service ► Param bkup/restore ► Backup date 2	ASCII 16 characters	ASCII 16 characters	RW	01/01/2019	-	P.102
11-8	Maintenance root menu ► Param bkup/restore ► Backup name 3	Device setup ► Diag/Service ► Param bkup/restore ► Backup name 3	ASCII 16 characters	ASCII 16 characters	RW	Backup 3	-	P.102
11-9	Maintenance root menu ► Param bkup/restore ► Backup date 3	Device setup ► Diag/Service ► Param bkup/restore ► Backup date 3	ASCII 16 characters	ASCII 16 characters	RW	01/01/2019	-	P.102
11-10	Maintenance root menu ► Param bkup/restore ► Backup Exe	Device setup ► Diag/Service ► Param bkup/restore ► Backup execute	Not execute Store Main to 1 Store Main to 2 Store Main to 3 Store Main to SD Store EEP1 to SD Store EEP2 to SD Store EEP3 to SD	Not execute Store main to 1 Store main to 2 Store main to 3 Store main to SD Store EEP1 to SD Store EEP2 to SD Store EEP3 to SD	RW	Not execute	-	P.102
11-11		Device setup ► Diag/Service ► Param bkup/restore ► Backup result	Unexecuted Success Failure Running	Unexecuted Success Failure Running	R	Unexecuted	-	P.102
11-12	Maintenance root menu ► Param bkup/restore ► Restore Exe	Device setup ► Diag/Service ► Param bkup/restore ► Restore execute	Not execute Duplicate Data 1 Duplicate Data 2 Duplicate Data 3 Duplicate SD Restore Data 1 Restore Data 2 Restore Data 3 Restore SD Compulsion Data 1 Compulsion Data 2 Compulsion Data 3 Compulsion SD Restore Factory	Not execute Duplicate data 1 Duplicate data 2 Duplicate data 3 Duplicate SD Restore data 1 Restore data 2 Restore data 3 Restore SD Compulsion data 1 Compulsion data 2 Compulsion data 3 Compulsion SD Restore factory	RW	Not execute	-	P.105
11-13		Device setup ► Diag/Service ► Param bkup/restore ► Restore result	Unexecuted Success Failure Running	Unexecuted Success Failure Running	R	Unexecuted	-	P.105

*4: Set at the factory before shipment.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
11-14	Maintenance root menu ► Data logging ► File name	Device setup ► Diag/Service ► Data log ► File name	ASCII 8 characters	ASCII 8 characters	RW	LOG_FILE	-	P.112
11-15	Maintenance root menu ► Data logging ► Interval time	Device setup ► Diag/Service ► Data log ► Interval time	1 s 10 s 30 s 1 min 5 min 30 min 1 h	1 s 10 s 30 s 1 min 5 min 30 min 1 h	RW	1 min	-	P.112
11-16	Maintenance root menu ► Data logging ► Start date	Device setup ► Diag/Service ► Data log ► Start date	01/01/1900 to 31/12/2155	01/01/1900 to 31/12/2155	R	01/01/2019	-	P.112
11-17	Maintenance root menu ► Data logging ► Start time	Device setup ► Diag/Service ► Data log ► Start time	00: 00: 00 to 23: 59: 59	00: 00: 00 to 23: 59: 59	R	00:00:00	-	P.112
11-18	Maintenance root menu ► Data logging ► End time	Device setup ► Diag/Service ► Data log ► End time	10 min 30 min 1 h 3 h 12 h 24 h 72 h 240 h 720 h 1440 h	10 min 30 min 1 h 3 h 12 h 24 h 72 h 240 h 720 h 1440 h	RW	12 h	-	P.112
11-19	Maintenance root menu ► Data logging ► Log1 select	Device setup ► Diag/Service ► Data log ► Log 1	Velocity Volume flow Mass flow PV	Velocity Volume flow Mass flow PV	RW	PV	-	P.112
11-20	Maintenance root menu ► Data logging ► Log2 select	Device setup ► Diag/Service ► Data log ► Log 2	Flow noise ^(G) Adhesion Electrode A Electrode B V peak ^(G)	Flow noise ^(G) Adhesion Electrode A Electrode B V peak ^(G)	RW	Velocity	-	P.112
11-21	Maintenance root menu ► Data logging ► Log3 select	Device setup ► Diag/Service ► Data log ► Log 3			RW	Volume flow	-	P.112
11-22	Maintenance root menu ► Data logging ► Log4 select	Device setup ► Diag/Service ► Data log ► Log 4			RW	Mass flow	-	P.112
11-23	Maintenance root menu ► Data logging ► Logging Exe	Device setup ► Diag/Service ► Data log ► Execute	Not execute Execute	Not execute Execute	RW	Not execute	-	P.112

*4: Set at the factory before shipment.

5.12 Parameter Protection Parameters

These parameters are related to the write protect function.

No.	Parameter Name		Data Range		R/W	Default Value	Unit	Reference
	Ethernet	Display	Ethernet	Display				
12-1	Device root menu ► Detailed setup ► Protection ► Maintenance	Device setup ► Detailed setup ► Protection ► Key code	0000 to 9999 Number of decimal places: 0	0000 to 9999 Number of decimal places: 0	RW	0000	-	P.115
12-2	Device root menu ► Detailed setup ► Protection ► Write protect	Device setup ► Detailed setup ► Protection ► Write protect sts	No Yes	No Yes	R	No	-	P.114
12-3	Device root menu ► Detailed setup ► Protection ► Enable write 10 min	Device setup ► Detailed setup ► Protection ► Enable write	ASCII 8 characters	ASCII 8 characters	RW	All Space	-	P.114
12-4	Device root menu ► Detailed setup ► Protection ► New password	Device setup ► Detailed setup ► Protection ► New password	ASCII 8 characters	ASCII 8 characters	RW	All Space	-	P.114
12-5	Device root menu ► Detailed setup ► Protection ► Software seal	Device setup ► Detailed setup ► Protection ► Soft seal status	Keep Break	Keep Break	R	Keep	-	P.114

■ Current alarm

Current alarm	
Setting upload	
Status 0	R
Status 1	R
Status 3	R
Status 4	R
Status 5	R
Status 14	R
Status 15	R
Status 16	R
Status 17	R
Status 18	R
Status 19	R
Status 20	R
Setting download	

Status 0	Status 1	Status 3	Status 4
010:Main CPU FAIL	014:Snsr bd FAIL	027:Restore FAIL	050:Signal overflow
011:Rev calc FAIL	015:Snsr comm ERR	028:Ind bd FAIL	051:Empty detect
012:Main EEP FAIL	016:AD 1 FAIL[Sig]	029:Ind bd EEP FAIL	052:H/L HH/LL alm
013:Main EEP dflt	017:AD 2 FAIL[Excit]	030:LCD drv FAIL	053:Adh over lv 4
	018:Coil open	031:Ind bd mismatch	
	019:Coil short	032:Ind comm ERR	
	020:Exciter FAIL	033:microSD FAIL	

Status 5	Status 14	Status 15	Status 16
060:Span cfg ERR	069:Nomi size cfg	085:Cable miscon	087:Adhesion lv 3
061:PV F cfg ERR	070:Adh cfg ERR	086:Coil insulation	088:LC warn
065:H/L cfg ERR	071:FLN cfg ERR	131:Trans mismatch	089:Insu detect
066:Density cfg ERR	072:Log not start		090:FLN over lv 3
			091:FLN over lv 4
			092:AZ warn
			093:Verif warn
			094:Fact noise warn

Status 17	Status 18	Status 19	Status 20
095:Simulate active	101:Param restore run	120:Watchdog	200:Opt bd comm ERR1
	102:Disp over	121:Power off	201:Opt bd comm ERR2
	103:SD size warn	122:Inst power FAIL	
	104:Bkup incmplt	123:Param bkup run	
	105:SD mismatch	124:Data log run	
	106:SD removal ERR		

NOTE

Only the status items that occur in EtherNet/IP communication type are described above. Other than the above status items are also displayed on the display unit.

■ Process variables

Process variables		
	Flow rate(%)	R
	Flow rate	R
	Velocity	R
	Volume	R
	Mass	R
	Totalizer	
	Totalizer 1	R
	Totalizer 2	R
	Totalizer 3	R
	Totalizer 1 count	R
	Totalizer 2 count	R
	Totalizer 3 count	R

■ Diagnosis/Service

Diag/Service		
Sts/Self test	→ Page 147	
Time stamp		
	Date	R
	Time	R
	Op time	R
Diagnosis	→ Page 148	
Verification	→ Page 149	
Autozero		
	Execute	R/W2
	Result	
	Zero value	R/W3
H/L alarm cfg		
	High alarm	R/W3
	Low alarm	R/W3
	HH alarm	R/W3
	LL alarm	R/W3
	H/L alarm hyst	R/W3
Test	→ Page 149	
Param bkup/restore		
	F backup name	R
	F backup date	R
	SD backup name	R/W3
	Backup execute	R/W3
	Backup result	R
	Restore execute	R/W3
	Restore result	R
	Backup name 1	R/W3
	Backup date 1	R/W3
	Backup name 2	R/W3
	Backup date 2	R/W3
	Backup name 3	R/W3
	Backup date 3	R/W3
Data log		
	File name	R/W3
	Interval time	R/W3
	Start date	R
	Start time	R
	End time	R/W3
	Execute	R/W3
	Log 1	R/W3
	Log 2	R/W3
	Log 3	R/W3
	Log 4	R/W3
Disp indicator		
	LCD test	R/W1
	Squawk	R/W1

● Status/Self test

Sts/Self test		
	Current alarm	
	Status 0	R
	Status 1	R
	Status 3	R
	Status 4	R
	Status 5	R
	Status 14	R
	Status 15	R
	Status 16	R
	Status 17	R
	Status 18	R
	Status 19	R
	Status 20	R
	Alarm	
	Alarm record mask	
	Mask 1-1	R/W3
	Mask 1-2	R/W3
	Mask 2-1	R/W3
	Mask 2-2	R/W3
	Mask 3-1	R/W3
	Mask 3-2	RW3
	Alarm record	
	Record alarm 1	R
	Record time 1	R
	Record alarm 2	R
	Record time 2	R
	Record alarm 3	R
	Record time 3	R
	Record alarm 4	R
	Record time 4	R
	Alarm out mask	
	Mask 1-1	R/W3
	Mask 1-2	R/W3
	Mask 2-1	R/W3
	Mask 2-2	R/W3
	Mask 3-1	R/W3
	Mask 3-2	R/W3
	Mask 4-1	R/W3
	Mask 4-2	RW3

● Diagnosis

Diagnosis			
Adhesion			
	Function	R/W3	
	Threshold level 1	R/W3	
	Threshold level 2	R/W3	
	Threshold level 3	R/W3	
	Threshold level 4	R/W3	
	Result		
		Value	R
		Status	R
	Check cycle	R/W3	
Flow noise ^(G)			
	Function	R/W3	
	Threshold level 1	R/W3	
	Threshold level 2	R/W3	
	Threshold level 3	R/W3	
	Threshold level 4	R/W3	
	Result		
		Value	R
		Status	R
	Damp	R/W3	
	Span	R/W3	
Conductivity ^(G)			
	Function	R/W3	
	Low limit	R/W3	
	Result		
		Value	R
Diagnostic execute	R/W3		
Coil insul threshold	R/W3		
IEX compare	R		
Diagnostic output	R/W3		
V peak hold ^(G)	R		
IEX resistance	R		
Empty check			
	Electrode voltage A	R	
	Electrode voltage B	R	
	Empty status	R	

● Verification

Verification		
Mode	R/W3	
Execute	R/W3	
VF No	R/W3	
VF target select	R/W3	
Result		
	Failed/Passed	R
	VF operate time	R
	Magnetic circuit	R
	Excite circuit	R
	Calc circuit	R
	Device status	R
	Connect status	R

● Test

Test		
Release time	R/W3	
Input test		
	Test mode	R/W3
	Velocity	R/W3
	Volume	R/W3
	Mass	R/W3
Test 2 mode	R/W3	
Test 2 value	R/W3	

■ Easy setup wizard

Easy setup wizard		
Volume		
	Setting upload	
	Damp	R/W2
	Damp ttl	R/W2
	Unit	R/W2
	Time unit	R/W2
	Span	R/W2
	Setting download	
Display set		
	Setting upload	
	Line 1	R/W1
	Line 2	R/W1
	Line 3	R/W1
	Setting download	
Autozero exe	R/W2	

■ Detailed setup

Detailed setup		
Pro var	→ Page 151	
Sensor		
	Low MF	R/W3
	High MF	R/W3
	Flow sensor sel	R/W3
	Nominal size unit	R/W3
	Nominal size	R/W3
Totalizer	→ Page 152	
AUX calculation		
	Flow direct	R/W3
	Rate limit	R/W3
	Dead time	R/W3
	Noise filter	R/W3
	Pulsing flow	R/W3
	Power sync on/off	R/W3
	Set power freq	R/W3
	lex power frequency	R
	Meas power freq	R
Display set	→ Page 153	
Access cfg		
	User role	R
	Chg mainte	R/W2
	Chg special	R/W3
Device info	→ Page 154	
Protection		
	Key code	R/W3
	Write protect sts	R
	Enable write	R/W3
	New password	R/W3
	Soft seal status	R

● Process variables

Pro var		
	PV flow select	R/W3
	Velocity	
	Damp	R/W3
	Damp ttl	R/W3
	Unit	R/W3
	Span	R/W3
	Volume	
	Damp	R/W2
	Damp ttl	R/W2
	Unit	R/W2
	Time unit	R/W2
	Span	R/W2
	Mass	
	Damp	R/W3
	Damp ttl	R/W3
	Unit	R/W3
	Time unit	R/W2
	Span	R/W3
	Density	
	Unit	R/W3
	Fixed density	R/W3
	Velocity check	R

● Totalizer

Totalizer		
Totalizer 1		
	Unit	R
	Conv factor	R/W3
	Low cut	R/W3
	Failure opts	R/W3
	Options	R/W3
	Start/Stop	R/W3
	Reset/Preset	R/W3
	Preset value	R/W3
	Set point	R/W3
Totalizer 2		
	Unit	R/W3
	Conv factor	R/W3
	Low cut	R/W3
	Failure opts	R/W3
	Options	R/W3
	Start/Stop	R/W3
	Reset/Preset	R/W3
	Preset value	R/W3
	Set point	R/W3
Totalizer 3		
	Unit	R/W3
	Conv factor	R/W3
	Low cut	R/W3
	Failure opts	R/W3
	Options	R/W3
	Start/Stop	R/W3
	Reset/Preset	R/W3
	Preset value	R/W3
	Set point	R/W3

● Display set

Display set		
	Line select	
	Line 1	R/W1
	Line 2	R/W1
	Line 3	R/W1
	Line 4	R/W1
	Line 5	R/W1
	Line 6	R/W1
	Line 7	R/W1
	Line 8	R/W1
	Trend select	
	Trend 1	R/W1
	Trend 2	R/W1
	Trend 3	R/W1
	Trend 4	R/W1
	Disp format	
	Format PV	R/W1
	Format total 1	R/W1
	Format total 2	R/W1
	Format total 3	R/W1
	Optional config	
	Contrast	R/W1
	Line mode	R/W1
	Period	R/W1
	NE107 display	R/W1
	Alarm display	R/W1
	Scroll mode	R/W1
	Damp	R/W1
	Low cut	R/W1
	Format date	R/W1
	Inversion	R/W1
	Language package	R/W1
	Display mode	R/W1
	Trend offIn LRV	R/W1
	Trend offIn URV	R/W1

● Device information

Device info		
Date/Time		
	Current date	R
	Current time	R
	Operation time	R
	Set date	R/W3
	Set time	R/W3
Order info		
	Tag No	R/W3
	Long tag	R/W3
	Electrode size	R/W3
	Explosion protection	R/W3
	MS code	
	Model code	R/W3
	Suffix config 1	R/W3
	Suffix config 2	R/W3
	Option 1	R/W3
	Option 2	R/W3
	Option 3	R/W3
	Option 4	R/W3
	RS MS code	
	Model code	R/W3
	Suffix config 1	R/W3
	Suffix config 2	R/W3
	Option 1	R/W3
	Option 2	R/W3
	Option 3	R/W3
	Option 4	R/W3
	Disp install	R/W3
Ver/Num info		
	Transmitter type	R
	Option board ID	R
	Trans serial No	R/W3
	Sensor serial No	R/W3
	Main soft rev	R
	Snsr soft rev	R
	Ind soft rev	R
Memo		
	Memo 1	R/W3
	Memo 2	R/W3
	Memo 3	R/W3

■ microSD

microSD	
Contents	R
Unmount	R/W1
Format	R/W1
Property	
	Total space R
	Available space R
	File system R

6.2 EtherNet/IP Communication Menu Tree

The outline of the EtherNet/IP communication menu structure is shown below.

R Read only
R/W Read and write possible
Symbol^(G) Only available for AXG, not for AXW

Menu	
Process variables root menu	→Page 156
	Device variables
	Totalizer count
Diagnostic root menu	→Page 157
	Status/Self test
	Diagnosis
Maintenance root menu	→Page 159
	Time stamp
	Test
	Autozero
	High/Low alarm configuration
	Verification
	Param bkup/restore
	Data logging
	Display indication
Device root menu	→Page 161
	Basic setup
	Detailed setup

■ Process variables root menu

Process variables root menu	
Device variables	
	Flow rate(%) R
	PV R
	Velocity R
	Volume flow R
	Mass flow R
	Totalizer1 R
	Totalizer2 R
	Totalizer3 R
	Flow noise ^(G) R
Totalizer count	
	Totalizer1 count R
	Totalizer2 count R
	Totalizer3 count R

■ Diagnostic root menu

Diagnostic root menu	
Status/Self test	→Page 158
	Alarm/Event device status
	Alarm
Diagnosis	
	Diagnostic output R/W
	Diagnostic Exe R/W
	Adhesion
	Adhesion function R/W
	Adhesion level 1 R/W
	Adhesion level 2 R/W
	Adhesion level 3 R/W
	Adhesion level 4 R/W
	Result
	Adhesion value R
	Adhesion status R
	Adhesion check cycle R/W
	Flow noise ^(G)
	Flow noise function R/W
	Flow noise level 1 R/W
	Flow noise level 2 R/W
	Flow noise level 3 R/W
	Flow noise level 4 R/W
	Result
	Flow noise value R
	Flow noise status R
	Flow noise damping R/W
	Flow noise span R/W
	Conductivity ^(G)
	Low conductivity function R/W
	Conductivity low limit R/W
	Result
	Conductivity value R
	Empty
	Electrode voltage A R
	Electrode voltage B R
	Result
	Empty status R
	Coil insulation threshold R/W
	IEX compare R
	V peak hold value ^(G) R
	IEX coil resistance R

● Status/Self test

Status/Self test			
Alarm/Event device status			
	Status group 0	R	
	Status group 1	R	
	Status group 2	R	
	Status group 3	R	
Alarm			
	Alarm record mask		
		Alarm record mask 1	R/W
		Alarm record mask 2	R/W
		Alarm record mask 3	R/W
	Alarm record		
		Alarm record 1	R
		Alarm record time 1	R
		Alarm record 2	R
		Alarm record time 2	R
		Alarm record 3	R
		Alarm record time 3	R
		Alarm record 4	R
		Alarm record time 4	R
	Alarm out mask		
		Alarm out mask 1	R/W
		Alarm out mask 2	R/W
		Alarm out mask 3	R/W
		Alarm out mask 4	R/W

Status group 0
10:Main board CPU failure
11:Reverse calculation failure
12:Main board EEPROM failure
13:Main board EEPROM default
14:Sensor board failure
15:Sensor communication error
16:A/D1 failure[Signal]
17:A/D2 failure[Exciter]
18:Coil open
19:Coil short
20:Exciter failure
27:Parameter restore incomplete
28:Indicator board failure
29:Indicator board EEPROM failure
30:LCD driver failure
31:Indicator board mismatch
32:Indicator communication error
33:microSD failure

Status group 1
50:Signal overflow
51:Empty pipe detection
52:H/L or HH/LL alarm
53:Adhesion over level 4
60:Span configuration error
61:PV flow select configuration error
65:H/L HH/LL configuration error
66:Density configuration error
69:Nominal size configuration error
70:Adhesion configuration error
71:Flow noise configuration error
72>Data logging not started
85:Cable misconnect
86:Coil insulation warning
131:Transmitter type mismatch

Status group 2
87:Adhesion over level 3
88:Low conductivity Warning
89:Insulation detection
90:Flow noise over level 3
91:Flow noise over level 4
92:Autozero warning
93:Verification warning
94:Factory noise warning
95:Simulation active
101:Parameter restore running
102:Display over warning
103:microSD card size warning
104:Parameter backup incomplete
105:microSD card mismatch
106:microSD card removal procedure error
120:Watchdog
121:Power off
122:Instant power failure
123:Parameter backup running
124>Data logging running

Status group 3
200:Option board comm error1
201:Option board comm error2

■ Maintenance root menu

Maintenance root menu		
Time stamp		
	Current Date	R/W
	Current Time	R/W
	Operation time	R
	Set current day	R/W
	Set current month	R/W
	Set current year	R/W
	Set current hour	R/W
	Set current min	R/W
	Set current sec	R/W
Test →Page 160		
Autozero		
	Autozero Exe	R/W
	Result	
		Zero value R/W
High/Low alarm configuration		
	Low alarm	R/W
	Low low alarm	R/W
	High alarm	R/W
	High high alarm	R/W
	Hi/Lo alarm hysteresis	R/W
Verification →Page 160		
Param bkup/restore		
	Factory backup name	R
	Factory backup date	R
	SD backup name	R/W
	Backup Exe	R/W
	Backup result	R
	Restore Exe	R/W
	Restore result	R
	Backup name 1	R/W
	Backup date 1	R/W
	Backup name 2	R/W
	Backup date 2	R/W
	Backup name 3	R/W
	Backup date 3	R/W
Data logging		
	File name	R/W
	Interval time	R/W
	Start date	R
	Start time	R
	End time	R/W
	Logging Exe	R/W
	Log1 select	R/W
	Log2 select	R/W
	Log3 select	R/W
	Log4 select	R/W
Display indication		
	LCD test	R/W
	Squawk	R/W

● Test

Test		
	Release time	R/W
	Test mode	R/W
	Input test	
		Velocity R/W
		Volume flow R/W
		Mass flow R/W
		Flow noise value ^(G) R/W
		Total 1 value R/W
		Total 2 value R/W
		Total 3 value R/W
	Test 2 mode	R/W
	Test 2 output value	R/W

● Verification

Verification		
	VF target select	R/W
	Diagnostic output	R/W
	VF mode	R/W
	Verification Exe	R/W
	VF No	R/W
	Result	
		VF check result R
		VF operation time R
		Magnetic circuit result R
		Excitation circuit result R
		Calculation circuit result R
		VF device status result R
		Connection status result R

■ Device root menu

Device root menu	
Basic setup	PV flow select R/W
	Velocity check R/W
	Velocity
	Velocity unit R/W
	Velocity span R/W
	Velocity damping R/W
	Velocity damping total R/W
	Volume flow
	Volume flow unit R/W
	Time unit R/W
	Volume flow span R/W
	Volume flow damping R/W
	Volume flow damping total R/W
	Mass flow
	Mass flow unit R/W
	Time unit R/W
	Mass flow span R/W
	Mass flow damping R/W
	Mass flow damping total R/W
	Sensor
	Low MF R/W
	High MF R/W
	Flow sensor select R/W
	Nominal size unit R/W
	Nominal size R/W
	Autozero
	Autozero Exe
	Zero value R/W
Detailed setup	→Page 162

● Detailed setup

Detailed setup		
Process variables	→Page 163	
Sensor		
	Low MF	R/W
	High MF	R/W
	Flow sensor select	R/W
	Nominal size unit	R/W
	Nominal size	R/W
Totalizer	→Page 164	
AUX calculation		
	Flow direction	R/W
	Rate limit	R/W
	Dead time	R/W
	Noise filter	R/W
	Pulsing flow	R/W
	Power synchronize	R/W
	Set power frequency	R/W
	IEX power frequency	R
	Measured power frequency	R
Display	→Page 165	
Device information	→Page 166	
Protection		
	Maintenance	R/W
	Write protect	R
	Enable write 10min	R/W
	New password	R/W
	Software seal	R

● Process variables

Process variables		
	PV flow select	R/W
	Velocity check	R/W
	Velocity	
	Velocity unit	R/W
	Velocity span	R/W
	Velocity damping	R/W
	Velocity damping total	R/W
	Volume flow	
	Volume flow unit	R/W
	Time unit	R/W
	Volume flow span	R/W
	Volume flow damping	R/W
	Volume flow damping total	R/W
	Mass flow	
	Mass flow unit	R/W
	Time unit	R/W
	Mass flow span	R/W
	Mass flow damping	R/W
	Mass flow damping total	R/W
	Density	
	Density unit	R/W
	Density fixed value	R/W

● Totalizer

Totalizer	
Totalizer1	
Total1 unit	R/W
Total1 conv factor	R/W
Total1 low cut	R/W
Total1 fail opts	R/W
Total1 options	R/W
Total1 Start/Stop	R/W
Total1 Reset/Preset	R/W
Total1 preset value	R/W
Total1 set point	R/W
Totalizer2	
Total2 unit	R/W
Total2 conv factor	R/W
Total2 low cut	R/W
Total2 fail opts	R/W
Total2 options	R/W
Total2 Start/Stop	R/W
Total2 Reset/Preset	R/W
Total2 preset value	R/W
Total2 set point	R/W
Totalizer3	
Total3 unit	R/W
Total3 conv factor	R/W
Total3 low cut	R/W
Total3 fail opts	R/W
Total3 options	R/W
Total3 Start/Stop	R/W
Total3 Reset/Preset	R/W
Total3 preset value	R/W
Total3 set point	R/W

Display

--	--

Display contrast	R/W
Display line	R/W
Display period	R/W
Display NE107	R/W
Display alarm	R/W
Display scroll	R/W
Display damping	R/W
Display format date	R/W
Display inversion	R/W
Language	R/W
Language package	R
Display measure mode	R/W
Trend offline lrv	R/W
Trend offline urv	R/W
Display installation	R/W
Display lowcut	R/W
IRSW operation	R/W

● Device information

Device information	
Order information	
	Tag R/W
	Long tag R/W
	Electrode size R/W
	Explosion protection R/W
	Basic model code R/W
	Suffix config 1 R/W
	Suffix config 2 R/W
	Option 1 R/W
	Option 2 R/W
	Option 3 R/W
	Option 4 R/W
	Remote sensor basic model code R/W
	Remote sensor suffix config 1 R/W
	Remote sensor suffix config 2 R/W
	Remote sensor option 1 R/W
	Remote sensor option 2 R/W
	Remote sensor option 3 R/W
	Remote sensor option 4 R/W
Version/Number information	
	Transmitter type R
	Option board ID R
	Transmitter serial No R/W
	Sensor serial No R/W
	Main board revision R
	Sensor board revision R
	Indicator board revision R
Memo	
	Memo 1 R/W
	Memo 2 R/W
	Memo 3 R/W
Ethernet communication	
	DHCP enable R/W
	IP address R/W
	Subnet mask R/W
	Default gateway R/W
	MAC address R
	Serial number R
	3 octet IP address for HW switch R/W

Revision Information

- Title : ADMAG TI Series AXG, AXW Magnetic Flowmeter EtherNet/IP Communication Type
- Manual No. : IM 01E21A02-06EN

Edition	Date	Page	Revised Item
1st	Mar. 2020	—	New publication
2nd	Mar. 2022	—	Add the description of AXW.
		42	4.1.7 Add the description of new function.
		64	4.4.2 Add note.
3rd	Oct. 2025	91	Add Nominal size 450 mm (18 in.)