User's Manual

Magnetic Flowmeter Verification Tool

R01.03

IM 01E21A04-01EN



IM 01E21A04-01EN 2nd Edition

Magnetic Flowmeter Verification Tool

IM 01E21A04-01EN 2nd Edition

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1. Introduction

This user's manual provides instructions on the usage of "FSA130 Magnetic Flowmeter / Vortex Flowmeter Verification Tool" and the operation of "Magnetic Flowmeter Verification Tool".

The Magnetic Flowmeter Verification Tool is a software tool for health check of the ADMAG TI Series AXG/AXW magnetic flowmeter and magnetic flowmeter CA series of HART communication type. The functions of the tool are incorporated in the DTM file of the AXG/AXW/ CA magnetic flowmeter, which operates on FieldMate "Versatile Device Management Wizard". Depending on the check items, AM012 "Magnetic Flowmeter Calibrator", CA500 "Multi-Function Process Calibrator", and/or MY600 "Insulation Resistance Tester" are used.

Read the documents in Table 1.1.1 to understand the related products when operating the Verification Tool. The document can be downloaded from the website of YOKOGAWA.

Website address: https://www.yokogawa.com/fld/doc/ https://tmi.yokogawa.com/library/

Product	Document Title	Document Number
AXG/AXW/CA Magnetic Flowmeter	Magnetic Flowmeter Read Me First	IM 01E21A21-01Z1
AXG/AXW	Magnetic Flowmeter Read Me First (Optional Code EC)	IM 01E21A11-01EN
Magnetic Flowmeter	ADMAG TI Series AXG, AXW Electromagnetic Flowmeter HART Communication Type	IM 01E21A02-02EN
AXG Magnetic Flowmeter	ADMAG TI Series AXG Magnetic Flowmeter Installation Manual	IM 01E22A01-01EN
	ADMAG TI Series AXG Magnetic Flowmeter Maintenance Manual	IM 01E22A01-02EN
	ADMAG TI Series AXG Magnetic Flowmeter General Specifications	GS 01E22A01-01EN
AXW Magnetic Flowmeter	ADMAG TI Series AXW Magnetic Flowmeter Installation Manual	IM 01E24A01-01EN
	ADMAG TI Series AXW Magnetic Flowmeter Maintenance Manual	IM 01E24A01-02EN
	ADMAG TI Series AXW Magnetic Flowmeter [Size: 25 to 400 mm (1 to 16 in.)] General Specifications	GS 01E24A01-01EN
	ADMAG TI Series AXW Magnetic Flowmeter [Size: 500 to 1800 mm (20 to 72 in.)] General Specifications	GS 01E25D11-01EN
AXG1A Magnetic Flowmeter	ADMAG TI Series AXG1A Electromagnetic Flowmeter Remote Transmitter HART Communication Type	IM 01E22C02-02EN
Remote Transmitter	ADMAG TI Series AXG1A Magnetic Flowmeter Remote Transmitter	GS 01E22C01-01EN
Magnetic Flowmeter	Magnetic Flowmeter CA Series Installation Manual	IM 01E40A01-01EN
CA Series	Magnetic Flowmeter CA Series Maintenance Manual	IM 01E40A01-02EN
	Magnetic Flowmeter CA Series HART Communication Type	IM 01E40A02-01EN
	Magnetic Flowmeter CA Series General Specifications	GS 01E40A01-01EN
Magnetic Flowmeter	Model AM012 Magnetic Flowmeter Calibrator	IM 1E6K2-E
Calibrator	Model AM012 Magnetic Flowmeter Calibrator General Specifications	GS 1E6K2-E
FieldMate	FieldMate Versatile Device Management Wizard	IM 01R01A01-01E
	FieldMate Operational Precaution	IM 01R01A01-91E
	FieldMate Wizard Getting Started	IM 01R01A04-01E
	FieldMate Versatile Device Management Wizard General Specifications	GS 01R01A01-01E

Table 1.1.1 List of Document

	F	,	
Verification Tool	Magnetic Flowmeter Verification Tool (this manual)	IM 01E21A04-01EN	
	FSA130 Magnetic Flowmeter / Vortex Flowmeter Verification Tool General Specifications	GS 01E21A04-01EN	
Measuring Instrument	CA500, CA550 Multi-function Process Calibrator User's Manual	IM CA500-01EN	
	MY600 Insulation Resistance Tester	IM MY600-01EN	
	Insulation and Earth Testers Brochure (including specifications)	Bulletin MY-E	

1.1 About This Manual

- This manual should be provided to the end user.
- Before using the Magnetic Flowmeter Verification Tool, read this manual thoroughly to comprehend its contents.
- The contents of this manual may be changed without prior notice.
- All rights are reserved. 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 material, including, but not limited to, implied warranties of merchantability and suitability for a particular purpose.
- If any question arises or errors are found, or if any information is missing from this manual, inform the nearest YOKOGAWA sales office.
- All reasonable effort has been made to ensure the accuracy of the contents of this manual. However, if any errors or omissions are found, please inform Yokogawa.
- · Yokogawa assumes no responsibilities for this product except as stated in the warranty.
- Please note that this user's manual may not be revised for any changes in specifications, construction changes or operating part changes that are not considered to affect function or performance.
- If the customer or any third party is harmed by the use of this product, Yokogawa assumes
 no responsibility for any such harm owing to any defects in the product which were not
 predictable, or for any indirect damages.
- This manual describes the operation of the Magnetic Flowmeter Verification Tool which operates on FieldMate. For the installation, operation, and function of FieldMate, please read the FieldMate user's manual.
- The content of this manual corresponds to FieldMate R3.04.20 and Device Files R3.09.22. Read the manual of FieldMate on how to confirm the revision. Also, read the latest version manual of FieldMate for possible changes in its operation and function.

1.2 Safety and Modification Precautions

- The following general safety precautions must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific WARNINGS given elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Yokogawa assumes no liability for the customer's failure to comply with these requirements. If this product is used in a manner not specified in this manual, the protection provided by this product may be impaired.
- Yokogawa will not be liable for malfunctions or damage resulting from any modification made to this product by the customer.
- The following safety symbols are used in this user's manual and on the product.

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.

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.

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

A NOTE sign denotes essential information for understanding operations and features.

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- In this manual, trademarks or registered trademarks are not marked with ™ or ®.

1.4 Software License Agreement

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IF YOU DO NOT AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT, DO NOT INSTALL OR USE THIS SOFTWARE PRODUCT AND PROMPTLY RETURN THE LICENSE NUMBER TO THE PLACE OF PURCHASE.

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 - a) have the right to use the Licensed Software on the environment identified below or other conditions defined by Licensee;
 - In case of use on FieldMate or PRM: the same operating environment condition of FieldMate or PRM.
 - In other cases: the operating environment conditions defined on the readme file of "Yokogawa Device DTM Library" which is contained in the Licensed Software when Licensee download it from Website.
 - b) use the Licensed Software on a single computer by single user at same time;
 - c) use the Licensed Software solely for Licensee's internal operation use. For the avoidance of doubt, unless otherwise agreed or provided by Licensor, Licensee is prohibited to use the Licensed Software on any unauthorized hardware via the network.

2 Warranty

- (1) Licensor warrants that the media on which the Licensed Software is provided is free of defects in materials and workmanship for a period of 90 days from the installation and shall replace the defective media free of charge.
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1.5 Package

Checking the Contents of the Package:

Open the package of "FSA130 Magnetic Flowmeter/Vortex Flowmeter Verification Tool License Number" and check the following prior to use. If some items are missing, or there is a problem with the appearance, contact the place of purchase.

Contents of the package:

- License Sheet
- USB FieldMate Modem (when optional code B is selected)

Note: Read user's manual for FieldMate on the USB FieldMate Modem.

The form of the License Sheet is as below. The "Software License Number" is used to activate the Verification Tool. Read Section 4.1 on how to enter the license number.

FSA130 Electromagnet	ic Flowmeter / Vortex Flowmeter Verification Tool
<u>s</u>	oftware License Number
Model and Suffix Codes: Serial Number: Software License Number:	
IMPORTANT: Please kee Thank you for purchasing FSA130	o this sheet. Electromagnetic Flowmeter / Vortex Flowmeter Verification Tool. The
The second s	printed above. This number is used to ACTIVATE FSA130 er / Vortex Flowmeter Verification Tool programs and to Yokogawa Electric Corporation.

Figure 1.5.1 Software License Number

2. **General Description**

The Magnetic Flowmeter Verification Tool operates on the FieldMate R3.04.20 or later, and Device Files R3.09.22 or later.

The performance of the AXG/AXW/CA magnetic flowmeter can be verified by checking several items and this tool provides a certificate that the device (the AXG/AXW/CA magnetic flowmeter) is operating properly.

	Мо	del		Specification		
	Sensor Transmitter Communicat		Communication	Size		
Remote Type	AXG□□□(*1)	AXG4A, AXG1A	HART	2.5 to 400 mm (0.1 to 16 in.)(AXG4A) 2.5 to 500 mm (0.1 to 20 in.)(AXG1A)		
	AXW□□□(*2)	AXW4A, AXG1A	HART	25 to 1000 mm (1 to 40 in.)		
	AXWDDDG or AXWDDDW(*3)	AXW4A, AXG1A	HART	500 to 1000 mm (20 to 40 in.)		
	AXG□	□□(*4)	HART	2.5 to 400 mm (0.1 to 16 in.)		
Integral Type	AXWロ	□□(*2)	HART	25 to 400 mm (1 to 16 in.)		
Integral Type	AXWD	⊐□G(*3)	HART	500 to 1000 mm (20 to 40 in.)		
	CADD	□□(*5)	HART	15 to 200 mm (0.5 to 8 in.)		

Table 2.1.1 Applicable AXG/AXW/CA Magnetic Flowmeter

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When the communication specification is HART, the model and suffix code is as follows.

Integral Type Flowmeter

AXĞ 000-000000000000-0 0 0000	■: J
	🔳: J
AXW□□□G- ■□□□□□-□□□□-□□□	■: E, J, or L
	■: J

Remote Transmitter • . J AXW4A-00000000000 · .]

Two Verification Modes (Standard and Enhanced):

The Verification Tool has two modes, Standard Verification (referred to as Standard VF) and Enhanced Verification (referred to as Enhanced VF). The former is performed in the device itself, and the latter utilizes other equipment to be connected with the device.

*: VF stands for "Verification".

Data Storage and Report Printing:

This tool stores data of verification result (verification data) in a database in an organized manner, and can be used to print a Verification Report that has not only the individual check item result but also the overall status of "Passed" or "Failed".

2.1 System Configuration

The following products, instruments and software are necessary to use the Verification Tool.

- ADMAG TI series AXG/AXW magnetic flowmeter or magnetic flowmeter CA series of HART communication type
- PC (with software below)
 - FieldMate (Versatile Device Management Wizard) R3.04.20 or later, and Device Fiels R3.09.22 or later.
- Printer (for printing verification report)
- USB FieldMate Modem

*:

- AM012 calibrator for magnetic flowmeter (for Enhanced VF)
- CA500 Series Multi-Function Process Calibrator or equivalent(*) (for Enhanced VF)
 - *: CA500 can be replaced by a general purpose instrument which has equivalent function to measure current value / pulse count and also to output current signal.
- MY600 Insulation Resistance Tester or equivalent (*) (for Enhanced VF)

MY600 can replaced by other instrument which has equivalent function.

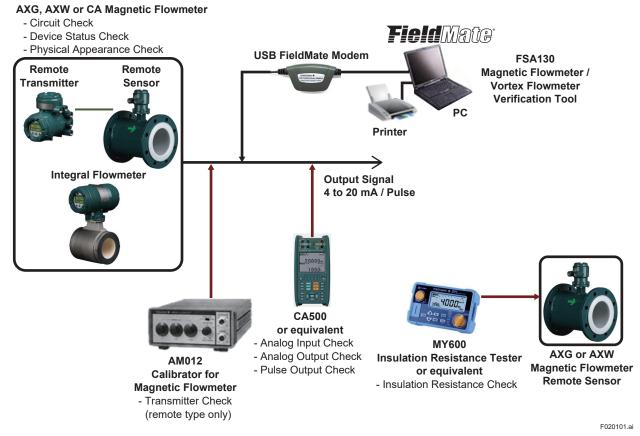


Figure 2.1.1 System Configuration

2.2 Check Item

The Verification Tool has two modes, the Standard Verification (Standard VF) and Enhanced Verification (Enhanced VF). It is always necessary to perform the Standard VF to obtain the overall verification result. See Table 2.2.1 for the whole check items.

1) Standard VF

This mode checks the status of magnetic, excitation, and calculation circuit of the device. It also checks the status of alarm occurrence, alarm history, cable connection status for flow signal and excitation current, display board and LCD, and physical appearance of the device. This mode is performed with the AXG/AXW/CA magnetic flowmeter being mounted onto process line filled with fluid.

2) Enhanced VF

This mode checks analog input/output, pulse output, transmitter accuracy, and insulation resistance of the coil and signal electrodes for further device diagnosis.

This mode is performed with the AXG/AXW/CA magnetic flowmeter being demounted from process line.

The necessary equipment is an AM012 calibrator to simulate the flow velocity signal for magnetic flowmeter, a CA500 Series Multi-Function Process Calibrator to measure current value and pulse count, and also to output current signal, and an MY600 insulation resistance tester to measure the coil and electrode resistance. The CA500 and MY600 can be replaced by other instrument which has equivalent function.

Mode		Check Item	Note
Standard	Circuit	Magnetic Circuit	
Verification		Excitation Circuit	
		Calculation Circuit	
	Device Status	Alarm Occurrence	
		Alarm History	
	Connection Status (*4)	Cable Connection Status	
	Indicator /B Check	Indicator Status (Display Status)	
	(Display Board Check) (*1)	LCD display	Visual check by customer on LCD test mode
	Physical	Flow Sensor	
	Appearance	Transmitter	Visual check by customer
Enhanced	Analog Output (*2)	·	
Verification	Pulse Output (*2)		Check by using CA500 or equivalent
	Analog Input (*2) (*4	4)	equivalent
	Transmitter (*3) (*4))	Check by using AM012
	Insulation	Coil	Check by using MY600 or
	Resistance (*3) (*4)	Signal (Electrode)	Check by using MY600 or equivalent

Table 2.2.1 Check Item

*1: For AXG/AXW/CA magnetic flowmeter with no display, this item does not appear on the Tool.

*2: Input/Output items which are not equipped with AXG/AXW/CA magnetic flowmeter are not displayed on the Tool.

*3: For integral type AXG/AXW magnetic flowmeter, these items do not appear on the Tool.

*4: For CA magnetic flowmeter, these items do not appear on the Tool.

2.3 **Operation Procedure**

The verification procedure starts by activating the Verification Tool function in DTM file operating on the FieldMate. Note that "Default" mode (read section 5.1) cannot be selected when activating the Verification Tool by Device Navigator.

There are two verification mode, Standard VF (read section 7.1) and Enhanced VF (read section 7.2). Always perform at least Standard Verification to get the overall verification result.

See the figure below for the operation procedure.

The number in the figure shows the chapter or section to be referred to.

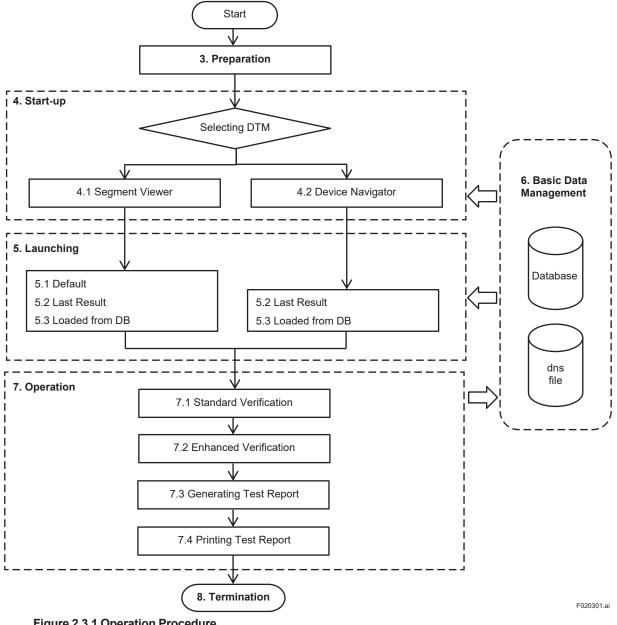


Figure 2.3.1 Operation Procedure

If you interrupt the verification tool execution and once finished, please refer to chapter 6.1 and save the data to save the results until the interruption.

3. Preparation

- Before operating the Verification Tool, the control loop must be set to manual mode in the host system.
- The following applications may cause inaccurate verification results:
 - Significantly low flow rate
 - Slurry fluid
 - Stray current
- When "unexpected issue (*1)" occurs while operating Verification Tool, follow Section 8.2 and Chapter 9.
- · Set the automatic sleep mode of the computer off.
- *1: "Unexpected issue" means disconnection between the AXG/AXW/CA magnetic flowmeter and PC:
 - Physical disconnection between the AXG/AXW/CA magnetic flowmeter and PC
 - Forced shutdown of PC
 - Unforeseen power-off of the AXG/AXW/CA magnetic flowmeter

3.1 Installation of FieldMate

Read the manual for FieldMate including connection with the device. Bu sure to install DTM files of the AXG/AXW/CA magnetic flowmeter for HART communication in the installation procedure. If your FieldMate package does not include these DTM files, download them from the following website.

https://www.yokogawa.com/library/documents-downloads/software/yokogawa-dtm-hart/

3.2 Disabling Write Protect Setting

Before performing verification, set the hardware write protection function switch of the device OFF if it is set to ON. Follow the installation manual of the AXG/AXW/CA magnetic flowmeter shown in 1.Introduction Table1.1.1 for the procedure.

If this was not done, the following window will appear during verification. Then set the hardware write protection switch OFF and click "OK" in Figure 3.2.1.

Also, if the software write protection function is enabled, the following window will appear during verification. In this case, enter the password for disabling the protection in the Password field of Figure 3.2.1, which has been set by customer, and click "OK".

It is not necessary to disable the software write protection function in advance. By entering the password at the time the following window appears, the protection is automatically enabled again within 10 minutes after the verification is finished.

Write Protect Status is set to YES
* If hardware switch is set to "Protected", change to "Enable". <u>View diagram</u>
and
* If Software is Password protected, enter the software password (8 characters).
Password:
OK Cancel

Figure 3.2.1 Disabling Write Protect Setting

4-1

4. Start-up

The Verification Tool is one of the functions incorporated in the DTM operatable on the FieldMate.

There are two ways as below in the FieldMate to start up the verification Tool in the DTM.

- From "Segment Viewer"
- From "Device Navigator"

If the device is not connected with a PC where FieldMate is operating, the verification function cannot be performed. However, it is available to view verification data performed in the past when starting up the Verification Tool from "Device Navigator".



- To operate the Verification Tool in "online" mode of FieldMate, start up DTM from Segment Viewer.
- To perform the Standard VF, start up DTM from Segment Viewer
- Starting from Segment Viewer is available only when the device is connected. Device Navigator can be used to read past data even if the device is not connected.

4.1 Start-up from "Segment Viewer"

Step 1: Start up the FieldMate and select "Segment Viewer" window.

🔝 FieldMate	****** > /				BRUT BRUT	BR. 1 BR. 1	Ball & Company of	
Elle View Action Tool Help								
∂ Update X Cancel								
Communication Path	Segment Viewer > HART							⊖ €
FOUNDATION fieldbus FOUNDATION fieldbus PROFIBUS BRAIN SALDO(Infrared)	VOKOGAWA (0x000037) AGGA (0x71A) Rev 1 ID 371A000001 With Beredot Var	COMMUNICATION RESPONSE N	No comm 0.000865 m/s -0.19 % 0.50 m/s 0.00 m/s 0 m3 0 m3	A1	ttach Message.	Action *	All Parameters	Input Loop Check Support
EA100(Gateway) HORT (Adapter) Modbus Modbus HART (YOKOGAWA N-IO)								
								User ID :DefaultUser
								E040101 a

Figure 4.1.1 Segment Viewer Window of the FieldMate

Step 2: Start up the DTM by any of the following four methods.

(Method 1) Double-click the device icon. Then go to Step 4.

le ⊻lew Action <u>T</u> ool <u>H</u> elp		
€Update X Cancel		
Communication Path	Segment Viewer > HART	⊖ ⊕
HART FOUNDATION fieldbus PROFIBUS BRAIN SAL00(Infrared) ISAL00(Gateway) HART(Adapter) Modbus(Adapter) Modbus HART (YOKOGAWA N-IO)	DEVICE STATUS More Stat COMMUNICATION RESONSE No communication of the state of t	All Parameters Input Loop Check Support

Figure 4.1.2 Starting Up DTM by Device Icon

(Method 2) Click "Action" button and select "Select DTM...".

♦ Update X Cancel					
ommunication Path	Segment Viewer > HART				Θ. (
HART FOUNDATION fieldbus PROFIBUS BRAIN SALDOQ(infrared) SALDOQ(infrared) SALDOQ(infrared)	VOKOGAWA (0x000037) AKGAA (0x000037) BO 37JA000001 Write Protect No	DEVICE STATUS More Statu COMMUNICATION RESPONSE No comma PRIMARY VARIABLE 0.0005227 PRIMARY VARIABLE 0.00122 % PRIMARY VARIAL PRICE TO FANOLE 0.000527 PRIMARY VARIABLE 0.000 m/s PRIMARY VARIABLE 0.000 m/s ECONDARY VARIABLE 0.000 m/s ERTIRARY VARIABLE 0.001 m/s ECONDARY VARIABLE 0.001 m/s	Attach Message.	Action	Input Loop Check Suppor
HART (Vokogawa N-Ro)				Select DTM., Pervice Viewer., Device Viewer., Compare and Generate Parameter Tag/Address Assignment () Export Device Maintenance Info	Report
				Install DD File Device Icon Setting	

Figure 4.1.3 Starting Up DTM by Action Button

IM 01E21A04-01EN

(Method 3) Click "Action" menu and select "Select DTM...".

رج mmu	Open Strice Maintenance Info	Viewer > HART					
	Select DTM Varanter Manager Device Vereer Compare and Generate Parameter Report Tag/Address Assignment	DGAWA (0x000037) XK644 (0x371A) Rev 1 D 371A000001 Vrite Protect :No	DEVICE STATUS More Statu COMMUNICATION RESPONSE No comma PRIMARY VARIABLE -0.005227% PRIMARY VARIABLE INSTANCE -0.12 % -0.005227% PRIMARY WARIABLE INSTANCE 0.03 % -0.12 % PRIMARY WARIABLE INSTANCE 0.03 % -0.12 % PRIMARY WARIABLE INSTANCE 0.03 % -0.12 % QUATERNARY VARIABLE 0.03 % -0.12 %	1117111111	Attach Message.	All Parameters	Input Loop Check Support
	Foport Device Maintenance Jots Instal DD File Device Icon Setting double RT (YOKOGAWA N-IO)						
							User ID :Default

F040104.ai

Figure 4.1.4 Starting Up DTM by Action Menu

(Method 4) Right-click on the Segment Viewer window and select "Select DTM...".

♦ Update X Cancel				-	
ommunication Path	Segment Viewer > HART				0 (
HART FOUNDATION fieldbus FOUNDATION fieldbus PROFBUS BRAIN SA100(Infrared) SA100(Gateway) HERT HART(Notbus(Hapter) Modbus HART (YOKOGAWA N-IO)	COCCAWA (BADOODST) ACCAWA (BADOODST) ACCAWA (BADOODST) BITAACOOD Write Protect 380	Device Mantenance Info Tag/Address Assignment Export Device Mantenance Info Tag/Address Assignment	Attach Message	All Parameters	Input Loop Check Suppor
		Device Icon Setting			User ID :Defaul

Figure 4.1.5 Starting Up DTM by Right-clicking

Step 3: Select one DTM for the model from the window and click "OK".
For the AXG models, select AXG4A FDT2.0 HART7 DTM.
For the AXW models, select AXW4A FDT2.0 HART7 DTM.
For the AXG1A models, select AXG1A FDT2.0 HART7 DTM.
For the CA models, select CA FDT2.0 HART7 DTM.

DTM Name	DTM Revision	DTM Vend
EJX910 FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
EJX910 FDT2.0 HART DTM	5.6.2.0	YOKOGAWA
ROTAMASS TI FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
EJX-DRS FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
YTA710 FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
YTA610 FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
AXG4A FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
AXW4A FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
HART Built-in DTM	3.6.4.1	YOKOGAWA
Assign selected DTM to this device	nodel. OK	Cancel

Figure 4.1.6 Selecting Target DTM

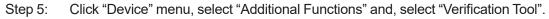
Step 4: Select data to be loaded and click "OK".

- Load from Database: Data saved in the database
- · Load from File: Data saved as "dns" format file
- Load Default Data: Data of the currently connected device

	DTM data of same device	e model	
Reason	Date/Time	DTM Name	DTM Vendor
VF_DATA1	8/12/2016 3:15:20 PM	AXG4A FDT2.0 HART7 DTM	YOKOGAWA
4	ш		÷.
C Load from			
		ОК	Cancel

Figure 4.1.7 Selecting Data to Load

Refer to the manuals for FieldMate on the database and "dns" format file. When performing a new verification, select "Load Default Data".



DTM Works	DTM]	
ile Viel Device ol Window Help		
Diconnect Uplond	armeter X	
Downlad		
Online Perimeter Offine Parameter	A) Tag : Message : Descriptor : Long Tag : wynte Protect : Yes	Yokogawa 🔶
Men Additional Functions	Venice Protect Venice Status Venication tool ce	
Properties	Factory Key	
AUX calculation Display	Write protect	Yes
Device information Protection Service parameter	E Enable write 10min	, ree
Factory parameter Diagnostic root menu	Software seal	Break
Hotkey		
Hotkey Loop test1 Loop test2		
Write Protect	Upload from device Download to device	Q —]— (
		OK Cancel Apply Help
		F040108

Figure 4.1.8 Selecting Verification Tool

Step 6: Enter the license number with 23 letters excluding hyphen "-" and click "Active" button. This is only for the first start-up after installation. Refer to Section 1.5 for the license key.

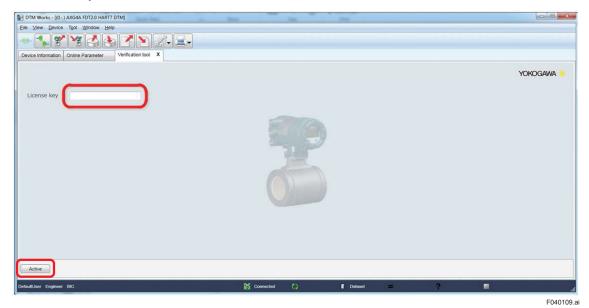


Figure 4.1.9 Entering License Key

4-5

Step 7: The license agreement shown in Section 1.4 is displayed. Confirm it and click "OK".

W License Agreeement	<
Yokogawa Electric Corporation FSA130 Electromagnetic Flowmeter / Vortex Flowmeter Verification Tool Software License Agreement	
IMPORTANT - PLEASE READ THIS AGREEMENT CAREFULLY:	III
BY INSTALLING OR OTHERWISE USING THIS SOFTWARE PRODUCT FSA130 ELECTROMAGNETIC FLOWMETER / VORTEX FLOWMETER VERIFICATION TOOL, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS OF THIS SOFTWARE LICENSE AGREEMENT ("AGREEMENT").	
IF YOU DO NOT AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT, DO NOT INSTALL OR USE THIS SOFTWARE PRODUCT AND PROMPTLY RETURN THE LICENSE NUMBER TO THE PLACE OF PURCHASE.	
1 Grant of License	
 Subject to the terms and conditions of this Agreement, Yokogawa Electric Corporation ("Licensor") hereby grants to you ("Licensee") a non-exclusive and non-transferable right to use the Verification Tool and associated materials and documentation in printed or electronic format (Collectively "Licensed Software"), in consideration of full payment by Licensee of the license fee separately agreed upon. (2) Except as otherwise permitted by the terms of this Agreement or otherwise provided by Licensor, Licensee shall: a) have the right to use the Licensed Software on the environment identified below or other	
OK Cancel	
F04(011

Figure 4.1.10 Confirming License Agreement

Then the Verification Tool will start up as below.

DTM Works - [(0 :) AXG4	I4A FDT2.0 HART7 DTM]	
Eile View Device Tool V	Window Help	
Device Information Online P	Parameter Verification tool X	
	Welcome to ADMAG Verification Tool	
Data load option :	Default	
	Select flow sensor type Default	
	Remote	
	O Integral	
	O Last Result	
	O Loaded from DB	
	Next	
		F04011

For the CA models, "Select flow sensor type" is not displayed.

Figure 4.1.11 Verification Tool Start-up Window

4.2 Start-up from "Device Navigator"

Step 1: Start up the FieldMate and Select the Device Navigator window (bottom left of the screen). If it is not displayed, select the Λ mark.

							0
evice Navigator	C Device List > HART (1)					Filter	-
All	Device Tag	Device ID	Protocol Ver	ndor Model	Device Revision Last	Update	
Protocol	0 🔓	➡ 371A000001		(OGAWA AXG4A 1	. 12/12	/2016 5:18:33 PM	
HART FOUNDATION fieldbus ROFIBUS BRAIN SALOO Modbus							
Favorites							

Figure 4.2.1 Device Navigator Window of the FieldMate

Step 2: Start up the DTM by any of the three methods.

(Method 1) Click pull-down icon on the device list and select "Select DTM...".

√ Update X Cancel									0	
evice Navigator 🗸	Device List > HART (1)							Filter	-	Î
All	Device Tag	Device ID	Protocol	Vendor	Model	Device Revision	Last Update			
Protocol	0 🚨	- 1A0000	01 🚾 HART	YOKOGAWA	AXG4A	1	12/12/2016 5:18:33 PM			
HART		Open De	evice Maintenance Inf	'o						
FOUNDATION fieldbus		Assia	DTM							
		Select D	тм							
BRAIN		Parame	ter Manager							
		D¥ New De	vice Maintenance Info	N-01	_					
ISA100			Device Maintenance In							
Modbus		-								
Other Other		Export (Device Maintenance I	1fo						
Favorites		Compar	e and Generate Parar	neter Report						
		Flag the	Device		÷					
		🖌 Add to F	avorites		ĸ					
		🐱 Delete f	rom Favorites							l
			D File					User	ID :Default	ri,
		Install L	DD File							

Figure 4.2.2 Starting Up DTM by Device List

ET Fi -= * t > HART (1) Device - < Filte All Tag Device ID Protocol Vendor Model Device Revision Last Update Select DTM 371A000001 🗰 HART YOKOGAWA AXG4A 1 12/12/2016 5:18:33 PM 4 Proto New Device Maintenance Info... Delete Device Maintenance Info ę ce Mai B Com are and Generate Parameter Report... 1 Flag the Device . M Add to Favorites . Ó Favor Install DD File ... Device Icon Setting... R User ID :DefaultUser

Figure 4.2.3 Starting Up DTM by Action Menu

(Method 3) Right-click on the device list and select "Select DTM...".

√ Update X Cancel												
Device Navigator	Device List > HA	RT (1)								Filter	-	1
All	Device Tag			Device ID	Protocol	Vendor	Model	Device Revision	Last Update			
Protocol	12			371A000001	HART	YOKOGAWA	AXG4A	1	12/12/2016 5:18:33 PM			
HART FOUNDATION fieldbus FOUNDATION fieldbus PROFIBUS BRAIN SA100 Modbus Other Favorites			pen Device Maintena signed DTM Hect DTM warmeter Manager ew Device Maintenar elete Device Mainten port Device Mainten port Device Mainten ag the Device ag the Device dt to Favorites	ce Info_ ance Info ance Info								
			elete from Favorites							User ID	:Default	U

Figure 4.2.4 Starting Up DTM by Right-clicking

(Method 2) Click "Action" menu and select "Select DTM...".

F040203.ai

Step 3: Select one DTM for the model from the window and click "OK".
For the AXG models, select AXG4A FDT2.0 HART7 DTM.
For the AXW models, select AXW4A FDT2.0 HART7 DTM.
For the AXG1A models, select AXG1A FDT2.0 HART7 DTM.
For the CA models, select CA FDT2.0 HART7 DTM.

DTM Name	DTM Revision	DTM Vend
EJX910 FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
EJX910 FDT2.0 HART DTM	5.6.2.0	YOKOGAWA
ROTAMASS TI FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
EJX-DRS FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
YTA710 FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
TA610 FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
AXG4A FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
AXW4A FDT2.0 HART7 DTM	5.6.2.0	YOKOGAWA
HART Built-in DTM	3.6.4.1	YOKOGAWA
Assign selected DTM to this device	model.	
	ОК	Cancel

Figure 4.2.5 Selecting Target DTM

Step 4: Select from which to load data for the Verification Tool and click "OK".
 Load from Database: Data saved in the database
 Load from File: Data saved as "dns" format file
 Load Default Date: Data of the currently connected device

	Date/Time 8/12/2016 3:15:20 PM III	DTM Name AXG4A FDT2.0 HART7 DTM	DTM Vendor YOKOGAWA
Coad from File		AXG4A FDT2.0 HART7 DTM	YOKOGAWA
_	ш		÷.
_			
	-		
		ОК	Cancel

Figure 4.2.6 Selecting Data to Load

Refer to manuals for FieldMate on the database and "dns" format file. When performing a new verification, select "Load Default Data".

Step	5:	Click	OK

Device Revision Selection	_		×
Device Revision:			
1	 	•	
		OK	F040211.ai

Step 6: Click Connection Icon

File	View Devi		/indow Help							
-		~ %		Z 🔊 💈	<i>"</i> -	-				
Devi	ice Informatio	n Offline Par	rameter X							
	De	vice Type	: CA(0x37	1E) Tag	-	Message	:			
	De De	vice ID	:	Descriptor	:	Long Tag	:			
	De	vice Revision	: 1	Write Protect	:					
Mer	nu(Offline)									
C Up	pload variable	s								
	Device/Datal	base Data						*	Edit Data	
	Tag							•		
	Long Tag							•		
	Descriptor							•		
							-			
										F040212.ai

Step 7: Click "Device" menu, select "Additional Functions" and, select "Verification Tool".

DTM Worke (0.) AXG4A FDT2.0 HART7 DTM	1	
le View Device pol Window Help		
evice Infor	arameter x	
Online Parameter Offline Parameter Offline Parameter Observe	 A) Tag Message : Descriptor : Long Tag : Write Protect : Yes 	YOKOGAWA 🔷
Additional Functions	Centersed Status Centersed Status Ce	
AUX calculation Display Device information Protection Service parameter	Write protect E Enable write 10min New password	Yes
 Factory parameter Diagnostic root menu 	Software seal	Break
Hotkey Loop test1 Loop test2		
Write Protect	Upload from device Download to device	<u> </u>
		OK Cancel Apply Help
		F0402

Figure 4.2.7 Selecting Verification Tool

Step 8: Enter the license key and click "Active" button. This is only for the first start-up after installation. Read Section 1.5 for the license key.

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DTM]	100	-		
Eile View Device Tool Window Help				
Device Information Online Parameter: Verification tool X				
				YOKOGAWA 🔶
License key				
	P			
Active				
DefaultUser Engineer BIC	Connected	🖡 Dataset 🛛 💻	?	•
				F040208.a

Figure 4.2.8 Entering License Key

Step 9: The license agreement shown in Section 1.4 is displayed. Confirm it and click "OK".

Yokogawa Electric Corporation	
FSA130 Electromagnetic Flowmeter / Vortex Flowmeter Verification Tool Software License Agreement	
MPORTANT - PLEASE READ THIS AGREEMENT CAREFULLY:	
BY INSTALLING OR OTHERWISE USING THIS SOFTWARE PRODUCT FSA130 ELECTROMAGNETIC FLOWMETER / VORTEX FLOWMETER VERIFICATION TOOL, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS OF THIS SOFTWARE LICENSE AGREEMENT ("AGREEMENT").	
F YOU DO NOT AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT, DO NOT NSTALL OR USE THIS SOFTWARE PRODUCT AND PROMPTLY RETURN THE LICENSE NUMBER TO THE PLACE OF PURCHASE.	
Grant of License	
 Subject to the terms and conditions of this Agreement, Yokogawa Electric Corporation ("Licensor") hereby grants to you ("Licensee") a non-exclusive and non-transferable right to use the Verification Tool and associated materials and documentation in printed or electronic format (Collectively "Licensed Software"), in consideration of full payment by Licensee of the license fee separately agreed upon. (2) Except as otherwise permitted by the terms of this Agreement or otherwise provided by Licensor, Licensee shall: 	
 a) have the right to use the Licensed Software on the environment identified below or other conditions defined by Licensee; 	
OK Cancel	
En	40

Figure 4.2.9 Confirming License Agreement

Then the Verification Tool will start up as below.

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DTM]	- 0 X
Elle Mew Device Tool Window Help	
Device Information Online Parameter Verification tool X	
Welcome to ADMAG Verification Tool	
Data load option : Default Select flow sensor type Remote Integral Last Result Loaded from DB Next	
	F040210.a

Figure 4.2.10 Verification Tool Start-up Window

5. Selecting Launching Mode

To begin with, select one of the three launching modes as shown below.

• Default

Select this mode when launching a new verification. Section 5.1 shows the operation.

Last Result

Select this mode when launching from the last verification result accidentally aborted by some error after the last start-up of the FieldMate on PC. Note that the data of the last result will be lost if the FieldMate is once exited from PC. Section 5.2 shows the operation.

Loaded from DB

Select this mode when launching from verification data stored in the database. Section 5.3 shows the operation.

DTM Works ~ [(0 :) AXG4A FDT2.0 HART7 DTM]	
Ele View Device Tool Window Help	
Device Information Online Parameter Verification tool X	
Welcome to ADMAG Verification Tool	
Data load option : Default Select flow sensor type Remote Integral Last Result Loaded from DB Default Default Default Default Next Next 	
	F050101.

For the CA models, "Select flow sensor type" is not displayed.

Figure 5.1.1 Verification Tool Launching Window

5.1 Default (Launching New Verification)

Follow the procedure below to launch a new verification.

- Step 1: Select "Default"
- Step 2: Select "Remote" or "Integral" depending on which type of device is to be verified.
 For the CA models, "Select flow sensor type" cannot be selected, so proceed to step 3.
- Step 3: Click "Next".

TM Works - [(0 :) AXG4A FDT2.0 HART7 DTM]
Vew Device Tool Window Help
rice Information Online Parameter Verification tool X
Welcome to ADMAG Verification Tool
3 Next
Event Viewer
ittUser Engineer BIC 💱 Connected 🔇 🖡 Dataset = 🤗 📑 🦽
F050102.#

Figure 5.1.2 Selecting "Default"

5.2 Last Result (Launching from Last Verification Result)

Follow the procedure below to launch from the last verification result if there is one saved and available.

Step 1: Select "Last Result"

Step 2: Click "Next".

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DTM]
Elle View Device Tool Window Help
Device Information Online Parameter Verification tool X
Welcome to ADMAG Verification Tool
Data load option :
Image: Connected Co
F050201

Figure 5.1.3 Selecting "Last Result"

5.3 Loaded from DB (Launching from Data in Database)

Follow the procedure below to launch from verification data stored in the database.

The loaded data from database by the procedure shown in Section 4.1 and 4.2 is used.

See the Step 4 in 4.1 (Start-up from "Segment Viewer") or 4.2 (Start-up from "Device Navigator").

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DTM]	• ×
Elle View Device Tgol Window Help	
Device Information Online Parameter. Verification tool X	
Welcome to ADMAG Verification Tool	
Data load option : Default Loaded from DB Loaded from DB	
(3) Next	
Event Viewer	
DefaultUser Engineer BIC 💱 Connected 🔇 🕼 Dataset 🚍 📍 📕	

Figure 5.1.4 Selecting "Loaded from DB"

F050301.ai

6. Basic Data Management

This chapter describes basic management on saving, loading, and locking verification data, prior to the description on the operation of Verification Tool in the following chapter.

6.1 Saving Verification Data

There are two ways to save verification data.

One is saving to database. The other is saving as "dns" format file.

Refer to manuals on FieldMate for the database and "dns" format file.

6.1.1 Saving to Database

Step 1: Click "Device" menu and select "Offline Parameter" from the menu window of the Verification Tool.

DTM Worden POLLAXG4A FDT2.0 HART7 DTM]		
File View Device tol Window Help		
- Disconect		
Device Infor % Upload on tool X		
ADMAG Verificati	an Tool	
	Standard Verification	
Circuit Offine Parameter Latest Results	Standard Vernication	
Device St Additional Functions	Start Verification	
Connectic 🚊 Reports		
Indicator, Properties		
Physical Appearance		
Result Latest Results	Enhanced Verification	
Analog Output	Analog Output	
Pulse Output	Pulse Output	
Transmitter	Transmitter	
Insulation Resistance	Insulation Resistance	
	Report	
Data Lock O ON 🖲 OFF	Generate Test Report	
efaultUser Engineer BIC	💕 Connected 🚫 📲 Dataset	= ?
		F06

Figure 6.1.1 Selecting "Offline Parameter"

Step 2: Click "Apply".

If "Apply" is not enabled, do not click it and proceed to step 3.

DTM Works - [(0 :) AXG4A FDT2.0	HART7 DTM]	tion in the second		100				E	
le <u>V</u> iew <u>D</u> evice T <u>o</u> ol <u>W</u> indo									
- 🕵 🛠 🧏 🔮									
levice Information Online Parame	eter Verification tool Offline Parameter X								
	000001 Descriptor :	Message : .ong Tag :						YOKO	igawa 🔸
Upload variables									
Device/Database Data			Edit Data						
Тад									
Long tag			(
Descriptor									
Message									
Date		۲							
Final asmbly num									
		-							
Upload from device	Import from file				Download	d to device	Export to file		0-0
							OK Cancel	Apply	Help
sultUser Engineer BIC		Connected	Q	Cataset	-	?			
									F0601

Figure 6.1.2 Applying "Offline Parameter"

Step 3: Click the icon "Save to Database"

evice Information Online Parameter	Verification tool Offlin	Parameter X							
Device Type : AXI Device ID : 000 Device Revision : 1 tenu(Offline)	64A(0x371A) Tag 1001 Descriptor Write Protect	Long Tag						YOKOGAV	VA .
Upload variables									
Device/Database Data				Edit Data					
Tag									
Long tag									
Descriptor									
Message			•						
Date			•						
Final asmbly num				1					
2000 C									
Upload from device	Import from file				Download	to device	Export to file		
							OK Cancel	Apply	Help

Figure 6.1.3 Clicking "Save to Database"

Step 4: Enter registration name and click "OK".



Figure 6.1.4 Entering Registration Name

Step 5: Click "OK" to finish.



Figure 6.1.5 Saving to Database Completed

6.1.2 Saving as "dns" Format File

Step 1: Click "Device" menu and select "Offline Parameter" from the menu window of the Verification Tool.

DTM Works - ((0 :) AXG4A FDT2.0 HART7 DTM]						
File View Device tool Window Help	N Z- Z -					
Device Infor	on tool X					
Download	ADMAG Verificatio	on Tool				
Offline Parameter	Latest Results	Standard Verification				
Circuit Coserve Device St Additional Functions		Start Verification	>			
Connectic 🚊 Reports 🔸						
Indicator, Properties						
Physical Appearance						
Result	Latest Results	Enhanced Verification				
Analog Output		Analog Output	>			
Pulse Output		Pulse Output	>			
Transmitter		Transmitter	>			
Insulation Resistance		Insulation Resistance	>			
		Report				
Data Lock O ON 💿 OFF		Generate Test Report				
ofaultUser Engineer BIC		😂 Connected	Dataset	=	?	
						F060

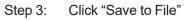
Figure 6.1.6 Selecting "Offline Parameter"

Step 2: Click the icon "Apply".

If "Apply" is not enabled, do not click it and proceed to step 3.

okogawa 🧯	YC					Message :	Verification tool Offline Parameter 4A(0x371A) Tag	Device Information Online Parameter
						Long Tag	01 Descriptor : Write Protect : No	Device ID : 000001
								Upload variables
					Edit Data			Device/Database Data
								Tag
								Long tag
								Descriptor
								Message
								Date
								Final asmbly num
								Distributor
	ort to file	Export to file	ownload to device	Dow			nport from file	Upload from device Impor
	ort to file	Export to file.	ownload to device					Date Final asmbly num Distributor

Figure 6.1.7 Applying "Offline Parameter"



* * *	31 N						
ce Information Online Paramete	r Verifica	Offline Parameter X					
Device ID : 00 Device Revision : 1			essage : ng Tag :				YOKOGAWA
nu(Offline)							
pload variables			*	Edit Data			
Tag			•	Edit Gata			
Long tag							
Descriptor							
Classification							
Message							
Date							
Final asmbly num							
Distributor							
Upload from device	Import from file				Download to device	Export to file	
						Cancel	Apply He
Event Viewer							

Figure 6.1.8 Clicking "Save to File"

Step 4: Enter file name and click "Save".

	235					4	ilea -	
Organize 🔻 New folde	r	11.12					• ==	(
Favorites Desktop Desktop Downloads Waries Libraries Documents Music Music Music Subversion Subversion Videos	E	*	Date modified No items mat	Type	Size			
Computer	es (*.dns)							
Hide Folders					1	<u>S</u> ave	Can	

Figure 6.1.9 Entering File Name

Step 5: Click "OK" to finish.

ОК

Figure 6.1.10 Saving to Database Completed

6.2 Loading Verification Data

There are two ways to load verification data.

One is loading data during starting up the DTM. The other is loading data after starting up the DTM.

Refer to manuals on FieldMate for the database.

6.2.1 Loading during Starting Up DTM

- Step 1: Select "Load from Database" in the window below which appears during starting up DTM.
- Step 2: Select data from the list.
- Step 3: Click "OK".

Display D	TM data of same device n	nodel	
Reason	Date/Time	DTM Name	DT
VF_DATA1	8/12/2016 3:15:20 PM	AXG4A FDT2.0 HART7 DTM	YC
	111		
	File		

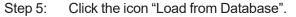
Figure 6.2.1 Loading during Starting Up DTM

6.2.2 Loading after Starting Up DTM

Step 4: Click "Device" menu and select "Offline Parameter".

Infor 8	Deconnect Uploted Downloted	on tool X		
	Offline Parameter	undard Verification		
rific 🚊	Reports	To run verification under "No Flo		
D Te	Properties	To proceed "LCD test", press "Sk Test condition	Flow	
ysical Ap	pearance	Circuit Magnetic Circuit Excitation Circuit Calculation Circuit Device Status Alarm Check Alarm History Connection Status Cable Connect Status Indicator/B Check Indicator/Status	(12/8/2016 2:49:40 PM) Passed Passed Passed Passed Passed Passed Passed Passed Passed	
				Back Next Skip Done Abort

Figure 6.2.2 Selecting "Offline Parameter"



vice Information Online	Offline Parameter X							
	XG4A(0x371A) Tag : 00001 Descriptor : Write Protect : No	Message : Long Tag :						YOKOGAWA
Jpload variables								
Device/Database Data			*	Edit Data				
Тад			•					
Long tag		(•					
Descriptor		(*					
Message		(•					
Date		(•					
Upload from device	Import from file				Download	to device	Export to file]
							OK (Cancel	Apply Hel

Figure 6.2.3 Clicking "Load from Database"

Step 6: Click "Yes".

Â	Communication with the device will temporarily pause. Current instance of DTM will be unloaded and reloaded with the selected data. Do you wish to continue?
	6 Yes No

Figure 6.2.4 Loading from database

Step 7: Select data to load.

Step 8: Click "OK".

9-19-5 F - 5-	n Database DTM data of same device	model	
Reason	Date/Time	DTM Name	DTI
VF_DATA	1 8/12/2016 3:15:20 PM	AXG4A FDT2.0 HART7 DTM	YO
4	111		





When the data was loaded while the Verification Tool was already operating, it is necessary to restart the Verification Tool again to make the loaded data effective.

Click "X" on the "Verification tool" tab to finish. Refer to Step 5 of Section 4.1 (Start-up from "Segment Viewer") or Section 4.2 (Start-up from "Device Navigator") for restart procedure.

6.3 Locking Verification Data

Verification data can be locked so that it cannot be edited. To lock the data, select "ON" button at "Data Lock" as shown in the window below. Click "OK" and the buttons except for "Generate Test Report" are disabled, making it impossible to edit the data.

Circuit	Result Passed (Flow)	Latest Results		
Circuit		12/19/2016 11:48:44 AM	Standard Verification	
	Passed (No Flow)	12/19/2016 11:35:09 AM	Start Venification	>
	Passed	12/19/2016 11:48:44 AM		
Connection Status	Passed	12/19/2016 11:48:44 AM		
	Passed	12/19/2016 12:22:49 PM		
Physical Appearance	Passed	12/19/2016 12:23:16 PM		
	Result	Latest Results	Enhanced Verification	
Analog Output	Passed	12/19/2016 12:29:33 PM	Analog Output	>
Pulse Output	Passed	12/19/2016 12:30:20 PM	Pulse Output	>
Analog Input	Passed	12/19/2016 12:32:42 PM	Analog Input	>
Transmitter	Passed	12/19/2016 1:05:02 PM	Transmitter	>
Insulation Resistance	Passed	12/20/2016 1:07:42 PM	Insulation Resistance	>
			Report	
Data Lock ON	OFF		Generate Test Report	

Figure 6.3.1 Locking Verification Data

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Below is an example of loading verification data that has been locked and saved. After clicking "OK", the window shows a key-shaped icon below indicating that the data is locked.

	<i>7</i> .2.						
Parameter Verification tool							
Welcome to AD	MAG Verification 1	Tool	â				
Result	Latest Results	Standard Verification					
Passed (Flow)	12/19/2016 11:48:44 AM						
Passed (No Flow)	12/19/2016 11:35:09 AM	Start Verification	>				
Passed	12/19/2016 11:48:44 AM						
Passed	12/19/2016 11:48:44 AM						
Passed	12/19/2016 12:22:49 PM						
Passed	12/19/2016 12:23:16 PM						
Result	Latest Results	Enhanced Verification					
Passed	12/19/2016 12:29:33 PM	Analog Output	>				
Passed	12/19/2016 12:30:20 PM	Pulse Output	>				
Passed	12/19/2016 12:32:42 PM	Analog Input	>				
Passed	12/19/2016 1:05:02 PM	Transmitter	>				
Passed	12/20/2016 1:07:42 PM	Insulation Resistance	>				
		Report					
		Generate Test Report					
		S Connected	Cotaset		2		
	Result Passed (Flow) Passed (No Flow) Passed	Result Latest Results Passed (Flow) 12/19/2016 11:48:44 AM Passed (No Flow) 12/19/2016 11:48:44 AM Passed 12/19/2016 11:48:44 AM Passed 12/19/2016 11:48:44 AM Passed 12/19/2016 11:48:44 AM Passed 12/19/2016 12:22:49 PM Passed 12/19/2016 12:22:49 PM Passed 12/19/2016 12:22:33 FM Passed 12/19/2016 12:29:33 PM Passed 12/19/2016 12:30:20 PM Passed 12/19/2016 12:32:42 PM Passed 12/19/2016 12:30:20 PM Passed 12/19/2016 12:32:42 PM Passed 12/19/2016 12:30:20 PM	 Passed (Flow) 12/19/2016 11:48:44 AM Passed (No Flow) 12/19/2016 11:35:09 AM Passed 12/19/2016 11:48:44 AM Passed 12/19/2016 12:22:49 PM Passed 12/19/2016 12:22:316 PM Result Latest Results Passed 12/19/2016 12:23:37 PM Passed 12/19/2016 12:23:37 PM Passed 12/19/2016 12:23:37 PM Passed 12/19/2016 12:23:42 PM Passed 12/19/2016 12:23:42 PM Passed 12/19/2016 12:23:42 PM Passed 12/19/2016 12:32:42 PM Passed 12/19/2016 12:32:42 PM Passed 12/19/2016 12:05:02 PM Passed 12/20/2016 1:07:42 PM Insulation Resistance 	Result Latest Results Standard Verification Passed (Flow) 12/19/2016 11:48:44 AM Start Verification Passed 12/19/2016 11:48:44 AM Start Verification Passed 12/19/2016 11:48:44 AM Start Verification Passed 12/19/2016 11:22:34 PM Start Verification Passed 12/19/2016 11:22:316 PM Financed Verification Passed 12/19/2016 12:23:31 PM Analog Output Passed 12/19/2016 12:30:20 PM Pulse Output Passed 12/19/2016 12:30:20 PM Transmitter Passed 12/19/2016 12:05:02 PM Transmitter Passed 12/20/2016 1:05:02 PM Transmitter Passed 12/20/2016 1:07:42 PM Insulation Resistance	Result Latest Results Standard Verification Passed (Flow) 12/19/2016 11:48:44 AM Start Verification Passed (No Flow) 12/19/2016 11:48:44 AM Start Verification Passed 12/19/2016 11:48:44 AM Passed Passed 12/19/2016 11:48:44 AM Passed Passed 12/19/2016 11:23:16 PM Passed Passed 12/19/2016 12:23:16 PM Passed Passed 12/19/2016 12:30:20 PM Pube Output Passed 12/19/2016 12:30:20 PM Pube Output Passed 12/19/2016 12:30:20 PM Transmitter Passed 12/19/2016 12:30:20 PM Transmitter Passed 12/19/2016 12:30:20 PM Transmitter Passed 12/19/2016 1:05:02 PM Transmitter Passed 12/20/2016 1:07:42 PM Insolation Resistance Passed 12/20/2016 1:07:42 PM Eeport	Result Latest Results Standard Verification Passed (Flow) 12/19/2016 11:48:44 AM Start Verification Passed 12/19/2016 11:48:44 AM Start Verification Passed 12/19/2016 11:48:44 AM Start Verification Passed 12/19/2016 11:22:49 PM Start Verification Passed 12/19/2016 12:22:49 PM Start Verification Passed 12/19/2016 12:22:49 PM Analog Output Passed 12/19/2016 12:23:31 PM Analog Output Passed 12/19/2016 12:23:49 PM Analog Output Passed 12/19/2016 12:30:20 PM Pulse Output Passed 12/19/2016 12:32:42 PM Analog Input Passed 12/19/2016 1:05:02 PM Transmitter Passed 12/20/2016 1:07:42 PM Insulation Resistance Passed 12/19/2016 1:07:42 PM Insulation Resistance	Result Latest Results Standard Verification Passed (Flow) 12/19/2016 11:48:44 AM Start Verification Passed 12/19/2016 11:48:44 AM Start Verification Passed 12/19/2016 11:48:44 AM Start Verification Passed 12/19/2016 11:22:49 PM Start Verification Passed 12/19/2016 12:22:49 PM Start Verification Passed 12/19/2016 12:22:49 PM Analog Output Passed 12/19/2016 12:23:16 PM Pulse Output Passed 12/19/2016 12:23:20 PM Pulse Output Passed 12/19/2016 12:30:20 PM Pulse Output Passed 12/19/2016 12:32:42 PM Analog Input Passed 12/19/2016 12:32:42 PM Analog Input Passed 12/19/2016 1:05:02 PM Transmitter Passed 12/19/2016 1:05:02 PM Transmitter Passed 12/19/2016 1:05:02 PM Transmitter Passed 12/20/2016 1:07:42 PM Insulation Resistance Passed 12/20/2016 1:07:42 PM Insulation Resistance

Figure 6.3.2 Locked Verification Data

7. Operation

This chapter describes how to use this Verification Tool.

The figure below shows general procedure of the verification. The number in the figure shows the section to be referred to. Perform the Standard VF at first. Then perform the Enhanced VF if necessary. After that, the test report can be generated and printed out. The test report shows "Overall Status".

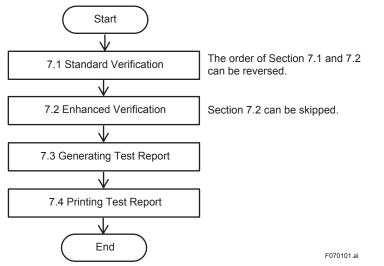


Figure 7.1.1 General Procedure of Verification



- Be sure to always perform Standard VF because "Overall Status" in the verification report is generated only when "Standard VF" is being completed. If not being completed, "Overall Status" is not indicated.
- The verification report can be generated and printed even when "Standard VF" is not being completed.

7.1 Standard Verification

🛕 IMPORTANT

Do not turn off the power for the AXG/AXW/CA maginetic flowmeter at least for 10 minutes after finishing the verification. If you turn the power off immediately, some of the parameters may be changed to different values from ones before performing the verification.

- If Verification Tool turns to "offline" mode due to wiring disconnections, reconnect FieldMate and the AXG/AXW/CA magnetic flowmeter. Verification Tool will be restored to "online" mode again.
- Fill the inside of the AXG/AXW/CA pipe with fluid. If it is not in the full state, the result may not be accurate.

The figure below shows the procedure of the Standard VF. The number in the figure shows the chapter or section to be referred to.

The order in which the tests are performed can be freely determined.

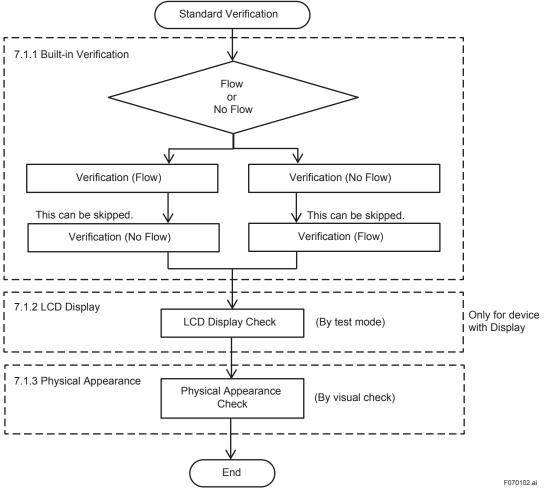


Figure 7.1.2 Procedure of Standard Verification

Click "Start Verification" in the window below to start the Standard VF.

DTM Works - [[0]] AXG4A FDT2.0 HART7 DTM		- 0
Elle Mew Device Tool Window Help		
- 1, 7 19 3 3 3 7 10 2- 1-		
Device Information Online Parameter Verification tool X		
Welcome to ADMAG Verification	1 Tool	
Result Lates: Results Circuit Device Status Connection Status Idicator/G Dheck	Standard Verification	
Physical Appearance		
Result Latest Results	Enhanced Verification	
Analog Output	Analog Output	
Pulse Output	Pulse Output	
Analog Input	Analog Input	
Transmitter	Transmitter >	
Insulation Resistance	Insulation Resistance	
	Report	
Data Lock O ON @ OFF	Generate Test Report	
DefaultUser Engineer BIC	💕 Connected 🔇	E Dataset = ?

Figure 7.1.3 Starting Standard Verification

7-3

7.1.1 Built-in Verification Check

The Verification Tool utilizes the "Built-in Verification" function of the AXG/AXW/CA magnetic flowmeter as a part of the Standard VF.

It checks the circuits (of magnetic field, excitation, and calculation), device status (alarm occurrence), wiring connection status (of signal and excitation cables), and the status of indicator / display board. Note that it takes approximately 15 minutes (approximately 6 minutes for a CA model) to complete this part.

The verification here is performed in two statuses. One is the status in which the fluid is flowing in the AXG/AXW/CA magnetic flowmeter. The other is the status in which the fluid is not flowing, which means the flow velocity is zero. Either of them can be performed first.

Step 1: If the fluid is flowing, click "1. Flow". If not flowing, click "1. No Flow".

DTM Works - [(0 :) AXG4A FDT2.0 HA	RT7 DTM]
Eile View Device Tool Window Help	
Device Information Online Parameter	Verification tool X Offline Parameter
Select Verification Order Running Verification Verification Completed	Standard Verification Please select verification order
	1. Flow 1. No Flow
LCD Test	
Physical Appearance	(Ensure full pipe and flow) > (Ensure full pipe with no flow) >
Result	2. No Flow 2. Flow
	Back Next Skip Done Abort
Event Viewer	
DefaultUser Engineer BIC	🛐 Connected 🚫 👔 Dataset 📰 ?

Figure 7.1.4 Selecting Order of Verification

Step 2: Below is the case when selecting "No Flow" status. Make sure that the pipe of the AXG/AXW/CA magnetic flowmeter is full with fluid and it is not flowing. Then click "OK".

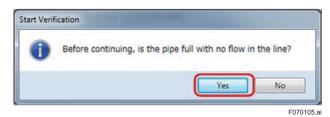


Figure 7.1.5 Start of Verification

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7-5

F070106.ai

Step 3: The progress of the verification work and remaining time is displayed. When the progress reaches to 100%, the window of parameter reading for the verification result is displayed.

DTM Works - [(0 :) AXG4A FDT2.0 H	ART7 DTM]
Eile View Device Tool Window Help)
Device Information Online Parameter	Verification tool X Offline Parameter
Select Verification Order Running Verification Verification Completed LCD Test	Standard Verification No Flow Time remaining 727 sec. 2%
Physical Appearance Result	Back Next Skip Done Abort
Event Viewer	
DefaultUser Engineer BIC	💕 Connected 🚺 🖡 Dataset 🚍 ? 🔳

Figure 7.1.6 Progress Bar of Verification

DTM Works - ((0 :) AXG4A FDT2.0 HART No View Device Tgol Window He		
vice Information Online Parameter		
المحمد الم		
	Standard Verification	
Running Verification		
	Reading parameter	
* Event Vouwer witcher Engineer BC	S Convector () I Denored	

Figure 7.1.7 Parameter Reading for Verification Result

- Step 4: Below is an example showing the result, "Passed" (operating properly) or "Failed" (not operating properly) for each item.
- Step 5: Click "Next" and the verification continues with the other status ("Flow" or "No Flow") which was not selected at first. Continue from Step 2 for the other status.

Step 6: Click "Skip" to finish the procedure in this subsection.



Figure 7.1.8 Example of Verification Result

7.1.2 LCD Display Check

7.1.1 Built-in verification checks the display status, but here the LCD display is checked.

Step 1: When skipping this check, check "N/A" and go to Step 4.

Step 2: Click "Start LCD Test" to check the LCD display.

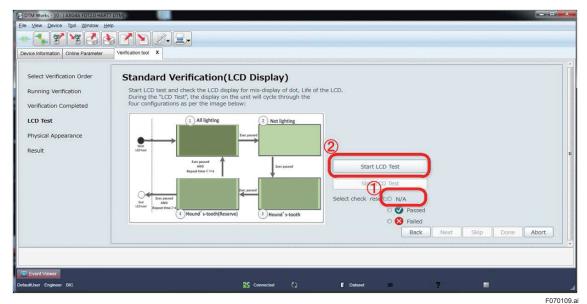


Figure 7.1.9 Starting LCD Display Check

- Step 3: If the LCD display is cycling through the four configurations (all lighting, not lighting, hound's tooth, and reversed hound's tooth) as per the image below, select "Passed". If not, select "Failed". The image changes at a cycle of 2 seconds, making 8 seconds for one round, and continuing 4 rounds for totally 32 seconds.
- Step 4: Click "Stop LCD Test", and Click "Next" to go to the next procedure.

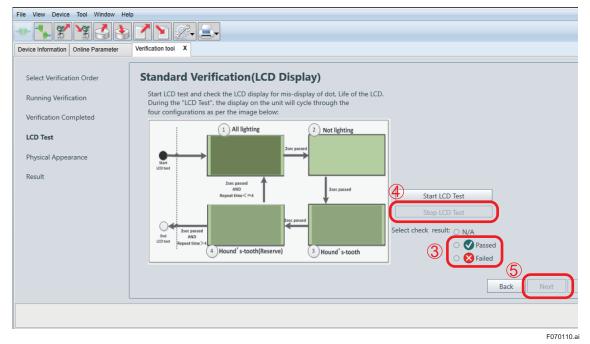


Figure 7.1.10 Judging LCD Display Check

7.1.3 Physical Appearance Check

Check visually the physical appearance of flow sensor, transmitter, and connected cables of the AXG/AXW/CA magnetic flowmeter.

- Step 1: Check visually the physical appearance of flow sensor if it has deformation, damage, corrosion, cracks, wear, or leakage. Select "Passed" if it has no such matters. Select "Failed" if it has any of such matters. Or select "N/A" to skip this check.
- Step 2: Check visually the physical appearance of transmitter if it has damage, corrosion, dews inside the housing, or corrosion on printed-circuit board. Select "Passed" if it has no such matters. Select "Failed" if it has any of such matters. Or select "N/A" to pass this check.
- Step 3: Click "Next" to show the result of the Standard VF.

DTM Works - [(0 :) AXG4A FDT2.0 HAR		
e ⊻iew <u>D</u> evice T <u>o</u> ol <u>W</u> indow <u>H</u>	jelp	
	▶ ४ № 2. ⊒.	
vice Information Online Parameter	Verification tool X	
Select Verification Order	Standard Verification(Physical Appearance)	
Running Verification	Flow Sensor	
	Check the Flow sensor and the Cables connected to the Flow sensor for:	
Verification Completed	*Deformation, Damage, Corrosion, Cracking, Signs of Abrasion and any Leaks.	
LCD Test	Select check result of Flow Sensor: 💿 N/A	
Physical Appearance	○ 😣 Failed	
Result		
	Transmitter	
	Check the Transmitter and the Cables connected to the Transmitter for:	
	*Corrosion, Damage, moisture in the housing, corroded terminals.	
	Select check result of Transmitter:	
	Passed	
	S Failed	
	Back	Skip Done Abort
Event Viewer		
ullUser Engineer BIC	💕 Connected 🔇 🖤 Dataset 🚍 📍	
		E07

Figure 7.1.11 Physical Appearance Check

Step 4: Click "Done" to finish the Standard VF.

ce Information Online Parameter	Verification tool X					
elect Verification Order	Standard Verificatio	n				
tunning Verification	Result					
erification Completed	Test condition	Flow		No Flow		
		(12/19/201	6 11:48:44 AM	I) (12/19/2016 11:35:09 AM)		
CD Test	Circuit					
forming the second second	Magnetic Circuit	Passed		Passed		
hysical Appearance	Excitation Circuit	Passed		Ø Passed		
esult	Calculation Circuit	Passed		Passed		
	Device Status	-				
	Alarm Check	Passed		Passed		
	Alarm History	Passed		V Passed		
	Connection Status					
	Cable Connect Status	Passed		Passed		
	Indicator/B Check					
	Indicator Status	Passed	ingen i	✓ Passed		
	LCD display		Passed			
	Physical Appearance					
	Flow Sensor		Passed			
	Transmitter		Passed		<u>A</u>	
					(4)	
					Back Next Skip De	one
					Back Next Sup	une provic

Figure 7.1.12 Result of Standard VF

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7.2 **Enhanced Verification**



- Before performing the Enhanced VF turn off the power for AXG/AXW/CA magnetic flowmeter and demount it from piping as it is necessary to change its input/output wiring.
- The connection diagram for wiring is displayed when the verification for input/output is performed. However, the diagrams are different depending on the specification of each AXG/AXW/CA magnetic flowmeter model. Note that the diagrams appear in this manual are just examples and follow the actually displayed diagram when wiring.
- If Verification Tool turns to "offline" mode due to wiring disconnections, reconnect FieldMate and the AXG/AXW/CA magnetic flowmeter. Verification Tool will be restored to "online" mode again.

The figure below shows the procedure of the Enhanced VF. The details are in the following subsections. The number in the figure shows the subsection to be referred to.

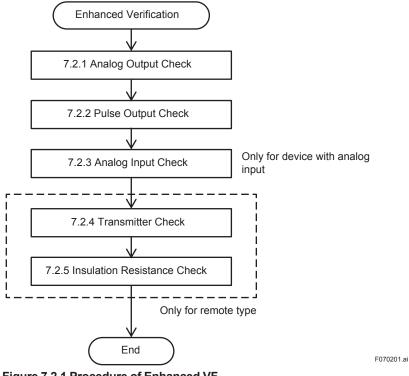


Figure 7.2.1 Procedure of Enhanced VF

NOTE

Note for Entering Result Value:

In the Enhanced VF, you may need to enter the value manually in the result field for "Passed" or "Failed" judgment. In this case, please input the numerical value in the result field and then press the Enter key or click on the Verification Tool window. By doing so, the judgment is carried out and the button for transition to the next window becomes effective.

7.2.1 Analog Output Check

The check for analog outputs "AO1" and "AO2" is available. "AO2" is an optional output and only displayed when it is equipped with the AXG/AXW/CA magnetic flowmeter.

Follow the procedure below to check the current output by a measuring instrument (CA500 or equivalent) for each at 4, 12, and 20 mA.

Step 1: Click "Analog Outp

DTM Works - [(0 :) AXG4	A FDT2.0 HART7 DTM]							
Elle <u>V</u> iew <u>D</u> evice T <u>o</u> ol	I <u>W</u> indow <u>H</u> elp							
•• 🕵 😤 🎽	: <u></u>	<u>2-</u> 2-						
Device Information Onlin	e Parameter Verification tool	x						
	Welcome to AD	MAG Verification T	ool					
	Result	Latest Results	Standard Verification					
Circuit	Passed (Flow)	12/19/2016 11:48:44 AM						
Circuit	Passed (No Flow)	12/19/2016 11:35:09 AM	Start Verification	>				
Device Status	Passed	12/19/2016 11:48:44 AM						
Connection Status	Passed	12/19/2016 11:48:44 AM						
Indicator/B Check	Passed	12/19/2016 12:22:49 PM						
Physical Appearance	Passed	12/19/2016 12:23:16 PM						
	Result	Latest Results	Enhanced Verification					
Analog Output		1	Analog Output	>				
Pulse Output			Pulse Output	>				
Analog Input			Analog Input	>				
Transmitter			Transmitter	>				
Insulation Resistance	5		Insulation Resistance	>				
			Report					
Data Lock O ON	OFF		Generate Test Report					
Event Viewer								
DefaultUser Engineer BIC			Connected	Cataset	=	?	-	
								F070204.

Figure 7.2.4 Selecting Analog Output Check

- Step 2: "N/A" can be checked for "AO1" and "AO2" individually to skip the check for one of them or both.
- Step 3: Click "Start Verification" to perform the check.

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DTM]		
Elle View Device Tool Window Help		
- * * * * 6 3 7 2 I-		
Device Information Online Parameter Verification tool X		
Analog Output	Latest Results 3 Start Verification	
AQ2 III N/A	Latest Results	
4mA	Start Verification	
		Back
The Event Viewer		
DefaultUser Engineer BIC	🚰 Connected 🔇 👔 Dataset 💻	?
		F070205

Figure 7.2.5 Starting Analog Output Check

Step 4: Perform wiring connection to the analog output terminals referring the displayed diagram. Note that the diagram shown below is an example and becomes different depending on the specification of the AXG/AXW/CA magnetic flowmeter. Click "Next" to continue.

TM Works - [(0 :) AXG4A FDT2.0	
View Device Tool Window He	
- 🕵 🕱 🔮 👌	
vice Information Online Parameter	Verification tool X
Connection Output & Measure 4mA Output & Measure 12mA Output & Measure 20mA Result	Analog Output Connect a Yokogawa CA150 Handy Calibrator or equivalent to the target IO terminal. Set the Digital Multimeter(CA150 or similar) to measure the current in "mA". IO1-4 assignment are as follows. IO1-4 assignment are as follows. IO1-4 assignment are as follows. IO2: PO1/SOI(Plassive) IO2: PO1/SOI(Plassive) IO2: A(Active) Analog Output(Active) · Use a Yokogawa CA150 Handy Calibrator or similar. · Set the Digital Multimeter(CA150 or similar) to measure the current in "mA". · Use a Yokogawa CA150 Handy Calibrator or similar. · Use a Yokogawa CA150 Handy Calibrator or similar. · Set the Digital Multimeter (CA150 or similar. · Set the Digital Multimeter
	(4)
	Back Next Skip Done Abort
Event Viewer	
tUser Engineer BIC	🚰 Connected 🜔 🔳 Dataset 💻 📍 📕

Figure 7.2.6 Wiring for Analog Output Check

Step 5: Current value to be checked is indicated. Click "Next" to continue.

DTM Works - [(0 :) AXG4A FDT2.0	HART7 DTM]						
Eile View Device Tool Window He	Np						
	8 🕈 🖹 🦾 呈	-					
Device Information Online Parameter	Verification tool X						
Connection Output & Measure 4mA Output & Measure 12mA Output & Measure 20mA	Analog Outpur A01 Setting Value AmA 12mA	t Measured(mA)	Error(%)	Result			
Result	20mA						
						5 Back Next	Stop Done Abort
Event Viewer DefaultUser Engineer BIC		D.C.	🕤 Connected 🛛 🔇	🖡 Dotaset	=	?	<u> </u>
							F070207.

Figure 7.2.7 Continuing Analog Output Check

Step 6: Read the current value measured by the measuring instrument against 4 mA and enter it in the "Enter measured value (mA)" field.

Step 7: Click "Next" to continue.

	ART7 DTM]				0
e ⊻lew <u>D</u> evice T <u>o</u> ol <u>W</u> indow	Help				
- 🕵 😤 🏅	🕭 🖍 🕥 🖉 🗐 🛃				
evice Information Online Parameter					
			a an olde an older an an and an	non in antono a null in our and i	n Mar an canadan an ana an
Connection	Analog Output				
Output & Measure 4mA	4mA output				
Output & Measure 12mA		nA). Error(%)	Result		
	6 3.999	-0.01	Passed		
Output & Measure 20mA					
Result					
				ā	
				Back Next	kip Done Abort
				Back Next	ikip Done Abort
				7 Back Next	ikip Done Abort
Count Verseur				Back Next	ikip Done Abort

Figure 7.2.8 Entering Measured Analog Output Value

Step 8: Current value to be checked is indicated. Click "Next" to continue.

DTM Works - [(0 :) AXG4A FDT2.0 HART	7 DTM]					
Eile <u>V</u> iew <u>D</u> evice T <u>o</u> ol <u>W</u> indow <u>H</u> e	lp					
- 🕵 🛠 😽 👌 👌	8 🖍 🖻 🖉 🖉	.				
Device Information Online Parameter	Verification tool X					
Connection	Analog Outp	ut				
Output & Measure 4mA	A01					
Output & Measure 12mA	Setting Value	Measured(mA)	Error(%)	Result		
Output & Measure 20mA	4mA → 12mA	3.999	-0.01	Passed		
Result	20mA					
					(8)	
					Back	Next Skip Done Abort
Event Viewer						
VefaultUser Engineer BIC			Connected 🚺	Cotaset	= ?	

Figure 7.2.9 Continuing Analog Output Check

Step 9: Read the current value measured by the measuring instrument against 12 mA and enter it in the "Enter measured value (mA)" field.

Step 10: Click "Next" to continue.

DTM Works - [(0 :) AXG4A FDT2.0 HAR	T7 DTM]					
Eile View Device Tool Window H						
	§ ↗ ਙ Z- I-					
Device Information Online Parameter	Verification tool X					
1						1
Connection	Analog Output					
Output & Measure 4mA	12mA output					
Output & Measure 12mA	Enter measured value(mA).	Error(%)	Result			
Output & Measure 20mA	9 11.999	-0.01	Passed			
Result						
				(10		
				Back	Next Skip	Done Abort
Event Viewer						
DefauttUser Engineer BIC		Connected	C) 🖡 Dataset	=	? =	4
						F070210.a

Figure 7.2.10 Entering Analog Output Value

Step 11: Click "Next" to continue.

DTM Works - [(0 :) AXG4A FDT2.0 HART	7 DTMJ					
Eile View Device Tool Window He	alp					
) * ` [2-]					
Device Information Online Parameter	Verification tool X					
Connection	Analog Outp	ut				
Output & Measure 4mA	A01					
Output & Measure 12mA	Setting Value	Measured(mA)	Error(%)	Result		
Output & Measure 20mA	4mA	3.999	-0.01	Passed		
	12mA	11.999	-0.01	Passed		
Result	→ 20mA					
					Back Next Skip	Done Abort
Event Viewer			_			
DefaultUser Engineer BIC		5	🖞 Connected 🔇	Cotaset	= ?	
						F070211

Figure 7.2.11 Continuing Analog Output Check

Step 12: Read the current value measured by the measuring instrument against 20 mA and enter it in the "Enter measured value (mA)" field.

Step 13: Click "Next" to continue.

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DTM]			
Elle View Device Tool Window Help			
• 🐛 🐒 🧏 🛃 🍼 🖌 🖉 =			
Device Information Online Parameter Verification tool X			
Connection Analog Output			
Output & Measure 4mA 20mA output			
Output & Measure 12mA	Error(%)	Result	
Output & Measure 20mA	-0.01	Passed	
Result			
Result			
			(13)
			Back Next Skip Done Abort
Event Viewer	Connected	() 🛙 Dataset	
			= ? 1

Figure 7.2.12 Entering Analog Output Value

Step 14: Click "Done" to go back to the starting window of analog output check.

Connection	Analog Outp	ut			
Output & Measure 4mA	A01				
output & Measure 12mA	Setting Value	Measured(mA)	Error(%)	Result	
uput & Heasure 12/11A	4mA	3.999	-0.01	Passed	
Output & Measure 20mA	12mA	11.999	-0.01	Passed	
Result	20mA	19.999	-0.01	Passed	
					Back Next Skip Done Inbo

Figure 7.2.13 Continuing Analog Output Check

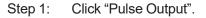
Step 15: When performing the check for "AO2", follow the same procedure as for "AO1". To finish the analog output check, click "Back".

R

Figure 7.2.14 Finishing Analog Output Check

7.2.2 Pulse Output Check

The check for pulse outputs "PO1" and "PO2" is available. "PO2" is an optional output and only displayed when it is equipped with the AXG/AXW/CA magnetic flowmeter.



DTM Works - [(0 :) AXG4	A FDT2.0 HART7 DTM]					
ile ⊻iew <u>D</u> evice T <u>o</u> ol	<u>Window</u> Help					
•• 🔧 😤 🧐	I S P V D					
Device Information Online	e Parameter Verification tool	x				
	Welcome to AD	MAG Verification 1	Tool			
	Result	Latest Results	Standard Verification			
Circuit	Passed (Flow)	12/19/2016 11:48:44 AM				
	Passed (No Flow)	12/19/2016 11:35:09 AM	Start Verification	>		
Device Status	Passed	12/19/2016 11:48:44 AM				
Connection Status	V Passed	12/19/2016 11:48:44 AM				
Indicator/B Check	Passed	12/19/2016 12:22:49 PM				
Physical Appearance	Passed	12/19/2016 12:23:16 PM				
	Result	Latest Results	Enhanced Verification			
Analog Output	Passed	12/19/2016 12:29:33 PM	Analog Output	>		
Pulse Output		1	Pulse Output	>		
Analog Input			Analog Input	~		
Transmitter			Transmitter	>		
Insulation Resistance			Insulation Resistance	>		
			Report			
Data Lock O ON 🧕	OFF		Generate Test Report			
Event Viewor						
efaultUser Engineer BIC			Connected	B Dataset	=	

Figure 7.2.15 Selecting Pulse Output Check

Step 2: "N/A" can be checked selected for "PO1" and "PO2" individually to skip the check for one of them or both.



DTM Works - [0 :) AXG4A FDT2.0 HART7 DTM]	- • ×
Elle View Device Tool Window Help	
Device Information Online Parameter Verification tool X	
Pulse Output	
Select "N/A" for PO not being checked. Set "Setting value" of PO2 to 2pps when the active pulse output is "For magnetic counter."	
Setting varue Measured(pps) Error(pps) Result Latest Results Start Verification	
Setting Value Measured(pps) Error(pps) Result Latest Results Start Verification	
	Back
Event Viewer	
DefaultUser Engineer BIC 💱 Connected 🗘 🕼 Dataset = ?	

Figure 7.2.16 Starting Pulse Output Check

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7-18

Step 4: Perform wiring connection to the pulse output terminals referring the displayed diagram. Note that the diagram shown below is an example and becomes different depending on the specification of the AXG/AXW/CA magnetic flowmeter. When using the calibrator CA500, set its setting mode "Contact Input" to ON, and select its measurement range (unit) to "CPM". Click "Next" to continue.

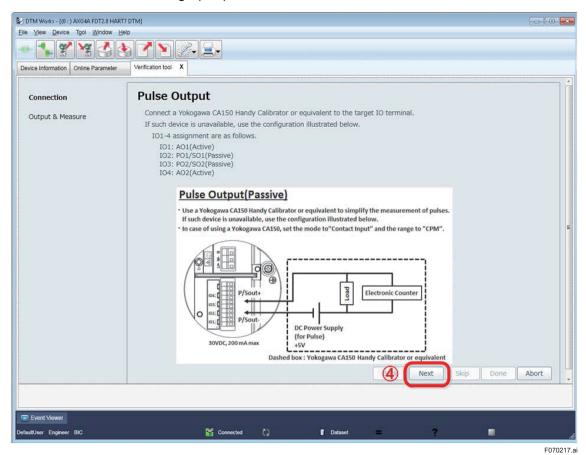


Figure 7.2.17 Wiring for Pulse Output Check

Step 5: The pulse output rate from AXG/AXW/CA magnetic flowmeter on this check is 100 pps or 2 pps depending on its specification. The pulse rate "2 pps" is applied when driving electromechanical counter. Click "Next" to continue.

DTM Works - [(0 :) AXG4A FDT2.0 HA					
Elle View Device Tool Window					
😁 🏞 🎗 🧏 🚭	& ? > 2-12-				
Device Information Online Parameter	Verification tool X				
Connection Output & Measure	Pulse Output PO1 Setting Value → 100 pps			5	
				Back Next	Skip Done Abort
Event Viewer DefaultUser Engineer BIC	Connected	0	C Dataset	= ?	-
					F070218.a

Figure 7.2.18 Continuing Pulse Output Check

Step 6: Read the pulse count measured by the measuring instrument and enter it in the "pps" or "CPM" field.

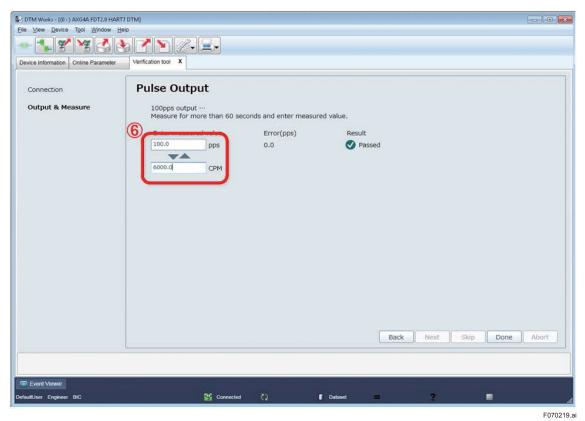


Figure 7.2.19 Entering Pulse Output Value

TM Works - [(0 :) AXG4A FDT2.0 HART View Device Tool Window H	leip			
- 🐾 😤 🧏 🛃	5 7 Y Z- Z-			
vice Information Online Parameter	Verification tool X			
Connection Output & Measure	Pulse Output 100pps output ··· Measure for more than 60 s Enter measured value. 100.0 pps 6000.0 CPM	seconds and enter measure Error(pps) 0.0	ed value. Result Passed	7
			Back Next	Skip Done Abort
Event Viewer				
the second se				

Step 7: Click "Done" to go back to the starting window of pulse output check.

Figure 7.2.20 Continuing Pulse Output Check

Step 8: When performing the check for "PO2", follow the same procedure as for "PO1". To finish the pulse output check, click "Back".

1 Works - [(0 :) AXG4A FDT2.0 HART7 DTM]					
/iew Device Tool Window Help					
****	1 2- 2-				
a Information Online Parameter Verification to	X loc				
ulse Output					
lise output					
Select "N/A" for PO not being checked.		and the Property			
Set "Setting Value" of PO2 to 2pps when	n the active pulse o	jutput is "For m	agnetic counter."		_
Setting Value Measured(pps)	Error(pps)	Result	Latest Results		
100 pps + 100.0	0.0	Passed	12/20/2016 6:23:51 PM	Start Verification	
		•			
c PO2 🗖 N/A					
Setting Value Measured(pps)	Error(pps)	Result	Latest Results		
100 pps -		Result	Lucist Results	Start Verification	
	_				
					_
					Bad
ent Viewer					
ser Engineer BIC	💕 Cor	nnected 🖏	Cotaset	- ?	
					F0

Figure 7.2.21 Finishing Pulse Output Check

7.2.3 Analog Input Check

The analog input is an optional input and only displayed when it is equipped with the AXG/AXW magnetic flowmeter.

For the CA model, this inspection item is not subject to implementation and is not displayed.

Step 1: Click "Analog Input".

DTM Works - [(0 :) AXG44	A FDT2.0 HART7 DTM]					
le ⊻lew <u>D</u> evice T <u>o</u> ol	Window Help					
🖦 🔩 🚀 😽	2372	<i>2</i> .				
Device Information Online	Parameter Verification tool					
	Welcome to AD	MAG Verification T	[ool			
	Result	Latest Results	Standard Verification			
	Passed (Flow)	12/19/2016 11:48:44 AM		1		
Dircuit	Passed (No Flow)	12/19/2016 11:35:09 AM	Start Verification	>		
evice Status	Passed	12/19/2016 11:48:44 AM				
Connection Status	Passed	12/19/2016 11:48:44 AM	5			
ndicator/B Check	Passed	12/19/2016 12:22:49 PM				
Physical Appearance	Passed	12/19/2016 12:23:16 PM				
	Result	Latest Results	Enhanced Verification			
Analog Output	Passed	12/19/2016 12:29:33 PM	Analog Output	>		
Pulse Output	Passed	12/19/2016 12:30:20 PM	Pulse Output	>		
Analog Input		\bigcirc	Analog Input	>		
Fransmitter			Iransmitter	-		
nsulation Resistance			Insulation Resistance	>		
			Report			
Data Lock O ON @	OFF		Generate Test Report			
Event Viewet						
faultUser Engineer BIC			Sconnected 🚫	Dataset	 2	

Figure 7.2.22 Selecting Analog Input Check

Step 2: "N/A" can be checked to skip the check.



DTM Works - [0:] AXISAA FDT20 HART7 DTM]
ie New Device (Bol Willingon Helb
evice Information Online Parameter Verification tool X
Analog Input
Selection I not being checked.
Measured(mA) Error(%) Result Latest Results 3 Start Venification
Back
ि Event Viewer fault/ser Engineer BIC 💱 Connected 🖏 🖡 Debaset 💻
F0702

Figure 7.2.23 Starting Analog Input Check

Step 4: Perform wiring connection to the analog input terminals referring to the displayed diagram. Note that the diagram shown below is an example and becomes different depending on the specification of the AXG/AXW magnetic flowmeter. Click "Next" to continue.



Tips on Using CA500 for Analog Input:

When using CA500 Series Multi-Function Process Calibrator as a DC current source, connect its "+" terminal to "lin+" and "-" terminal to "lin-". Also, set a minus value like "-12 mA" to the CA500. Then enter its plus value like "12 mA" in the "Enter input value (mA)" field of the Verification Tool.

Analog Input Enter input value IO1-4 assignment are as follows. IO1: AO1(Active) IO2: PO1/SO1(Passive) IO3: AO2(Passive) IO3: AO2(Passive)	DTM Works - [(0 :) AXG4A FDT2.0 HAR	17 DTM]	
ise intermedicin Online Parameter Ventication toti X Enter input value Reading measured value Result Analog Input D1: 4 assignment are as follows. D1: 401/S01(Passive) D3: 402(Passive) D4: AlfActive) Malog Input(Active) Intermettion Malog Input(Active) Intermettion			
Enter input value Reading measured value Result ID1-4 assignment are as follows. ID1: AO1/Active) ID2: AO2(Passive) ID3: AO2(Passive) ID4: A1(Active) ID4: A1(Active) ID4: A1(Active) ID4: A1(Active) ID4: A1(Active) ID4: A1(Active)	vice Information Online Parameter		
	Connection Enter input value Reading measured value Result	Ind-4 assignment are as follows. Here 2 Follows (Passive) Big 2 Follo	Abort

Figure 7.2.24 Wiring for Analog Input Check

Step 5: Enter the current input value, which is flowing from measuring instrument (CA500 or equivalent) into the AXG/AXW magnetic flowmeter, in the "Enter input value (mA)" field.

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DTM]						0 X
Elle View Device Tool Window Help						
Device Information Online Parameter Verification tool X						
Connection Analog Input						
Enter input value Enter input value(mA)						
Reading measured value 5 12.000						
Result						
				Back Next	Skip Done	Abort
						<u> </u>
Event Viewer						
DefaultUser Engineer BIC	Connected	o I	Dataset 💻	?		.d
						F070225.a

Figure 7.2.25 Entering Analog Input Value

Refer to the "NOTE" in the next page relating to Step 4 and Step 5 in the above.

Step 6: Click "Next" and the window with a message "Wait until the value is stable..." appears.

DTM Works - [(0 :) AXG4A FDT2.0 HART	T7 DTM]	
Eile View Device Tool Window He	<u>felp</u>	

Device Information Online Parameter	Verification tool X	
Connection Enter input value Reading measured value Result	Analog Input Enter input value(mA) 12.000	bone Abort
DefaultUser Engineer BIC	💱 Connected 🗘 👔 Definent 💻 📍 🔳	
		F070226.a

Figure 7.2.26 Continuing Analog Input Check

DTM Works - [(0 :) AXG4A FDT2.0 HART	T DTM]					
Eile ⊻iew Device Tool Window He						
Device Information Online Parameter	Verification tool X					
Connection	Analog Input					
Enter input value	Input(mA) = 12.000 mA					
Reading measured value	Wait until the value is stable	***				
Result		-				
				Back	Next Skip	Done Abort
Event Viewer						
DefaultUser Engineer BIC		Connected	🔋 Dataset	=:	?	

Figure 7.2.27 Continuing Analog Input Check

Step 7: Click "Re-read the value" to perform this check again.

Step 8: Click "Done" to continue.

DTM Works - [(0 :) AXG4A FDT2.0 HART	7 DTM]					
Elle View Device Tool Window He	нр					
Device Information Online Parameter	Verification tool X					
Connection Enter input value Reading measured value Result	Analog Input Input(mA) = 12.000 Complete reading mer Measured(mA) 11.999 Re-read the value		Result			
						8
Event Mower Default/ser Engineer BiC		Some Come	ted ()	C Dutaset	Back Next	Skip Done Abort
						F070228.

Figure 7.2.28 Continuing Analog Input Check

Step 9: Click "Back" to go back to the menu window of the Verification Tool.

DTM Works - [(0 :) AXG4A FDT	2.0 HART7 DTM]						
Eile View Device Tool Win	dow <u>H</u> elp						
	3 b 7 b 2.						
Device Information Online Para							
Analog Input							
Select "N/A" for AI	not being checked.						
						-	
Input Value	Measured(mA)	Error(%)	Result	Latest Results	Start Verification		
12.000	11.999	-0.01	Passed	12/19/2016 12:32:42 PM			
							(9) Back
Event Viewer							
						_	
DefaultUser Engineer BIC			💕 Con	nected 🗘 🕻	Dataset 🚍	?	ll.
							F070229.a

Figure 7.2.29 Finishing Analog Input Check

The menu window of the Verification Tool appears again.

🛯 🖡 🌮 🎽		1/- =-				
	e Parameter Verification tool					
	Welcome to AD	MAG Verification	Fool			
	Result	Latest Results	Standard Verification			
Circuit	Passed (Flow)	12/19/2016 11:48:44 AM				
	Passed (No Flow)	12/19/2016 11:35:09 AM	Start Verification	>		
Device Status	Passed	12/19/2016 11:48:44 AM				
Connection Status	Passed	12/19/2016 11:48:44 AM				
Indicator/B Check	Passed	12/19/2016 12:22:49 PM				
Physical Appearance	Passed	12/19/2016 12:23:16 PM				
	Result	Latest Results	Enhanced Verification			
Analog Output	Passed	12/19/2016 12:29:33 PM	Analog Output	>		
Pulse Output	Passed	12/19/2016 12:30:20 PM	Pulse Output	>		
Analog Input	Passed	12/19/2016 12:32:42 PM	Analog Input	>		
Transmitter			Transmitter	>		
Insulation Resistance			Insulation Resistance	>		
			Report			
Data Lock O ON	OFF		Generate Test Report			
			2			

Figure 7.2.30 Finishing Analog Input Check

7.2.4 Transmitter Check



Follow the user's manual for the AM012 Magnetic Flowmeter Calibrator for correct operation and safe handling.

The accuracy of transmitter is checked using the AM012 calibrator.

The cable connections need to be changed during this check, which must be changed back to the original connection after the check.

For the CA model, this inspection item is not subject to implementation and is not displayed.

Step 1: Click "Transmitter".

DTM Works - [(0 :) AXG4A	A FDT2.0 HART7 DTM]						
ile ⊻iew <u>D</u> evice T <u>o</u> ol	Window Help						
•• 🔧 🎸 🧐							
Device Information Online	Parameter Verification tool	x					
-	Welcome to AD	MAG Verification	Fool				
	Result	Latest Results	Standard Verification				
Circuit	Passed (Flow)	12/19/2016 11:48:44 AM					
Chrone	Passed (No Flow)	12/19/2016 11:35:09 AM	Start Verification	>			
Device Status	Passed	12/19/2016 11:48:44 AM		()			
Connection Status	Passed	12/19/2016 11:48:44 AM					
Indicator/B Check	Passed	12/19/2016 12:22:49 PM					
Physical Appearance	Passed	12/19/2016 12:23:16 PM					
	Result	Latest Results	Enhanced Verification				
Analog Output	Passed	12/19/2016 12:29:33 PM	Analog Output	>			
Pulse Output	Passed	12/19/2016 12:30:20 PM	Pulse Output	>			
Analog Input	Passed	12/19/2016 12:32:42 PM	Analog Input	>			
Transmitter		1	Transmitter	>			
Insulation Resistance				_			
			Report				
Data Lock O ON 🧧	OFF		Generate Test Report				
Event Viewer							
efaultUser Engineer BIC			Connected	Cotaset	=	?	
							F07023

Figure 7.2.31 Selecting Transmitter Check

Step 2: Click "N/A" to skip this check.

Step 3: Click "Start Verification" to continue this check.

nemi								
1131111	itter							
		mitter not being checked.						
Setting		Measured(m/s)	Error(%)	Result	Latest Results			
%	m/s	(incustricul)	Liter(10)	- Hubbin	Corcost Presents	3 Start Verifica	ation	
096	0.0000					1.1		
25%	0.2500							
50%	0.5000							
75%	0.7500							
100%	1.0000					Span: 1.00]m/s €	
L		100						

Figure 7.2.32 Starting Transmitter Check

Step 4: Connect the AM012 calibrator and the AXG/AXW magnetic flowmeter's signal and excitation cable referring to the diagram shown in the window. Then click "Next".

DTM Works - [(0 :) AXG4A FDT2.0 HART	T7 DTM]
Eile ⊻iew <u>Revice</u> T <u>ool</u> <u>W</u> indow <u>H</u> e	ep
Device Information Online Parameter	Verification tool X
Connection	Transmitter
Set the Function Switch	Connect AM012 as follows.
Set the span of AM012	Wiring of Remote Transmitter and AM012
Output & Measure 0%	
Output & Measure 25%	276 SS
Output & Measure 50%	
Output & Measure 75%	(Power cord: -1 and -2)
Output & Measure 100%	190 to 264 V AC (Power cord: -3) 50 60 Hz
Result	
	(4)
	Back Next Slöp Done Abort
Event Viewer	
DefaultUser Engineer BIC	💕 Connected 🔇 🕼 Dataset 😑 📍 🗮

Figure 7.2.33 Wiring for Transmitter Check

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Step 5: Set the function switch of the AM012 calibrator to "ADMAG" referring to the figure shown in the window. Then click "Next".

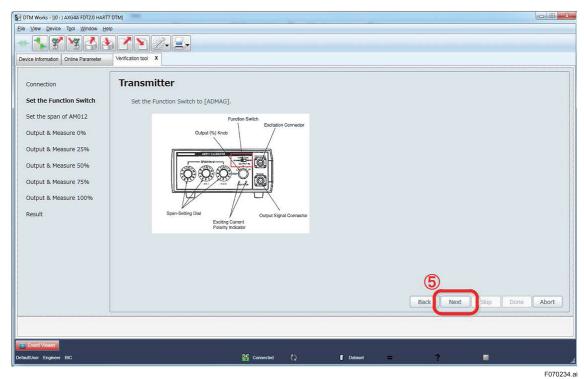
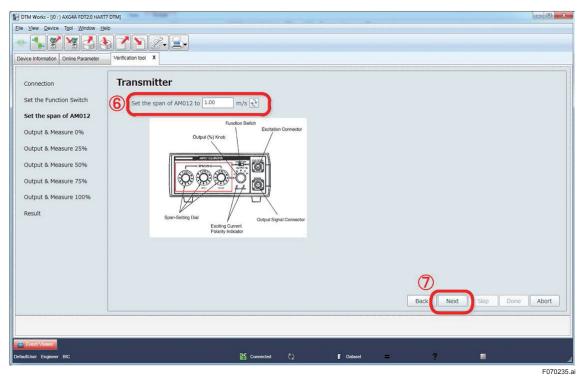


Figure 7.2.34 Setting Function Switch of AM012 Calibrator

Step 6: The span flow rate of the AXG/AXW magnetic flowmeter (in flow velocity unit [m/s]) appears in the field shown in the window below. If necessary, it can be changed by entering another value. The check will be done using that value. The value set in the AXG/AXW magnetic flowmeter can be read again by clicking icon.

After fixing the value in the field, set the span setting dial of the AM012 calibrator to the same value displayed in the field.



Step 7: Click "Next" to continue.

Figure 7.2.35 Setting Span Setting Dial of AM012 Calibrator

Step 8: The window below to check "0%" setting value appears. Click "Next" to continue.

OTM Works - [(0 :) AXG4A FDT2.0 HAF	RT7 DTM]						
View Device Tool Window H							
- 🕵 😤 🛃 🛃	\$ 🗡 Y 🖉 呈	-					
vice Information Online Parameter	Verification tool X						
Connection	Transmitter						
Set the Function Switch	Setting Value	Measured(m/s)	Error(%)	Result			
Set the span of AM012	→ 0% 25%						
Output & Measure 0%	50%						
	75%						
Output & Measure 25%	100%						
Output & Measure 50%							
Output & Measure 75%							
Output & Measure 100%							
Result							
						8	
						ck Next	Skip Done Abort
					Ba		Skip Done Abort
Event Viewer							
tUser Engineer BIC		S	Connected	C Detaset		2	
							F070

Figure 7.2.36 Continuing Transmitter Check

Step 9: Set the output (%) dial of the AM012 calibrator to 0% as instructed in the window.Step 10: Click "Next" to continue.

DTM Works - [(0 :) AXG4A FDT2.0 HART	AT7 DTM]	
Eile View Device Tool Window He	deb	
	5 🗹 🖹 🖉 🗐	
Device Information Online Parameter	Verification tool X	
Device Information Online Parameter	Verinauori iuo	
Connection Set the Function Switch Set the span of AM012 Output & Measure 0% Output & Measure 55% Output & Measure 55% Output & Measure 100% Result	Set the Output (%) Knob to 0%.	
Event Viewer DefaultJuer Engineer BIC	Pdany indeator	Abort
		F07023

Figure 7.2.37 Setting Output Dial of AM012 Calibrator

Step 11: The progress bar of the verification work appears.

DTM Works - [(0 :) AXG4A FDT2.0 HART	(DTM)	
Eile View Device Tool Window He		
Device Information Online Parameter	Verification tool X	
Device Information Conline Parameter Connection Set the Function Switch Set the span of AM012 Output & Measure 0% Output & Measure 25% Output & Measure 50% Output & Measure 75% Output & Measure 100% Result	Verification tool X Transmitter Span(m/s) = 1.00 m/s Output(%) = 0 % Output(m/s) = 0.0000 m/s Reading the measured value··· Image: Comparison of the second seco	
Event Viewer DefaultJser Engineer BIC	Back Next Skip Done Back Connected () Detaset = ?	Abort
		F070238.a

Figure 7.2.38 Progress Bar for Transmitter Check

Step 12: The window showing the result is displayed. If necessary, click "Re-read the value" to perform this check again.

Step 13: Click "Next" to continue.

- 🕵 🎸 🧏 🛃	6 Z N Z- I-			
wice Information Online Parameter	Verification tool X			
Connection	Transmitter			
Set the Function Switch	Span(m/s) = 1.00 m/s			
Set the span of AM012	Output(%) = 0 %			
	Output(m/s) = 0.0000 m/s			
Output & Measure 0%	Complete reading measured value.			
Dutput & Measure 25%	Measured Value(m/s)	Error(%)	Result	
Output & Measure 50%	0.0052	0.52	Passed	
Output & Measure 75%	(12) Re-read the value		67 C	
Output & Measure 100%				
Result				
			13	
				Done Abort
			Dack Next Skip	Done Abort
Event Viewet		Connected	Dataset = ?	

Figure 7.2.39 Continuing Transmitter Check

Step 14: Perform this check also for 25%, 50%, 75%, and 100% setting value just like done for 0%. After performing it for all the setting values, click "Done" to continue.

DTM Works - [(0 :) AXG4A FDT2.0 HAR	17 DTM]					
Eile View Device Tool Window H	elp					
	5 7 N Z- 2					
Device Information Online Parameter	Verification tool X					
Connection	Transmitter					
Set the Function Switch	Setting Value	Measured(m/s)	Error(%) 0.52	Result Passed		
Set the span of AM012	→ 25%	0.0052	0.52	V Passed		
Output & Measure 0%	50%					
Output & Measure 25%	75% 100%					
Output & Measure 50%						
Output & Measure 75%						
Output & Measure 100%						
Result						
					Back	Next Skip Done Abort
Event Viewer DefaultUser Engineer BIC		S	Connected	👔 Dataset	= ?	•
						F070240.a

Figure 7.2.40 Continuing Transmitter Check

Step 15: The window with the result is displayed as an example below. Click "Back" to go back to the starting window of the verification operation.

Select "N							
N/A		smitter not being checked					
Setting	Value	Measured(m/s)	Error(%)	Result	Latest Results	Start Verification	
%	m/s	-					
0%	0.0000	0.0052	0.52	V Passed	12/19/2016 12:36:41 PM		
25%	0.2500	0.2500	0.00	Passed	12/19/2016 12:40:18 PM		
50%	0.5000	0.5000	0.00	Passed	12/19/2016 12:40:13 PM		
75%	0.7500	0.7500	0.00	V Passed	12/19/2016 12:40:25 PM		
100%	1.0000	1,0000	0.00	Passed	12/19/2016 1:05:02 PM	Span: 1.00 m/s 🔁	

Figure 7.2.41 Finishing Transmitter Check

7.2.5 Insulation Resistance Check

The insulation resistance for the excitation coil and signal electrodes is checked, using MY600 insulation resistance tester or equivalent.

For the CA model, this inspection item is not subject to implementation and is not displayed.



Follow the user's manual for the AXG/AXW magnetic flowmeter for correct operation and safe handling.



Before performing this check, make sure that the AM012 calibrator is not connected to the AXG/ AXW magnetic flowmeter.



- When checking the insulation resistance for the signal electrodes, make sure that the
 inside of measuring pipe of the AXG/AXW magnetic flowmeter is empty, the surface of
 signal electrodes are dry, and they have no material adhered to. When checking the
 insulation resistance for the excitation coil, it is not necessary to make the measuring pipe
 empty.
- In case of the submersible use AXG/AXW flowmeter, disconnect wiring at the transmitter side so that the insulation resistance can be measured at the cable terminals.

Step 1: Click "Insulation Resistance.

DTM Works - ((0 :) AXG				-		_	_	_		
Elle View Device Tool										
	8 3 3 7 Y	1.2.								
Device Information Onlin	e Parameter Verification tool	x								
	Welcome to AD	MAG Verification	Fool							
	Result	Latest Results	Standard Verification							
Circuit	Passed (Flow)	12/19/2016 11:48:44 AM	1	1						
Chical	Passed (No Flow)	12/19/2016 11:35:09 AM	Start Verification	>						
Device Status	Passed	12/19/2016 11:48:44 AM								
Connection Status	Passed	12/19/2016 11:48:44 AM								
Indicator/B Check	Passed	12/19/2016 12:22:49 PM								
Physical Appearance	Passed	12/19/2016 12:23:16 PM								
	Result	Latest Results	Enhanced Verification							
Analog Output	Passed	12/19/2016 12:29:33 PM	Analog Output	>						
Pulse Output	Passed	12/19/2016 12:30:20 PM	Pulse Output	>						
Analog Input	Passed	12/19/2016 12:32:42 PM	Analog Input	>						
Transmitter	Passed	12/19/2016 1:05:02 PM		-						
Insulation Resistance		(1)	Insulation Resistance	>						
		<u> </u>	Report							
Data Lock O ON	8 055		Generate Test Report							
DOUD LOCK OF ON			Generate reac Report							
Event Viewer										
DefaultUser Engineer BIC					Connected	0	8 Dataset	=	2	
										F070242 :

Figure 7.2.42 Selecting Insulation Resistance Check

- Step 2: To skip the check of insurance resistance for excitation coil, select "N/A" in the "Coil" column. If it is sure that the insurance resistance is over the measurable range, select "Open Loop (O.L.)" in the "Coil" column and then this check can be passed.
- Step 3: Click "Start Verification" to perform the check.

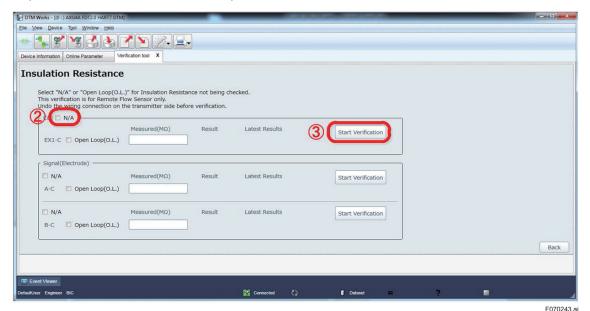


Figure 7.2.43 Starting Insulation Resistance Check

Step 4: A message window is displayed. Read the message and click "Next" to continue.

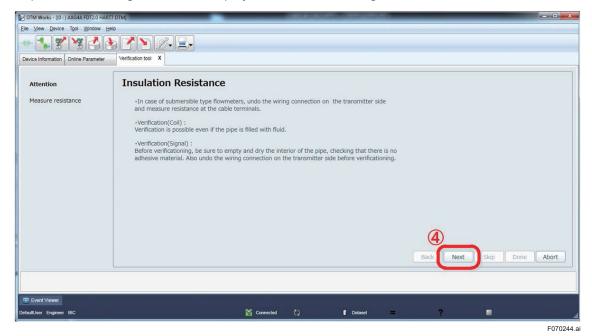


Figure 7.2.44 Continuing Insulation Resistance Check

Step 5: Measure the resistance value between terminals EX1 and C. Enter the measured value in the "Enter measured value ($M\Omega$)" field. If the measurement result is over the measurement range, enter the maximum value of the range, or go back to Step 2 and select "Open Loop (O.L.)" in the "Coil" column.

Step 6: Click "Done" to continue.

DTM Works - [(0 :) AXG4A FDT2.0 HA	RT7 DTM)
Elle ⊻lew Device Tgol Window	
🐽 🔩 🎸 🦋 🛃	3 7 N Z- 1-
Device Information Online Parameter	Verification tool X
Attention	Insulation Resistance
Measure resistance	Measure the insulation resistance between terminals EX1 and C. Test Voltage:S00V DC(Use an insulation tester or the equivalent)
	Terminals of Remote Sensor
	Image: Second state of the terminal symbols Image: Second state of the terminal symbols
	Enter measured value(MΩ). Result
	Back Next Skip Done Abort
Event Viewer	
efaultUser Engineer BIC	💱 Connected 📢 👔 Dataset 😑 💎 📰
	F07024

Figure 7.2.45 Measuring Insulation Resistance

- Step 7: To skip the check of insurance resistance for signal electrodes, select "N/A" in the "Signal (Electrode)" column. If it is sure that the insurance resistance is over the measurable range, select "Open Loop (O.L.)" in the "Signal (Electrode)" column and then this check can be passed.
- Step 8: Click "Start Verification" corresponding to terminals "A-C" to perform the check.

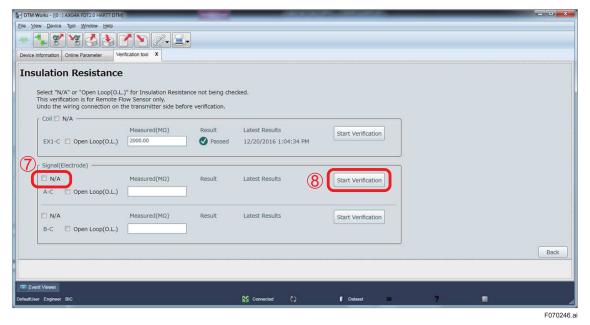


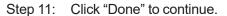
Figure 7.2.46 Continuing Insulation Resistance Check

Step 9: Read the following explanation carefully and click "Next" to continue.

DTM Works - [(0 :) AXG4A FDT2.0 H	17 DTM]
Eile View Device Tool Window	jep
Device Information Online Parameter	Verification tool X
Attention	Insulation Resistance
Measure resistance	 In case of submersible type flowmeters, undo the wiring connection on the transmitter side and measure resistance at the cable terminals. Verification(Coil) : Verification is possible even if the pipe is filled with fluid. Verification(Signal) : Before verificationing, be sure to empty and dry the interior of the pipe, checking that there is no adhesive material. Also undo the wiring connection on the transmitter side before verificationing.
Event Viewer	9 Back Next Skip Done Abort
Statement and the second second	
DefaultUser Engineer BIC	😭 Connected 🗘 🚺 Dataset
	F0702

Figure 7.2.47 Continuing Insulation Resistance Check

Step 10: Measure the resistance value between terminals A and C by an insulation resistance tester. Enter the measured value in the "Enter measured value ($M\Omega$)" field. If the measured resistance exceeds the measurement range, enter the maximum value of the range, or go back to Step 7 and select "Open Loop (O.L.)" in the "Signal (Electrode)" column.



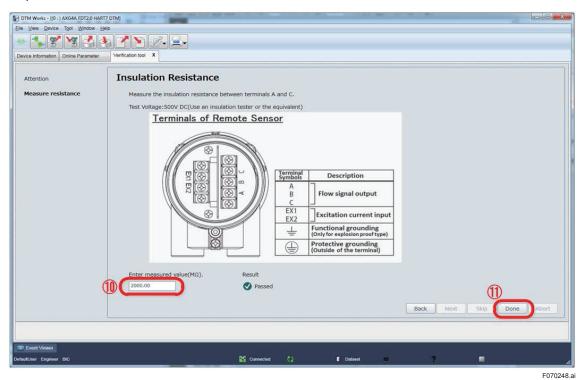


Figure 7.2.48 Continuing Insulation Resistance Check

Step 12: Continue the same routine from Step 7 to Step 11 against terminals "B-C". After that, the following result (for example) is displayed. Click "Back" to go back to the starting window of the verification operation.

M Works - [(0 :) AXG4A FDT2.0 HART7 DTM]							- 0
⊻lew <u>D</u> evice T <u>o</u> ol <u>W</u> indow <u>H</u> elp							
🔧 🛠 🧏 🍣 🕭 🛛	1 🛐 🖉 🚊	Ų					
	ification tool X						
sulation Resistance							
Select "N/A" or "Open Loop(O.L)" for Insulation Resist	ance not being che	ked				
This verification is for Remote Fl	ow Sensor only.						
Undo the wiring connection on t	ne transmitter side ber	ore verification.					
Coil N/A	Measured(MΩ)	Result	Latest Results				
EX1-C Open Loop(O.L.)	2000.00	Passed	12/20/2016 1:04:34 PM	Start Verification			
Dit C open coop(oil)							
Signal(Electrode) ————————————————————————————————————					2		
I N/A	Measured(MΩ)	Result	Latest Results	Start Verification			
A-C Open Loop(O.L.)	2000.00	Passed	12/20/2016 1:06:00 PM	Start Vermoduon			
			12/20/2010 1100100111				
N/A	Measured(MΩ)	Result	Latest Results	Start Verification			
B-C Open Loop(O.L.)	2000.00	Passed	12/20/2016 1:07:42 PM	Juir vermeduori			
b-c b) open coop(o.c.)		Passed	12/20/2010 1.0/.42 PM				
-					2	1	12 Bac
Event Viewer							
User Engineer BIC			Connected	Dotaset 💻	2		
							F07

Figure 7.2.49 Finishing Insulation Resistance Check

7.3 Generating Test Report

Click "Generate Test Report" after finishing the check items of verification.

DTM Works - [(0 :) AXG44			000000000		_	
ile ⊻iew <u>D</u> evice T <u>o</u> ol	Window Help					
- 🔧 😤 🧏		<i>L</i> - =-				
Device Information Online	Parameter Verification tool	x				
•	Welcome to AD	MAG Verification 1	īool			
	Result	Latest Results	Standard Verification			
Circuit	Passed (Flow)	12/19/2016 11:48:44 AM	· · · · · · · · · · · · · · · · · · ·			
	Passed (No Flow)	12/19/2016 11:35:09 AM	Start Verification	>		
Device Status	Passed	12/19/2016 11:48:44 AM				
Connection Status	Passed	12/19/2016 11:48:44 AM				
ndicator/B Check	Passed	12/19/2016 12:22:49 PM				
Physical Appearance	V Passed	12/19/2016 12:23:16 PM				
	Result	Latest Results	Enhanced Verification			
Analog Output	Passed	12/19/2016 12:29:33 PM	Analog Output	>		
Pulse Output	Passed	12/19/2016 12:30:20 PM	Pulse Output	>		
Analog Input	Passed	12/19/2016 12:32:42 PM	Analog Input	>		
Fransmitter	Passed	12/19/2016 1:05:02 PM	Transmitter	>		
insulation Resistance	Passed	12/20/2016 1:07:42 PM	Insulation Resistance	>		
			Report			
Data Lock O ON 🧕	OFF		Generate Test Report			
Event Viewer						
faultUser Engineer BIC			🚰 Connected	🚺 Dataset 🛛 🚍	?	•
						F0703

Figure 7.3.1 Generating Test Report

The window below is an example. Items are not displayed which were not selected or selectable depending on the specification of the verified device.

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DTM]	
Elle Mew Device Tgol Window Help	
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Device Information Online Parameter Verification tool X	
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ADMAG Verification Report	
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Angung Angung 2000 Kangung Yungan 2000 Kangung Kangung Angung Ang	Date
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Event Viewer	
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	F070302

Figure 7.3.2 Verification Report Window

IM 01E21A04-01EN

The contents of each part of the verification report are shown in the figures and a table below.

No.1: Device Information

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DT	M)											- 0 <u>- X</u>
Elle View Device Tool Window Help												
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Device Information Online Parameter	/erification tool X											
												Yokogawa 🔶
{ 4 1 of 1 } + ⊛ 🕃		Find Next									1	TONOGAMA
									_	-		
		ADMA	G Veri	fica	tion Report		(5				
	Integral	Remote										
	Model & Suffix Code(Tra	insmitter):										
	Model & Suffix Code(Flo	w Sensor):						-				
	IO Type:	JH			Tag:							
	Nominal Size:	100.00 mm			Serial No.(Transmitter):							
	Low MF:	1.0000			Serial No.(Flow Sensor):			_				
	High MF:	1.0000			Operation Time:	00000D 00:23		_				
	Zero:	0.000 cm/s R0.20.04			210							
	Main Board Rev: Sensor Board Rev:	R0.20.04			PV Span: Velocity Check:	1.00 m/s						
	Indicator Board Rev:	R0.20.02		-	PV Damping:	3.0 sec		-1			Comments	
				_								
	Standard Verifi	cation										
	Circuit	M. Marchael		-	Connection Status	erification Item		_				
	Test Condition	Verification Item No Flow+Flow	Result				Resu					
				4	Cable Connection	Passed	Pass	d				
	Magnetic Circuit Excitation Circuit	Passed Passed	Passed		Indicator/B Check			_			Date	
	Calculation Circuit	Passed	Passeo		L	erification Item	Resu	<u> </u>			12/20/2016	00
					IndicatorStatus LCD display	Passed Passed	Pass	a				LLL
	Device Status				LCD display	Passed					Drawer	
•										,		
											Back	Refresh
Event Viewer												
						Connected		Cotaset	-	2		
DefaultUser Engineer BIC						E Connected	12	Dataset				
												F070303.ai

There is some differences in some of the displayed device information between the AXG/AXW model and the CA model.

No.2: Result of Standard Verification

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DTM]	-					 And Address of the owner of the	-	- C				_	_				- 0 -×
Elle View Device Tool Window Help																	
	2	2. 2 .															
Device Information Online Parameter Verification	ion tool X																
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	🛯 🖬 🗐 •	50%	Find	Net													
	Standa	ard Verification												^			
	Circuit	ard vernication				Connection Status											
		Verificati	on Item				Verification	ltem		Result							
	Test Cond	lition	No Flow+Flow		Result	Cable Connection		Passed		Passed							
	Magnetic	Circuit	Passed			Indicator/B Check											
	Excitation	Circuit	Passed		Passed		Verification	item		Result							
	Calculatio	in Circuit	Passed			IndicatorStatus		Passed									
						LCD display		Passed		- Passed							
	Device St					Physical Appearance											
		Verificati			Result		Verification	item		Result							
	Alarm Ch		Passed		Passed	Flow Sensor		Passed									
	Aarm His	tory	Passed			Transmitter		Passed		- Passed							
	Enhan	ced Verification															
	Analog O		-			Transmitter								Comm	ients		
	Item	Setting Value	Measured	Error	Result	Setting Value	Meas	ired	Error	Result							
	AO1	4mA	3.999mA	-0.01%		0.0000m/s(0%)	0.0052m/s		0.52%	i							
		12mA	11.999mA	-0.01%	Passed	0.2500m/s(25%)	0.2500m/s		0.00%	1							
		20mA	19.999mA	-0.01%	1	0.5000m/s(50%)	0.5000m/s		0.00%	Passed							
	AO2	4mA	Ameee.c	-0.01%		0.7500m/s(75%)	0.7500m/s		0.00%]							
		12mA	11.999mA	-0.01%	Passed	1.0000m/s(100%)	1.0000m/s		0.00%					Date			
		20mA	19.999mA	-0.01%										12/20/2	2016		121
	Pulse Ou	lout.				Insulation Resistance	lterer		Measured	Result				Drawe	r		
X						 Venncation	100111	-	measured	readin				-			
															Back		Refresh
Event Viewer																	
DefaultUser Engineer BIC								Con	nected 🔇		Dataset	-	2				
																=	70304 ai

No.3: Result of Enhanced Verification

DTM Works - [(0 :) AXG4A FDT2.0 HART7 DTM	_			-			ALC: NOT THE										- 0 <mark>- × -</mark>
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		nced Verificatio	<u>on</u>				-										
	Analog	Output Setting Value	Measured	Error	Result	1	Transmitter Setting Value	Measured		rror	Result						
		-			Result]					Result						
	A01	4mA 12mA	3.999mA 11.999mA	-0.01%			0.0000m/s(0%)	0.0052m/s	0.52%								
		20mA	19.999mA	-0.01%	Passed		0.2500m/s(25%) 0.5000m/s(50%)	0.2500m/s 0.5000m/s	0.00%	— I .	Passed						
	A02	4mA	3.999mA	-0.01%			0.7500m/s(75%)	0.7500m/s	0.00%	— I '	Passed						
		12mA	11.999mA	-0.01%	Passed		1.0000m/s(100%)	1.0000m/s	0.00%								
3		20mA	19.999mA	-0.01%	-												
			-		-1	1	Insulation Resistanc	e									
	Pulse O	utput					Verificati	on Item	Measure	ed	Result						
	Item	Setting Value	Measured	Error	Result]	Coil	EX1-C	2000.00MΩ		Passed						
	P01	100pps	100.0pps	0.0pps	Passed]	Signal(Electrode)	A-C	2000.00ΜΩ		Passed						
	Analog	locut						BC	2000.00ΜΩ		Passed					Comments	
		Input Value	Measured	Error	Result	1										Continentes	
	12.000m	-	99mA	-0.01%	Passed]											
						1											
	erven.	an otatusa assa	a u				Detail of test	uate							н.		
	This flow calibration	vmeter was verified to be	functioning within #	2.0% of the or	iginal factory			Verification Item		Date	ofTest						
							Circ	uit(No Flow)		12/19/2	2016						
								uit(Flow)		12/19/2						Date	
							Standard	ice Status		12/19/2						12/20/2016	11
						1	000	nection Status ator/B Check		12/19/2						Drawer	
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																Back	Refresh
Event Viewer																	
DefaultUser Engineer BIC								6	Connected	Ø	(Deteset	=	1	?		
																	F070305.ai

No. 4 to 9: Overall Status of Verification, etc.

Epie Yes Yes <th>assed (</th> <th>6</th> <th></th> <th></th> <th></th> <th>•</th> <th></th> <th>YOKDGAWA 🔶</th>	assed (6				•		YOKDGAWA 🔶
Overail Status:Passed		Detail of t	est date		-			
This flowmeter was verified to be functioning within ±2.0% of the original f		Decan or c	Verification Item	Date of Test				
	,	[Circuit(No Flow)	12/19/2016				
(4) Calibration.			Circuit(Flow)	12/19/2016				
		Standard	Device Status	12/19/2016				
		Standard Verification	Connection Status	12/19/2016				
Comments			Indicator/B Check	12/19/2016				
Memorandum			Physical Appearance	12/19/2016				
Memorandum			Analog Output	12/19/2016				
(5) Memorandum			Analog Input	12/19/2016				
Memorandum Memorandum		Enhanced Verification	Transmitter	12/19/2016				
Memorandum			Insulation Resistance (Coil)	12/20/2016		° 👟 🚬	Comments	
Memorandum			Insulation Resistance (Signal)	12/20/2016			Memorandum	
					<		Memorandum Memorandum	
9 Egend symbols		Date:	12/20/2016 1:27:23	PM			Memorandum Memorandum	
i i i Not performed		Drawer:	Yokogawa				Memorandum	
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Event Viewer								
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No.	Item Name	Description
1	Device Information	Information on the verified AXG/AXW/CA magnetic flowmeter is displayed.
2	Standard VF	The result of each item for the Standard VF is displayed.
3	Enhanced VF	The result of each item for the Enhanced VF is displayed.
4	Overall Status	Overall status of the verification result is displayed.
5	Comments	Comments (*) entered by customer can be displayed. They can be entered in the "Comments" field on the right side of the window. For example, this can be used for entering documentation number controlled by customer. Click "Refresh" and they are reflected in the report. *: Maximum 128 characters and 8 lines
6	Test Date	The date of test for each item of the Standard VF and Enhanced VF is displayed.
7	Report Information	The date when and the name of person by whom the verification was performed can be displayed (*). They can be entered in the "Date" and "Drawer" fields on the right side of the window. Click "Refresh" and they are reflected in the report. *: The default values are as below. Date: When "Generate Test Report" was clicked. Drawer: Blank
8	Signature	This is the signature column to be used after printing out the report.
9	Legend Symbol	Descriptions of the following symbols, shown in the result field of each checked item of the verification, are listed. []: Inconclusive []: Not performed

Table 7.3.1 Items in Verification Report Window

7.4 Printing Test Report

Follow the procedure below to print the test report. The sizes of paper that can be printed properly are A4 and Letter size. Other sizes are not suitable for printing this report. The default setting is A4 size.

Step 1: Click "Page Setup" icon.

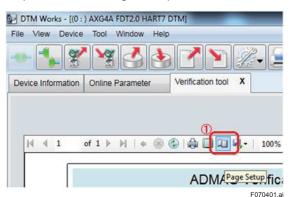


Figure 7.4.1 Clicking Page Setup Icon

Step 2: Select the paper size.

	Characterization forms Characterizations A second second second second second A second second second second second second Second second Second Second Second Second Second second Second	
	Mary Standardson Carl Maryan San Sayari Maryan Maryan Sanagara Sanagara	
	Constructions (France France The Section Section 1 Constructions Constructions Constructions Constructions Constructions Constructions Constructions Constructions	
	R Longinger T Underson U Demogrammer R underson R ange Stemastanten Carl Janger I hannen Demogrammer Demogrammer	
-Paper		
Size: (2)	A4	1
Source:	A4	
	B4 (JIS) -B5 (JIS)	
Orientation —	Envelope #10 Envelope Monarch	
(Portrait	Executive Legal	
	1 11	
C Landscape		

Figure 7.4.2 Selecting Paper Size

Step 3: Click "Print" icon and the report will be printed out.

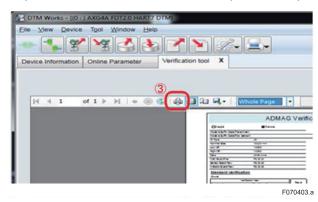


Figure 7.4.3 Clicking Print Icon

A sample of the printed report is shown below.

		A	DMAC	G Verific	ation Re	por	t				N
🗌 Integ	ral	Remo	te								
Model & S	Suffix Code(Transmitter)	:									
Model & S	Suffix Code(Flow Sensor):									
IO Type:		None			Tag:						
Nominal S	Size:	100.00 mm			Serial No.(Trans	smitter):					
Low MF:		1.0000			Serial No.(Flow	Sensor):					
High MF:		1.0000			Operation Time:			00000D (02:40		
Zero:		-0.068 cm/s									
Main Boar	rd Rev:	R1.01.01			PV Span:		28	.27433 m	13/h		
Sensor Bo	oard Rev:	R1.01.01			Velocity Check:		1.0	000 m/s			
Indicator E	Board Rev:	R1.01.01			PV Damping:		3.0) sec			
Stand: Circuit	ard Verification	l			Connection St	atus					
	Verifica	tion Item					Verification Ite	əm			Result
Test Con	dition	No Flow+Flow		Result	Cable Connecti	on	P	assed		۳	Passed
Magnetic	Circuit	Passed			Indicator/B Ch						1 40004
Excitation		Passed		Passed	malcator/B Ch	oon	Verification Ite	m			Result
Calculatio		Passed								_l	Result
ouroundur	on out				IndicatorStatus			assed			Passed
Device S	tatue				LCD display		P	assed			
		tion Item		Result	Physical Appe	arance					
				Result			Verification Ite	em			Result
Alarm Ch		Passed		Passed	Flow Sensor		P	assed			Passed
Alarm His	story	Passed			Transmitter		P	assed			Passeu
Analog C Item	Dutput Setting Value	Measured	Error	Result	Transmitter Setting Va	lue	Measur	ed	Error		Result
AO1	4mA	3.999mA	-0.01%		0.0000m/s(0%))	0.0059m/s		0.59%	=i	
	12mA	11.999mA	-0.01%	Passed	0.2500m/s(25%	6)	0.2509m/s		0.36%		
	20mA	19.999mA	-0.01%	1 1	0.5000m/s(50%	6)	0.5004m/s		0.08%		Passed
					0.7500m/s(75%	6)	0.7508m/s		0.11%		
					1.0000m/s(100	%)	1.0001m/s		0.01%		
Pulse Ou	utput				Insulation Res	istance					
Item	Setting Value	Measured	Error	Result	Ve	rification	Item		Measured		Result
PO1	100pps	100.0pps	0.0pps	Passed	Coil		EX1-C	2000	00MΩ	=	Passed
					Signal(Electrod	(a)	A-C	_	00MΩ		Passed
						,	B-C		00MΩ		Passed
Overa	all Status:Passe	ed			Detail of t	test d	1			1	
This flow calibratio	meter was verified to be n.	functioning within ±2	2.0% of the ori	ginal factory			Verification Item	n		D	ate of Test
						Circui	t(No Flow)			201	7/05/25
						Circui	t(Flow)			201	7/05/25
					Standard	Devic	e Status			201	7/05/25
					Verification	Conne	ection Status			201	7/05/25
Comn	nents					Indica	tor/B Check			201	7/05/25
Memora						Physic	cal Appearance			201	7/05/25
Memora	ndum					Analo	g Output			201	7/05/25
Memora						Pulse	Output			201	7/05/25
Memora Memora					Enhanced	Trans	mitter			201	7/05/25
Memora	ndum				Verification	Insula	tion Resistance	(Coil)		201	7/05/25
Memora	ndum					Insula	tion Resistance	(Signal)		201	7/05/25
legend sym	bols:				Date:			2017/05/2	5 11:18:43		
	ibols: Inconclusive Not performed				Date: Drawer:		:		25 11:18:43 ogawa		

Figure 7.4.4 Sample of Verification Report

8. Termination

This chapter describes "Normal Termination" and "Unexpected Termination".

🛕 IMPORTANT

Make sure to keep the power for the AXG/AXW/CA magnetic flowmeter on at least for 10 minutes after finishing the verification. If you turn the power off immediately, parameters may be changed to different values from ones before performing the verification.

Also, when the software write protection function was disabled following Section 3.2, the protection will automatically become enabled within 10 minutes after finishing the verification. When the hardware write protection function switch was set OFF, set it ON again after 10 minutes or more from the finish of the verification.

8.1 Normal Termination

Save the verification data if necessary by referring to Section 6.1 before terminating the Verification Tool. Then click "X" on the "Verification tool" tab to terminate this tool.



Figure 8.1.1 Termination of Verification Tool

8.2 Unexpected Termination

If the Verification Tool terminates abnormally, make sure that the AXG/AXW/CA magnetic flowmeter and the FieldMate are connected correctly and restart the Verification Tool.

If there are parameters that have been changed during verification and have not been restored to the values before the verification, the following window is displayed. Refer to Chapter 9 for the list of error messages.

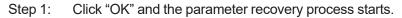




Figure 8.1.2 Recovery from Unexpected Termination

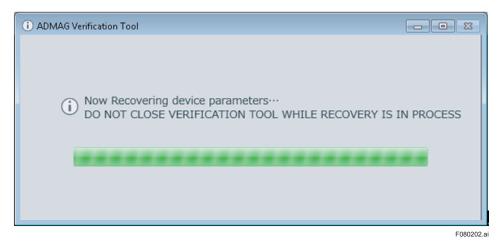


Figure 8.1.3 Progress Bar in Recovery

Step 2: After the recovery, the window below is displayed. Click "OK" to continue.



Figure 8.1.4 Recovery Completed

9. Error Message

Error messages which may appear during verification are listed below. See the following table with error occurrence conditions and countermeasures.

Error Message 1:

Verificatio	n Tool	
8	Connection Error. Check connections and then restart Verification Tool. Press OK to continue.	
		ОК
		F09010

Error Message 2:

Verificati	on Tool	
8	Connection Error. Check connections. Press OK to continue.	
		ОК

Error Message 3:

Verificatio	on Tool	
8	Error occurred during verification. V Check connections and then restart Press OK to continue.	
		OK
		F090103

Error Message 4:

	Verificating. Do		urrent

Error Message 5:

Verificati	ion Tool	
1	Loop current mode is "Disabled". Retry verification after setting Loop current mode to "Enabled".	
	OK	
		F090105

Error Message No	Message	Error Occurrence Condition	Countermeasure
1	Connection Error. Check connections and then restart Verification Tool. Press OK to continue	Restoring parameters while starting up Verification Tool or after restarting up Verification Tool.	Click "OK" in the message window. Then the window of the Verification Tool will be closed. Check the communication connection and restart the Verification Tool.
2	Connection Error. Check connections. Press OK to continue.	Occurrence of communication error while any item of verification was going to start.	Click "OK" in the message window. Then the Standard VF will go back to the window for selecting "Flow" or "No Flow". The Enhanced VF will go back to the starting window of each item to check. Check the communication connection and restart the aborted item to check.
3	Error occurred during verification. Verification has terminated. Check connections and then restart Verification Tool. Press OK to continue.	Occurrence of communication error while any item of verification was going on.	Click "OK" in the message window. Then the window of the Verification Tool will be closed. Check the communication connection and restart the Verification Tool. If the parameter recovery window shown in Section 8.2 appears, click "OK". To display the data before this error, select "Last Result" at "Data load option:" referring to Section 5.2.
4	This device is verifying. Do you want to stop the current verification and to execute the new verification?	Action to start new verification while the built-in verification is being performed.	Click "OK" in the message window. Then abort the verification currently being performed to start the new verification with new settings. Or click "Cancel" and the verification tool will go back to the window for selecting "Flow" or "No Flow".
5	Loop current mode is "Disabled". Retry verification after setting Loop current mode to "Enabled".	Action to start the verification of analog output when the parameter "Loop current mode" is set to "Disabled".	Start the verification of analog output again after setting the parameter "Loop current mode" to "Enabled".

Revision Information

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Edition	Date	Page	Revised Item
1st	Aug. 2017	-	New publication
2nd	Oct. 2022	-	Added note on Magnetic flowmeter CA Series and AXG1A Changed title