General Specifications

GS 01E21A04-01EN

FSA130
Magnetic Flowmeter /
Vortex Flowmeter
Verification Tool

R01.03

■ GENERAL DESCRIPTION

Magnetic Flowmeter / Vortex Flowmeter Verification Tool*1 provides the diagnosis, reporting and data management for the health check of ADMAG TI (Total Insight) Series AXG, AXW with HART protocol, Magnetic Flowmeter CA Series and Vortex Flowmeter VY series with HART protocol.

There are cases that a magnetic flowmeter does not perform normally by failure of magnetic, excitation or calculation circuit, or insulation deterioration of excitation coil or electrodes. The Verification Tool can diagnose the health check of device without demounting a flowmeter from the process line.

There are cases that a vortex flowmeter does not perform normally by failure of sensor circuit, signal processing circuit, calculation circuit or accumulation of fluid in shedder bar, deterioration of sensor.

FSA130 is the license key to activate the Verification Tool.

The verification results can be stored in a database and can be printed as a Verification Report. In this report, not only the check result of each item but also the comprehensive diagnosis result is indicated as "Passed" or "Failed", which is effective in considering the maintenance of the device.

> *1: The Verification Tool runs on FieldMate (Versatile Device Management Wizard) with R3.04.20 or later, and Device Files R3.09.22 or later. FieldMate should be prepared by customers.

■ APPLICABLE MODEL

The applicable model and communication protocol to the Verification Tool is as below.

1. Magnetic Flowmeter

- ADMAG TI Series AXG, AXW or CA Integral type flowmeter with HART protocol
- Combination of AXG remote sensor and AXG4A, AXG1A remote transmitter with HART protocol
- Combination of AXW remote sensor and AXW4A, AXG1A remote transmitter with HART protocol

2. Vortex Flowmeter

- VY series Integral type flowmeter with HART protocol
- Combination of VY series remote sensor and VY4A remote transmitter with HART protocol

■ FUNCTIONS

The Verification Tool has the following functions.

1. Magnetic Flowmeter

1.1 Standard Verification

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 signal and excitation cable, display board and LCD, and physical appearance of the device. This mode is performed with the magnetic flowmeter mounted onto process line filled with fluid.

1.2 Enhanced Verification

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 magnetic flowmeter being demounted from process line.

The necessary are AM012 calibrator for magnetic flowmeter to simulate the flow velocity signal, CA500 series Multi-fucntion Process Calibrator to measure current value, pulse count and also to output current signal, and 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.

2. Vortex Flowmeter

2.1 Standard Verification

This mode checks the status of sensor element of the shedder bar. Moreover sensor,signal processing, and calculation circuit of the device.

It also checks the status of alarm occurrence, alarm history,display board and LCD, and physical appearance of the device.

This mode is performed with the vortex flowmeter mounted onto process line filled with fluid.

2.2 Enhanced Verification

This mode checks analog input/output, pulse output, status output.

CA500 series Multi-function Process Calibrator or other equivalent function equipment can be used.

2.3 Remote Maintenance

This mode displays the vortex waveform after signal processing, analysis of frequency, trend of output signal sensitivity of shedder bar.

It is also possible to supports condition based maintenance.

YOKOGAWA ◆

Yokogawa Electric Corporation
2-9-32, Nakacho, Musashino-shi, Tokyo, 180-8750 Japan
Tel.: +81-422-52-4443 Fax.: +81-422-52-2018

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Magnetic Flowmeter

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

*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.

Vortex Flowmeter

Mode	Check Item		Note
Standard Verification	Circuit	Sensor circuit	–
		Signal processing circuit	–
		Calculation circuit	–
	Device Status	Alarm Occurrence	–
		Alarm History	–
	Display	LCD display	Visual check by customer on test mode
	Physical Appearance	Flow Sensor	Visual check by customer
		Transmitter	
Enhanced Verification	Analog Output		Check by using CA500 or equivalent
	Pulse Output		
	Stataus Output		
	Analog Input		
Remote maintenance	Vortex Waveform Monitor		Display of Vortex Waveform after signal processing
	Vortex Frequency Analyzer		Intensity display for each vortex singnal frequency band after signal processing
	Vortex Sensor Prediction		Display of trend of output signal sensitivity of shedder bar and deterioration prediction

■ SYSTEM CONFIGRATION

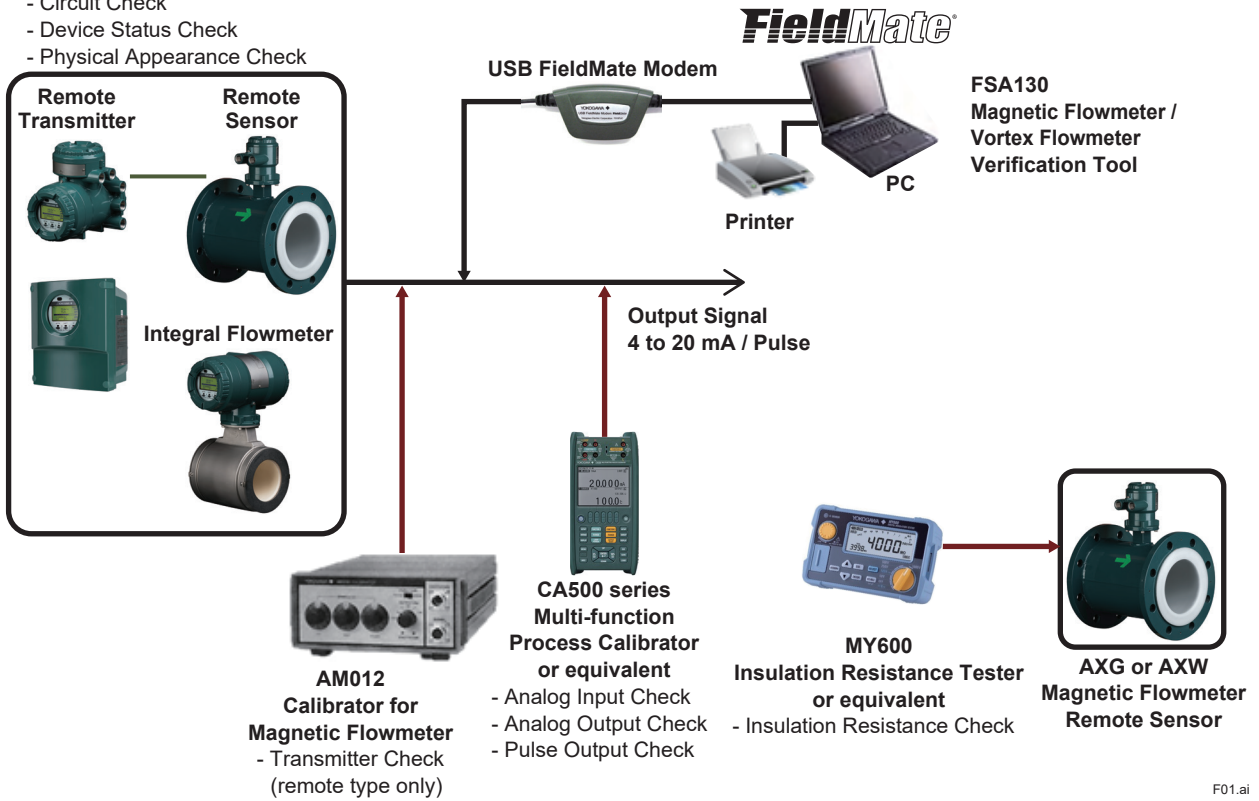The following flowmeter, instruments and software are necessary to use the Verification Tool.

• AXG, AXW or CA Magnetic Flowmeter (HART protocol type)*1
• Vortex Flowmeter VY series (HART protocol type)*1
• PC*2
  - FieldMate*2 (Versatile Device Management Wizard) with R3.04.20 or later, and Device Files R3.09.22 or later
• USB FieldMate Modem*2
• Printer (for printing verification report)
• AM012 Calibrator for Magnetic Flowmeter (for Enhanced Verification)
• CA500 series Multi-function Process Calibrator (for Enhanced Verification)
• MY600 Insulation Resistance Tester or equivalent (for Enhanced Verification)

*1: For details, read "APPLICABLE MODEL".
*2: For details, read the general specification of FiledMate.
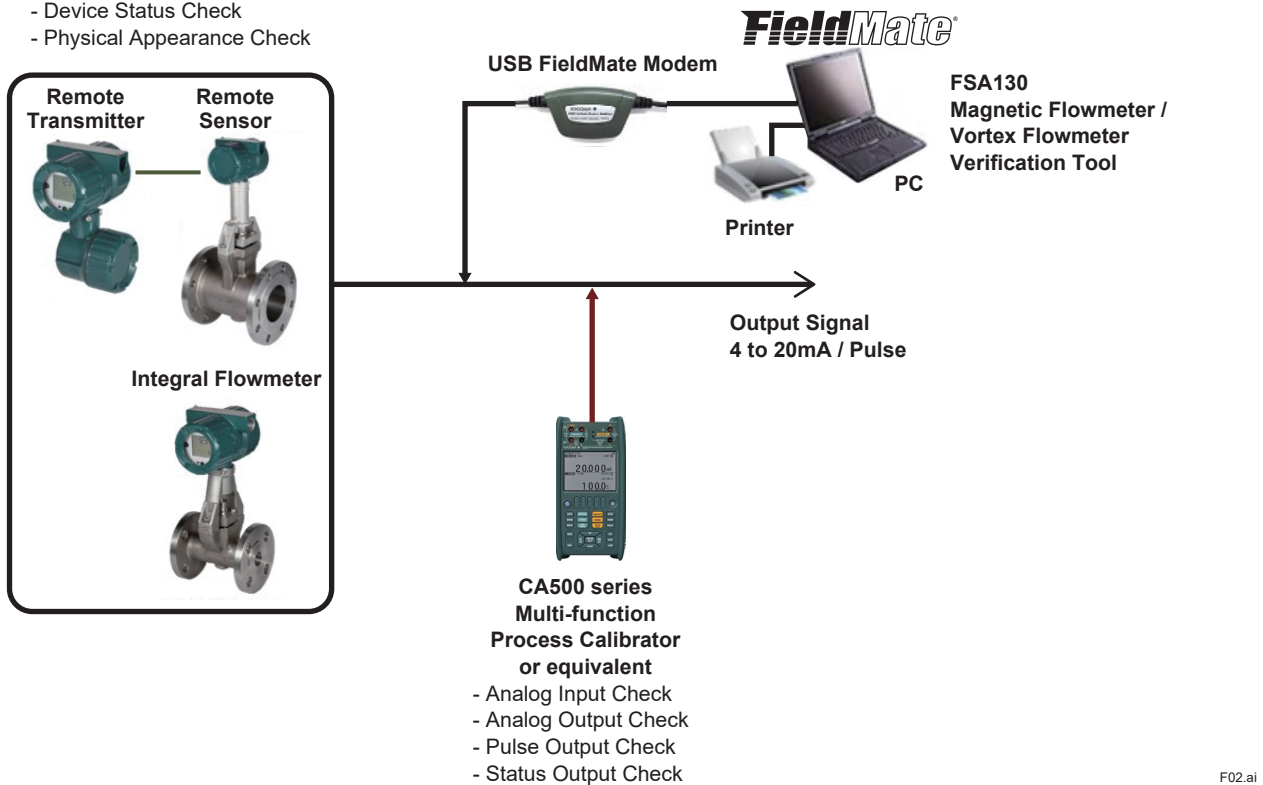
AXG, AXW or CA Magnetic Flowmeter
  - Circuit Check
  - Device Status Check
  - Physical Appearance Check

USB FieldMate Modem

FieldMate®

FSA130
Magnetic Flowmeter /
Vortex Flowmeter
Verification Tool

PC

Printer

Remote Transmitter   **Remote Sensor**

Integral Flowmeter

Output Signal
4 to 20 mA / Pulse

AM012
Calibrator for Magnetic Flowmeter
  - Transmitter Check
    (remote type only)

CA500 series
Multi-function
Process Calibrator
or equivalent
  - Analog Input Check
  - Analog Output Check
  - Pulse Output Check

MY600
Insulation Resistance Tester
or equivalent
  - Insulation Resistance Check

AXG or AXW
Magnetic Flowmeter
Remote Sensor

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Vortex Flowmeter VY series
  - Circuit Check
  - Device Status Check
  - Physical Appearance Check

USB FieldMate Modem

FieldMate®

FSA130
Magnetic Flowmeter /
Vortex Flowmeter
Verification Tool

PC

Printer

Remote Transmitter   **Remote Sensor**

Integral Flowmeter

Output Signal
4 to 20mA / Pulse

CA500 series
Multi-function
Process Calibrator
or equivalent
  - Analog Input Check
  - Analog Output Check
  - Pulse Output Check
  - Status Output Check

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■ MODEL AND SUFFIX CODE

Model	Suffix Code				Description
FSA130					Verification Tool
License	**-S**				Single License
–		**1**			Always 1
–			**1**		Always 1
–				**0**	Always 0
Optional Specification				**/B**	USB FieldMate Modem *1

*1: For the specification of USB FieldMate modem, read the general specification of FiledMate.

■ DOWNLOAD SITE OF VERIFICATION TOOL

The Verification Tool can be downloaded from the following website. Find the DTM*1 file for AXG, AXW or CA magnetic flowmeter, or Vortex flowmeter VY series. Install and run it on the FieldMate.

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

*1: DTM (Device Type Manager) is the application which defines the Graphical User Interface (GUI) specific to the device.

■ ORDERING INFORMATION

1. Model, Specification and Optional Code

■ RELATED INSTRUMENTS

Product	Document No.
FieldMate Versatile Device Management Wizard	GS 01R01A01-01E
ADMAG TI Series AXG Magnetic Flowmeter	GS 01E22A01-01EN
ADMAG TI Series AXW Magnetic Flowmeter [Size: 25 to 400 mm (1 to 16 in.)]	GS 01E24A01-01EN
ADMAG TI Series AXW Magnetic Flowmeter [Size: 500 to 1800 mm (20 to 72 in.)]	GS 01E25D11-01EN
ADMAG TI Series AXG1A Magnetic Flowmeter Remote Transmitter	GS 01E22C01-01EN
Magnetic Flowmeter CA Series	GS 01E40A01-01EN
Vortex Flowmeter VY Series	GS 01F07A00-01EN
AM012 Calibrator for Magnetic Flowmeter	GS 1E6K2-E
CA500 Series Multi-function Process Calibrator	Bulletin CA500-01EN

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