

The FSA120 (EJXMVTool) is the software package which offers a variety of functions to help users to easily configure the parameters of EJX910A multivariable transmitter.

- Two flow calculation modes
Auto compensation mode/ Basic compensation mode
- Easy flow parameter configuration by dialog windows
- FieldMate, Yokogawa's frame application, is bundled.
- HART and FOUNDATION fieldbus H1 are supported.

It employs FDT/DTM technology and works on the FieldMate which conforms to FDT1.2 standard.

FDT(Field Device Tool): defines the system environment in which the DTM runs.

DTM(Device Type Manager): the application which defines the graphical user interface(GUI) specific to the device.

■ OPERATIONAL CONDITIONS

The quality, operability of the EJXMVTool are certified for use with FieldMate only. The operational condition depends on frame application. The followings describe the conditions of FieldMate.

<Hardware Operating Environment>

• PC

- Machine: IBM PC/AT compatible
- CPU: Pentium III 1GHz or faster
(Pentium 4, 1G or faster recommended)
- Main memory: 1 GB or more
- Hard disk drive: 8 GB or more
(minimum free space: 1 GB)
- CD-ROM drive: Windows XP compatible
- Display: 16 bit colors or better 1024 x 768 or better resolution recommended

• Network port

For HART device:

One USB or RS-232C port

For FOUNDATION fieldbus H1 device:

A slot for PCMCIA card or PCI slot

<Software Operating Environment>

Common requirement:

- Microsoft Windows XP Professional SP2 (English)
- Adobe Reader
- Frame application: FieldMate R1.03
- Communication DTM (included in FieldMate)

Requirement for FOUNDATION fieldbus:

- NI-FBUS Communication Manager 3.0 or higher

■ FUNCTIONAL SPECIFICATIONS

FieldMate Basic is bundled, which supports the parameter configuration while it is connected to the device. If the parameter configuration without connecting the device is required, specify FieldMate Advance (option code: /Y).

Transmitter Management

Online parameter

The general parameters of the device can be edited directly in online status.

Offline parameter

The general parameters of the device can be edited and stored in offline database.

Note for FOUNDATION fieldbus

- The function blocks supported by Transmitter Management are as follows; Resource block, Sensor transducer block, Flow transducer block, LCD transducer block, and AI function blocks.
- Setting of Node address, PD tag, and scheduling are not supported by FSA120.

Download/upload

Downloading the flow and general parameters onto the device. Uploading the data from the device to PC.

Flow Configuration Wizard

In this mode, the procedures which are required for flow configuration of an EJX910A can be performed interactively.

(1) Auto compensation mode

Procedures to configure flow calculation by setting up a primary device and fluid physical properties in a step-by-step dialog window.

(2) Basic mode

Flow operation and density compensation are performed with the flow factors being input manually.

(3) Import/export file

Import and export the user flow parameters.

(4) Report

The list of user flow parameters is exported in CSV file format.

Obtain Flow coefficient

The flow coefficient can be obtained from the transmitter.

Input selection: sensor data actually measured or simulated data input by a user.

Auto Compensation Mode Specification

Supported primary device

The 19 devices or Fixed Mode as specified in Table 1.

Fixed Mode:

Set a fixed value to Discharge coefficient and Gas expansion factor.

Density compensation

Following (1) and (2) methods are supported for density compensation. For unsupported fluid, data entries to configure custom physical properties are also available as shown in (3).

(1) Density compensated by physical properties

Database:

As specified in Table 2

Source:

American Institute of Chemical Engineers (AIChE®) DIPPR® Project No.801 Database: 2003 Edition

(2) Density compensated using standard

Steam tables:

IAPWS-IF97 Water and Steam (1997)

IAPWS-IF97: IAPWS Industrial Formulation 1997

IAPWS: The International Association for the Properties of Water and Steam.

Natural gas:

AGA8

Compressibility Factors of Natural Gas and Other Related Hydrocarbon Gases.

American Gas Association (AGA)

Transmission Measurement Committee Report No.8 Second Edition, November 1992

Detail Characterization Method

Gross Characterization Method 1

Gross Characterization Method 2

ISO 12213:1997 First edition 1997-12-01

Part 2: molar-composition analysis

Part 3: physical properties

(3) Custom fluid density and viscosity compensation:

Numerical value can be input to configure physical properties (density, viscosity, etc.)

MODEL AND SUFFIX CODES

R1.02

Model	Suffix Codes	Descriptions
FSA120	EJX-MV configuration DTM
License	-S	Single PC License*
——	1	Always 1
Language	1	English
——	0	Always 0
Optional code	/Y	FieldMate Advance License**

*: Single user on a single PC

** : If the parameter configuration while it is not connected to the device is required, specify this option code.

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Recommended Communications interface

HART:

Yokogawa USB HART modem

(Parts number: F9197UB)

Yokogawa USB FieldMate modem

(Parts number: F9197UC)

For FOUNDATION fieldbus:

National Instruments PCMCIA-FBUS or PCI-FBUS

Components

FSA120 contains the following items in the package.

- CD-ROM: EJXMVTool Additional Resource Disk
- License number sheet for EJXMVTool

- CD-ROM: FieldMate Software Media
- CD-ROM: Device Files Media

- Licence number sheet for FieldMate
- For the details, refer to GS 01R01A01-01E.

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<RELATED INSTRUMENTS AND SOFTWARE>

EJX910A Multivariable Transmitter:
 GS 01C25R01-01E
 FieldMate:
 GS 01R01A01-01E

Table 1. Primary Device

Type	Primary Device
FIX	Fixed Mode (Sets the discharge coefficient and gas expansion factor to a fixed value)
Orifice	Orifice Corner Taps [ISO5167-1 1991]
	Orifice Corner Taps [ISO5167-2 2003]
	Orifice Corner Taps [ASME MFC-3M 1989]
	Orifice Flange Taps [ISO5167-1 1991]
	Orifice Flange Taps [ISO5167-2 2003]
	Orifice Flange Taps [ASME MFC-3M 1989]
	Orifice Flange Taps [AGA No.3 1992]
	Orifice D and D/2 Taps [ISO5167-1 1991]
	Orifice D and D/2 Taps [ISO5167-2 2003]
	Orifice D and D/2 Taps [ASME MFC-3M 1989]
Nozzle	ISA1932 nozzle [ISO5167-1 1991/ ISO5167-3 2003]
	Long radius nozzle [ISO5167-1 1991/ ISO5167-3 2003]
	ASME FLOW NOZZLES [ASME MFC-3M 1989]
Venturi	Venturi nozzle [ISO5167-1 1991/ ISO5167-3 2003]
	Classical Venturi tube "as cast" convergent section [ISO5167-1 1991/ ISO5167-4 2003]
	ASME Venturi Tubes With a rough Cast or Fabricated Convergent [ASME MFC-3M 1989]
	Classical Venturi tube with a machined convergent section [ISO5167-1 1991/ ISO5167-4 2003]
	ASME Venturi Tubes With a machined convergent section [ASME MFC-3M 1989]
	Classical Venturi tube with a rough-welded sheet-iron convergent section [ISO5167-1 1991/ ISO5167-4 2003]

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Table 2. Physical Properties

Fluid name	Fluid name	Fluid name
Acetic Acid	Hydrogen Chloride	Phosphoric Acid
Acetone	Hydrogen Cyanide	Propadiene
Acetonitrile	Hydrogen Peroxide	Propane
Acetylene	Hydrogen Sulfide	Propylene
Acrylonitrile	Isobutane	Pyrene
Air	Isobutene	Styrene
Allyl Alcohol	Isobutylbenzene	Sulfur Dioxide
Ammonia	Isopentane	Toluene
Argon	Isoprene	Trichloroethylene
Benzaldehyde	Isopropanol	Trichlorofluoromethane
Benzene	m-chloronitrobenzene	Vinyl Acetate
Benzoic Acid	m-dichlorobenzene	Vinyl Chloride
Benz Alcohol	Methane	Vinyl Cyclohexene
Biphenyl	Methanol	Water
Bromine	Methyl Acrylate	1-Butene
Carbon Dioxide	Methyl Ethyl Ketone	1-Decene
Carbon Monoxide	Methyl Vinyl ether	1-Decanal
Carbon Tetrachloride	Monochlorobenzene	1-Decanol
Chlorine	n-Butane	1-Dodecene
Chlorodifluoromethane	n-Butanol	1-Dodecanol
Chloroprene	n-Butyraldehyde	1-Heptanol
Chlorotrifluoroethylene	n-Butyronitrile	1-Heptene
Citric Acid	n-Decane	1-Hexene
Cycloheptane	n-Dodecane	1-Hexadecanol
Cyclohexane	n-Heptadecane	1-Octanol
Cyclopentane	n-Heptane	1-Octene
Cyclopentene	n-Hexane	1-Nonanal
Cyclopropane	n-nonane	1-Nonanol
Dichlorodifluoromethane	n-Octane	1-Pentadecanol
Divinyl Ether	n-Pentane	1-Pentanol
Ethane	Neon	1-Pentene
Ethanol	Neopentane	1-Undecanol
Ethylamine	Nitric Acid	1,1,2,2-Tetrafluoroethane
Ethylbenzene	Nitric Oxide	1,1,2-Trichloroethane
Ethylene	Nitrobenzene	1,2,4-Trichlorobenzene
Ethylene Glycol	Nitroethane	1,2-Butadiene
Ethylene Oxide	Nitrogen	1,3-Butadiene
Fluorene	Nitromethane	1,3,5-Trichlorobenzene
Furan	Nitrous Oxide	1,4-Dioxane
Helium-4	Oxygen	1,4-Hexadiene
Hydrazine	Pentafluoroethane	2-Methyl-1-Pentene
Hydrogen	Phenol	2,2-Dimethylbutane

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