1. Features

FieldMate is a PC based configuration tool that performs numerous tasks, including initial setup, daily maintenance, troubleshooting, and configuration backup for device replacement. These tasks are streamlined by FieldMate's intuitive operation and integrated environment, which is independent from communication protocols and device vendors.

Moreover, the off-line database function can maintain a complete record for all device configuration and maintenance activities.

FieldMate incorporates the open FDT/DTM standard and is compliant with DTM per the FDT1.2 and FDT2.0 simultaneously standard. FieldMate supports the built-in DTM for interpreting the existing Device Description (DD) instantly, for other vendors' devices that do not have DTMs available.

The FDT frame is an integral part of FieldMate. Many DTMs are included with the FieldMate application, and additional DTMs are available from most field device vendors.

*FDT: (Field Device Tool) is a frame application that standardizes the communication and configuration interface between all field devices and host systems.

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

2. Functional Details

2.1 Communication Function

FieldMate supports the following communication protocols:

- **BRAIN**
- **FOUNDATION™ fieldbus H1** *1
- **HART (HART 7 is supported)**
- **PROFIBUS**
- **ISA100.11a**
- **Modbus**

*1 FieldMate should connect to the devices in FOUNDATION™ fieldbus H1 segment without host system.
Device Interface Function

- **Segment Viewer**
  Displays a list of devices currently connected on the communication lines, grouped by protocol. Basic device specific information is displayed depending on protocol (Device ID, Manufacturer ID, address, Device type, Device revision, and status). Segment Viewer supports BRAIN, FOUNDATION fieldbus H1, HART, PROFIBUS, ISA100.11a*1, Modbus.
  *1 It displays either via gateway or infrared communication.

- **Device Viewer**
  Displays the current status of the field device, including errors, warnings and good status. The status display icon (red, yellow, green) clearly indicates the device's self-diagnostic status. DeviceViewer supports FOUNDATION fieldbus H1, HART.

- **Device Navigator**
  Shows all registered devices and provides a searching function by tag, device name, memo, etc.
  * Online registration and offline registration can directly be implemented from Segment Viewer/Device Navigator. (Up to approx. 500 devices can be registered) Marking it with flags to remind users of outstanding issues etc., simplifying daily maintenance.

Configuration Function

Device parameters can be easily configured.

- **DTM Works**
  The DTM Works provides not only configuration, but easy setup, calibration, simulation wizards etc. as defined by the device vendors’ DTM. DTM Works supports BRAIN, FOUNDATION fieldbus H1, HART, PROFIBUS, ISA100.11a, Modbus.

- **Parameter Manager**
  The Parameter Manager is a simple parameter viewing window, in which adjustment and field device replacement can easily be performed. Parameter Manager supports FOUNDATION fieldbus H1, HART.

- **DD Menu**
  The existing fieldbus DD is utilized to enable function block configuration. DD Menu supports FOUNDATION fieldbus H1.

- **Zero Adjustment**
  The Zero Adjustment function is executed from Segment Viewer with one-click. This function supports YOKOGAWA Differential pressure transmitters (HART/FOUNDATION fieldbus H1/ BRAIN).

- **All Parameters Acquisition**
  This function obtains all parameters from device with one-click. Obtained parameters can be compared with recorded parameters and then displayed the difference. Recorded parameters and comparison result can export in various formats (text, HTML etc.).

History Function

FieldMate Operation log are automatically recorded.
- Date & Time
- Device Tag
- Device ID
- User
- Source: DTM works, DD Menu, Parameter Manager, etc.
- Category: Configuration (device parameter change) and System (logs of login, etc.).
- Message: Details log of changes

Input Loop Check Support

This function is to output test signal from device. Some test pattern (Ex. 3 point check / 5 point check) and signal value can create easily. This test pattern can be saved and read. Any device can be operated through the same user interface - regardless supplier, type or communication protocol (HART/BRAIN).

3rd Party DTM Function

This function provides device interface in compliance with FDT standard, enabling the features defined by the device vendor's DTM.

Field Diagnostic Function

NAMUR NE107 is a recommendation to categorize alarms into four status signals (Failure, Function Check, Out of Specification and Maintenance Required), this allows for reliable operation, more efficient planning of maintenance and higher confidence in the instruments operation.

The classification, configuration and status of many device alarms that conform to NE107 can be easily checked, changed and monitored by Field Diagnostic Function.

(all supports FOUNDATION fieldbus H1 and Profibus)

Database Function

- **Device Maintenance Info.**
  Provides advanced maintenance information consisting of:
  - Device Information
  - Sticky Note
  - Images
  - History
  - Parameter (All Parameters of Device, ZERO Adjustment Parameters of Device)
  - Attachment (Memo, Document, Parameter Manager Data, DTM Data)
  All information can be exported / imported.

User management

Provides simple security and activity logging by allowing users to be defined by a user name and password. The user ID is incorporated as part of the device maintenance history.

3rd Party COMM DTM support

Provides advanced connections and communication networking enabling:
- Access PROFIBUS-PA/DP devices
- Access HART devices via PROFIBUS
- Access 3rd Party multiplexers.

User defined communication topology can be saved in FDT project.
3. Connection Example (for reference)
Sample BRAIN or HART configuration, connecting a pressure transmitter.

**Required Components**
- BRAIN or HART EJA Pressure Transmitter.
- 24 V DC Power supply
- Load Resistor (250Ω ±10%)
- USB FieldMate Modem: BRAIN/HART

![Connection Example Diagram]
### 4. System Requirements

#### Software Operating Environment

<table>
<thead>
<tr>
<th>OS</th>
<th>Windows 10 Pro, Home 32bit / 64bit (November Update version 1511 build or later)</th>
<th>Windows 7 Professional, Home Premium 32bit/64bit SP1 or later *7</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS Language</td>
<td>English, Japanese, Chinese (simplified), German, French, Russian *8</td>
<td></td>
</tr>
</tbody>
</table>

#### Hardware Operating Environment

<table>
<thead>
<tr>
<th>PC</th>
<th>IBM PC/AT Compatible</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>1gigahertz (GHz) or faster processor</td>
</tr>
<tr>
<td>Main Memory</td>
<td>2GB or more</td>
</tr>
<tr>
<td>Hard disk space</td>
<td>4GB or more</td>
</tr>
<tr>
<td>DVD-ROM Drive</td>
<td>Windows 10 compatible</td>
</tr>
<tr>
<td>Display</td>
<td>1024×768 or better resolution recommended</td>
</tr>
</tbody>
</table>

#### Network port

<table>
<thead>
<tr>
<th>Foundation fieldbus H1 *1</th>
<th>Interface</th>
<th>Windows 10</th>
<th>Windows 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRAIN HART</td>
<td>Interface</td>
<td>One USB port USB2.0 standard</td>
<td>One USB port USB2.0 standard</td>
</tr>
<tr>
<td>Modem</td>
<td>USB FieldMate Modem: BRAIN/HART (Yokogawa Option)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOUNDATION fieldbus H1 *1</td>
<td>Interface</td>
<td>One PCMCIA card slot</td>
<td>One PCMCIA card slot</td>
</tr>
<tr>
<td>Interface board</td>
<td>NI PCMCIA-FBUS Series 2 (National Instruments)</td>
<td>NI-FBUS Communications Manager 15.0 or later</td>
<td></td>
</tr>
<tr>
<td>Driver</td>
<td>NI-FBUS Communications Manager 15.0 or later</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOUNDATION fieldbus H1 *1</td>
<td>Interface</td>
<td>One USB port USB2.0 standard</td>
<td>One USB port USB2.0 standard</td>
</tr>
<tr>
<td>Interface board</td>
<td>NI USB-8486 (National Instruments)</td>
<td>NI-FBUS Communications Manager 15.0 or later</td>
<td></td>
</tr>
<tr>
<td>Driver</td>
<td>NI-FBUS Communications Manager 15.0 or later</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOUNDATION fieldbus H1 *1</td>
<td>Interface</td>
<td>One USB port USB2.0 standard</td>
<td>One USB port USB2.0 standard</td>
</tr>
<tr>
<td>Interface hardware</td>
<td>FFusb (Softing)</td>
<td>FFusb (Softing)</td>
<td></td>
</tr>
<tr>
<td>Driver</td>
<td>V1.00.1.17 or later *2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROFIBUS</td>
<td>Interface</td>
<td>One USB port USB2.0 standard</td>
<td>One USB port USB2.0 standard</td>
</tr>
<tr>
<td>Interface card</td>
<td>PROFIdtm (Softing)</td>
<td>PROFIdtm (Softing)</td>
<td></td>
</tr>
<tr>
<td>commDTM &amp; driver</td>
<td>PROFIdtm V2.11.01 or later</td>
<td>PROFIdtm V2.11.01 or later</td>
<td></td>
</tr>
<tr>
<td>DP/PA coupler</td>
<td>KFD2-BR-A.PA.93 (PEPPERL+FUCHS)</td>
<td>KFD2-BR-A.PA.93 (PEPPERL+FUCHS)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6ES7 157-0AC80-0XA (SIEMENS)</td>
<td>6ES7 157-0AC80-0XA (SIEMENS)</td>
<td></td>
</tr>
<tr>
<td>Interface</td>
<td>One USB port USB2.0 standard</td>
<td>One USB port USB2.0 standard</td>
<td></td>
</tr>
<tr>
<td>Interface card</td>
<td>PBproUSB (Softing)</td>
<td>PBproUSB (Softing)</td>
<td></td>
</tr>
<tr>
<td>commDTM &amp; driver</td>
<td>PROFIdtm V2.11.01 or later</td>
<td>PROFIdtm V2.11.01 or later</td>
<td></td>
</tr>
<tr>
<td>DP/PA coupler</td>
<td>KFD2-BR-A.PA.93 (PEPPERL+FUCHS)</td>
<td>KFD2-BR-A.PA.93 (PEPPERL+FUCHS)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6ES7 157-0AC80-0XA (SIEMENS)</td>
<td>6ES7 157-0AC80-0XA (SIEMENS)</td>
<td></td>
</tr>
<tr>
<td>HART</td>
<td>Interface</td>
<td>Bluetooth 2.0</td>
<td></td>
</tr>
<tr>
<td>Modem</td>
<td>VIATOR © Bluetooth @Interface: Model 010041 (MACTek ©) *3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISA100.11a *4</td>
<td>Interface</td>
<td>One USB port USB2.0 standard</td>
<td></td>
</tr>
<tr>
<td>Modern</td>
<td>One USB port USB2.0 standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Infrared Adapter: ACT-IR222UN-LN96-LE 9600bps (ACTISYS) *5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driver</td>
<td>Version 1.5.0 / Version 1.12.0 *9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version 1.7.0 *10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISA100.11a *6</td>
<td>Interface</td>
<td>One Ethernet port</td>
<td></td>
</tr>
<tr>
<td>Modbus Serial</td>
<td>Interface</td>
<td>One USB port USB2.0 standard</td>
<td></td>
</tr>
<tr>
<td>Modern</td>
<td>Not supported</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driver</td>
<td>Isolated RS422/485 USB adaptor SP390A-R2 (BLACK BOX)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version 2.0.0 or later</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Login

<table>
<thead>
<tr>
<th>Account</th>
<th>Administrator privilege</th>
</tr>
</thead>
</table>

Communication performance depends on environment and interface you select.

*1 FieldMate should connect to the devices in FOUNDATION fieldbus H1 segment without host system
*2 The package is provided complete with FieldMate driver from Softing
*3 Microsoft supplied Bluetooth stack is used
*4 ISA100.11a OOB infrared communication
*5 Holder for Infrared Adapter is available (recommended): Gorillamobile Original: GM1 (JOBY, Inc).
*6 ISA100.11a communication via gateway
*7 FieldMate Validator is supported with Windows 10 Pro 64bit and Windows 7 Professional 64bit.
*8 FieldMate Validator is supported with an English OS and a Japanese OS.
*9 Version 1.5.0 driver is used for PL2303 HA/HXA chip and Version 1.12.0 driver is used for PL2303TA chip
*10 Interface recommends to use the driver included OS. Version 1.7.0 driver is used if interface does not work well.
## 5. Model and Suffix Codes

Field device management software package: FieldMate Release: R3.02

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Codes</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSA111</td>
<td>-S------------</td>
<td>FieldMate License</td>
<td>License number issued</td>
</tr>
<tr>
<td>-</td>
<td>1------------</td>
<td>Always 1</td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>1------------</td>
<td>Always 1</td>
<td>Always 1 *2</td>
</tr>
<tr>
<td>Option Code</td>
<td>/B----------</td>
<td>USB FieldMate Modem</td>
<td>BRAIN/HART</td>
</tr>
<tr>
<td></td>
<td>/VF---------</td>
<td>AXF Verification Tool</td>
<td></td>
</tr>
<tr>
<td></td>
<td>/VT---------</td>
<td>FieldMate Validator *3</td>
<td>For N-IO Node</td>
</tr>
</tbody>
</table>

CD-ROM (FieldMate Software Media): F9197DS *1
DVD-ROM (Device Files Media): F9197DT *1
USB FieldMate Modem (BRAIN and HART protocols): F9197UC

*1 Replacement disk only

*2 With an English Windows OS, FieldMate English can be installed. With the following Windows OS, either FieldMate with the following language or FieldMate English can be installed. Japanese, Chinese (simplified), German, French, Russian

*3 FieldMate Validator software (including user’s manual) can be downloaded from Yokogawa web site. A display language of FieldMate Validator is English. A commercially available USB cable (Connector type of N-IO node: Micro-B) is necessary to connect to N-IO node.

### Upgrading from R2 to R3

- Upgrading from FieldMate Basic to FieldMate R3

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRA110</td>
<td>-S------------</td>
<td>Upgrade from FieldMate Basic to R3</td>
</tr>
<tr>
<td>-</td>
<td>1------------</td>
<td>Single PC license</td>
</tr>
<tr>
<td>Language</td>
<td>1------------</td>
<td>Always 1</td>
</tr>
</tbody>
</table>

Notice: R2 license number needs to be stated on placing order

- Upgrading from FieldMate Advance to FieldMate R3

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRA111</td>
<td>-S------------</td>
<td>Upgrade from FieldMate Advance to R3</td>
</tr>
<tr>
<td>-</td>
<td>1------------</td>
<td>Single PC license</td>
</tr>
<tr>
<td>Language</td>
<td>1------------</td>
<td>Always 1</td>
</tr>
<tr>
<td>Option Code</td>
<td>/VF---------</td>
<td>From R2.x without Verification Tool to R3 with /VF option</td>
</tr>
<tr>
<td></td>
<td>/VFN--------</td>
<td>From R2.x with /VF option to R3 with /VF option</td>
</tr>
</tbody>
</table>

Notice: R2 license number needs to be stated on placing order
6. External View
External view of USB FieldMate modem: BRAIN/HART

Unit : mm

![USB FieldMate Modem](image)

Total cable length: Approximately 2.3 m

**Technical Specifications**

<table>
<thead>
<tr>
<th>Software</th>
<th>USB Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>System powered by USB Port</td>
</tr>
<tr>
<td>Supply Current</td>
<td>40mA@ + 5 V</td>
</tr>
<tr>
<td>Pins to Computer</td>
<td>USB Type-A connector</td>
</tr>
<tr>
<td>Pins to Device</td>
<td>2-pin, polarity insensitive Mini-grabber test clips. Detachable alligator clips additionally</td>
</tr>
<tr>
<td>Output Level (HART)</td>
<td>0.5 +/- 0.1 Vpp trapezoidal wave at 1200/2200 Hz</td>
</tr>
<tr>
<td>Output Level (BRAIN)</td>
<td>1.0 +/- 0.1 Vpp trapezoidal wave at 2400 Hz</td>
</tr>
<tr>
<td>Isolation (DC)</td>
<td>1910 VDC between instrument and computer</td>
</tr>
<tr>
<td>Isolation (AC)</td>
<td>1350 Vrms (50Hz)</td>
</tr>
</tbody>
</table>

**Environmental**

- Operating Temperature: 0 °C to 55 °C
- Storage Temperature: -40 °C to 70 °C
- Storage Humidity: 0% to 95% relative humidity

**Physical Dimensions**

- Enclosure: 83 x 46 x 18 mm, ABS industrial enclosure
- Device Interface Cable: 190 cm, 2-conductor terminating with two mini grabber clips
- USB Cable: 27 cm cable terminating in a USB type A connector

---

EMC Conformity Standards: CE, EAC, RoHS directive

- CE: EN61326-1 Class A, Table 1 (Basic immunity test requirement)
- RoHS directive: EN50581
- RoHS directive compliant products are as follows. Shipping after 20th April 2016
- KC Mark: Registration No: KCC-REM-YHQ-EEN260
- RMC: EN61326-1 Class A, Table 1 (Basic immunity test requirement)
- EAC: EN61326-1 Class A, Table 1 (Basic immunity test requirement)

7. Included Items

FieldMate includes the following items:
- Software and User’s Manual of FieldMate Validator are not included. Please download Software and User’s Manual of FieldMate via Yokogawa web site.

**Product**

- CD-ROM: FieldMate Software Media
- DVD-ROM: Device Files Media
- USB FieldMate modem: BRAIN/HART w/ cables (optional)

**Documentation**

- License number sheet
- Getting Started

Please download User’s Manual via Yokogawa web site.

http://www.yokogawa.com/fieldmate/

8. Items Contained in Media

**Items contained in the Media of FieldMate R3.02:**

CD-ROM: FieldMate Media
- FieldMate Program
- USB modem driver

DVD-ROM: Device Files Media
- Device DTM for Yokogawa devices
  - BRAIN
  - FOUNDATION fieldbus H1
  - HART
  - PROFIBUS
  - ISA100.11a
  - Modbus
- Device DTM for the HART devices
- Built-in DTMs (DTM interprets DD and works right straight.)
  - FOUNDATION fieldbus H1
  - HART
  - ISA100.11a
- DD for the FOUNDATION fieldbus H1 devices
- DD for the HART devices

- Devices registered with HART Communication Foundation, some DTM or DD may not be included.
- Devices registered with Fieldbus Foundation, some DD may not be included.

Remarks:
Yokogawa certifies the quality and operability only of DD and DTM which have been registered by Yokogawa.
9. Compatibility
Compatibility between FieldMate and Device Files is indicated on the web site at the following URL.
For more information, see the “System Requirements”.
http://www.yokogawa.com/fieldmate/

10. User Registration
FieldMate can be installed on a single PC using the license number provided. FieldMate can be used for up to 30 days without registration.
For permanent installation, user registration is required. After registration an Activation Key is provided to the user. User registration can be done on the FieldMate User Registration web site.
https://partner.yokogawa.com/global/fieldmate/
The items required for user registration are the license number and Hard Disk serial number (Volume Serial Number) of the PC to which FieldMate is installed. Installation of FieldMate Validator requires activation of FieldMate.

11. Trademarks
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