

Field Device Manager Express Specifications



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Specifications subject to change without notice.

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Revision History

Revision	Date	Description
0.1	12 July 2012	Initial draft

Introduction

Honeywell Field Device Manager Express

Field Device Manager Express is a portable, on-the-go version of the award-winning Field Device Manager (FDM) solution for smart field instrument configuration and management. It provides many of the same features and benefits of FDM in an affordable and transportable package for Windows 7 desktop or laptop use.

Product Overview

FDM Express is a powerful tool for that makes configuration and maintenance of smart field devices easy! It provides support for:

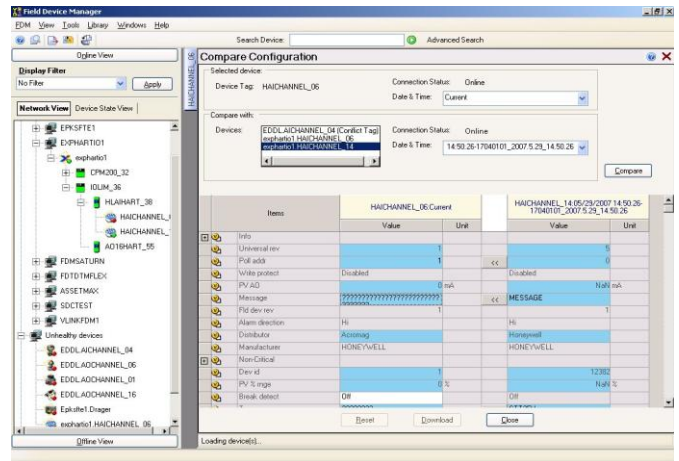
- A HART device connected to a HART modem;
- HART devices connected to a multiplexer network;
- Profibus devices connected to a Profibus network; and
- HART devices connected to a Profibus network via a HART-over-Profibus gateway.

Open Standards Support

FDM Express supports open industry standards, enabling use as a versatile tool for managing HART or Profibus devices irrespective of the device type or manufacturer. FDM Express uses unmodified vendor Device Description (DD/EDDL) files as well as Device Type Managers (DTMs) for performing device configuration, management and diagnostics tasks. Functions and features described in the DD/EDDL file or DTM are supported.



With FDM Express, you are ready to perform on-the-go smart device maintenance anywhere in the plant!



Comparison of HART device configurations

HART Protocol

The Highway Addressable Remote Transducer protocol, commonly known as HART[®], provides a method to access information resident in smart field devices, such as transmitters, analyzers, and valve positioners. HART is administered and maintained by the HART Communication Foundation (HCF). For a complete list of registered devices, go to <http://www.hartcomm2.org/>.

Device Description Files

Device Description (DD) files contain descriptions of device parameters and functions needed for FDM Express to communicate with the devices. They are written according to the DD language specification. DD files are device-specific and are developed and made available by device vendors.

EDDL, or Electronic Device Description Language, represents an extension to the DD language specification and includes such enhancements as:

- graphical elements and waveforms,
- access to historic measurements and device performance information,
- vendor-specified organization of device parameters, and
- enhanced tools for high-level information display and control system use.

EDDL enhancements provide an improved user interface compared with the DD specification, with support for menus (windows, tabs and groups), graphs, charts and dial indicators.

FDM Express provides full support of HART devices by interpreting both DD and EDDL files. It uses all features of any HART device, irrespective of the vendor or manufacturer, the device version, and the release date. Support for DD and EDDL files includes device-specific commands, device-specific configuration, plus diagnostics and status information.

The use of DD files enables FDM Express to make use of the HART protocol to provide asset management functions like device diagnostics, which help reduce fault isolation effort and enable higher plant uptime.

Field Device Tool (FDT) Technology



Increasingly complex and sophisticated field devices have led to device-specific software applications that access and analyze information about the

device and its condition. FDT provides an open standard for integration of such software applications, and FDM Express supports that standard.

Device suppliers offer a Device Type Manager (DTM) for each specific device or groups of devices. The DTM encapsulates device-specific parameters, functions and rules, including the human machine interface (HMI). The DTM allows accessing device parameters, configuring and operating the device, and diagnosing problems. DTMs range from a simple graphical user interface (GUI) for setting device parameters to a highly sophisticated application capable of performing real-time diagnosis and maintenance calculations.

A DTM is installed as a Windows application and loaded and launched in an FDT container or "frame" application. In the case of FDM Express, this "frame" is the FDM Express Client. It provides the FDT container that defines the interface between FDM Express and the DTMs as well as all communication information to connect with the devices.

Standards Versions

FDM Express supports HART protocol version 5.X, 6.X and 7.X devices.

FDM Express supports Device, Gateway and Communication DTM types with version 1.2.1.

Key FDM Express Functions and Features

The summary below describes important FDM Express features:

- **Instrument Configuration and Diagnostics:** With FDM Express, fully configure, calibrate and diagnose any HART or Profibus device from any vendor. FDM Express uses unmodified vendor-created DD files (HART) or DTM based software plug-ins (HART or Profibus) for performing these functions.
- **Instrument Database:** FDM Express includes an instrument database for storing current and historical configurations of HART and Profibus devices.
- **HART Device Communications:** FDM Express communicates with HART devices connected via a HART modem or HART multiplexer network.
- **Offline Configuration:** FDM Express provides the ability to configure devices offline and store the configuration into a database or file. The configuration can then be downloaded to a device once the device is online. This is supported for DD as well as for DTM driven device configurations.
- **Export/Import:** FDM Express can export live and historical device data, the list of devices, etc., into a common file format for use with other applications.
- **Display Filters:** FDM Express provides the ability to configure custom views of the plant network and then view a subset of associated devices with a user friendly name like "UNIT 1" or "ALL HON STT25H."
- **History Functions:** Device history can be saved using user-friendly names for convenience. History can be managed with features such as the ability to delete a specific history record.
- **Device Documentation Support:** FDM Express allows you to add device documentation, such as user manuals and P&ID diagrams, to the FDM Express database. Documents associated with a device are easily invoked from FDM Express Client.
- **Backup and Restore Capability:** The FDM Express database can be backed up and restored using a dedicated utility for that purpose. In addition, functions like the merge of two databases can be achieved by using the export/import feature.
- **Security:** Access to FDM Express is secured via a user ID and password. FDM Express provides a role-based security system that allows administrators to define site-specific roles and assign allowed tasks for these roles. The user authentication system can be based on FDM-specific application level security or the Windows login. FDM Express supports single sign-on when Windows based security is used.

Detailed Functions in FDM Express

Device Parameter History Database

The FDM Express database stores all parameters for each connected device when requested by the user. The historical device parameter data is accessible through the device tag and is available for comparison purposes. The comparisons can be made with historical data or current data.

Offline Configuration

Offline Configuration is an optionally licensed feature and allows users to configure devices without them being physically present. Such configurations are stored using user friendly names in the database or in separate files, and they can be downloaded to devices when they are physically connected. Configurations can also be captured and stored in the database from live devices, from device history or be created completely from scratch.

This feature greatly reduces configuration effort during plant startup. Maintenance can use this function during production to easily replace a faulty device with a new one by simply taking the historical configuration of the faulty device and downloading it to the new device.

Device Documentation Support

Device documentation support allows the instrument technician to attach and associate documentation with a device stored in the FDM Express database. Documents access is provided whenever the device is being viewed in FDM Express. The documentation can be of any format (Word, Excel, PDF, etc.).

Security and access control

FDM Express is protected by a user ID and password. Role based security allows different users to be granted different privileges. User authentication can be based either on FDM Express security level or on the users' Windows login ID. Single sign-on provides quick access and ease of use when Windows based security is used.

Export/Import Capability

FDM Express provides the ability to export the current device configuration or saved device history into HTML, XML, or CSV (for use with Excel) files.

FDM Express Components

The two principal components of FDM Express are:

- **FDM Express Server:** Server is the core component and provides configuration and management functions. Server maintains the database of HART and Profibus devices.
- **FDM Express Client:** Client provides the FDM Express user interface. The FDM Express Client connects to the Express Server, but it can also connect to full FDM Servers elsewhere in the plant. This can be very useful in connecting the plant with the maintenance shop.

HART Modem

The HART modem allows the user to configure HART devices in the maintenance shop and on the bench top. Connection is made using a USB or serial COM port. The port connects to a HART modem, and the modem connects to the HART device. HART modems are available from multiple third party suppliers.

Honeywell Smart (HART + DE) Modem

FDM Express also supports the connection to HART devices through the Honeywell HART DE Modem. Note that only the HART mode is supported.

HART Hardware Multiplexer Support

HART Hardware Multiplexer systems have existed for many years and are useful where HART enabled I/O are not available. Terminal panels are usually used to split the HART analog signal and the digital signal into two distinct pathways. The analog signal is routed directly to the control or logic system, while the digital data is routed through a separate serial communication link to a USB or serial COM port adapter. Hardware MUX solutions from P+F, MTL, Arcom, Elcon and R. Stahl are supported by FDM Express.

HCF, FDT/DTM, and Device Vendor Testing

The HART Communication Foundation (HCF) developed standard application program source code for DD-enabled hosts, like FDM Express, and handhelds, to use as the core online configuration tool. This program is known as SDC-625 (Smart Device Configurator), and its source code

is used in FDM Express as the basis for DD interpretation and device configuration. It is also the basis of Honeywell's MC Toolkit Configurator, a Pocket PC-based engineering and maintenance tool.

SDC-625 is used by the HCF as the basis for all HART device registration testing. It is also used by most device vendors as the basis for their device development and testing. Because FDM Express uses the same code as the HCF testing program, Honeywell does not maintain a test program for HART devices. Experience with a large number of HART devices to date combined with the

maturity of the HART specifications has proven this to be a valid assumption.

Honeywell maintains a test program for the qualification of device DTMs with Field Device Manager. Although most devices integrate easily, in some cases device manufacturers' interpretations of the FDT/DTM specifications may vary. This test program is essential to identifying and addressing any such issues. It is not a requirement to test devices to insure they will work correctly with FDM Express, but we are happy to test any HART, Fieldbus or Profibus device DTM at no charge

Specifications and Sizing

FDM Express PC (Windows 7)

FDM Express is installed and run in a laptop or desktop workstation platform using the Windows 7 Professional or higher operating system. The following are minimum requirements for the PC:

System Configuration	Minimum
Processor	Intel® Core™ i5-2410M (2.30GHz, 3M cache) or greater
RAM	2 GB minimum
Networking	100 Mbps Ethernet or FTE
Video Resolution	1024 x 768 or 1280 x 1024 or better
Hard Drive	160 GB SATA 3.5", 7200 RPM drive minimum
Operating System	Windows 7 Professional or higher (32-bit and 64-bit)
Recommended Hardware	Dell Latitude E6420 laptop or better

Configuration Guidelines

FDM Express configuration rules are provided below:

- The following table defines what components are considered licensable, process points by FDM Express:

The following items are treated as individual, licensed process points by FDM Express:	The following items are NOT treated as individual, licensed process points by FDM Express:
<ul style="list-style-type: none"> HART or Profibus devices MUX or Modem COMM DTM or Gateway DTM 	<ul style="list-style-type: none"> FDM Express Server itself Network Interfaces

- The FDM Express Client can connect to one Server at a time (either the FDM Express Server or an external FDM Server). The Server connection is established when launching Client and can be changed from within the client without closing FDM.
- No server-based application or any application using SQL Server may be installed in the same PC as FDM Express.

FDM Express Sizing and Capacity

Description	Value
Maximum number of devices supported per FDM Express Server	1000
Maximum number of network connections per FDM Express Server (1 network connection consists of 1 HART Modem, 1 RS 485 HART hardware MUX network, or 1 Profibus network)	1
Maximum number of FDM Express Clients per FDM Express Server	1
Maximum number of device configuration screens simultaneously opened per Client	5
Recommended number of device configuration screens simultaneously opened in FDM Express per HART modem	1
For RS-485 MUX networks, maximum number of HART devices per network	992
Baud rates of P+F/MTL/STAHL hardware MUX networks that FDM Express can connect to	9600 and 19.2K

Refer to full FDM specifications for FDT/DTM Capacity and Topology specifications

Supported Networks

Connection Type	Supported Types
Modem	ICPCON, Moxa, Mactek
Hardware Multiplexers/Remote I/O systems supported	Elcon, Arcom, MTL, P+F, R. Stahl

Supported Peripherals/Accessories

The table below contains the list of peripheral hardware that has been qualified with FDM Express. The use of any other hardware is not necessarily supported.

Hardware Type	Make	Model	Version
USB to RS 485 Converters	ICPCON	I-7561 USB to RS-232/422/485 converter	-
	Moxa	UPOINT 1130 USB to serial adaptor	-
	Mactek	Viator RS232	-
	Mactek	Viator USB HART Modem (HART modem network interface only)	-
Ethernet to Serial Converter	Systech	NDS 6101 Single COM port	-
Hardware Multiplexers	MTL	4841 & 4842 4850	HW Ver. 10, SW Ver. 3 HW Ver. 10, SW Ver. 1
	P+F	KFD2-HMM-16 Elcon 2700G	HW Ver. 10, SW Ver. HW Ver. 10, SW Ver. 8
	R. Stahl	IS1	-
Honeywell Smart DE modem	Honeywell	MC Toolkit Modem	-
Ethernet to Profibus Gateway	Softing	FG-100	HW Ver. 2 DTM Version- 2.03 (110)
	Trebing and Himstedt	xEPI	HW Ver. 2 DTM Version-3.0.0.0

Model Numbers

FDM Express Licenses

Model Number	Description
Base License	
HC-SVLPT1	FIELD DEVICE MANAGER EXPRESS BASE PKG Win 7 Laptop Package Special This includes Base, 1 Client, 32 points, 1 MUX, 1 MODEM, and Offline Configuration Expansions only using HC-SVLXXX models. Win 7 laptop or desktop use only.
Device Adder Blocks	
HC-SVL032	ADD BLOCK OF 32 POINTS TO FDM EXPRESS
HC-SVL064	ADD BLOCK OF 64 POINTS TO FDM EXPRESS
HC-SVL128	ADD BLOCK OF 128 POINTS TO FDM EXPRESS
HC-SVL256	ADD BLOCK OF 256 POINTS TO FDM EXPRESS
HC-SVL512	ADD BLOCK OF 512 POINTS TO FDM EXPRESS
HC-SVL01K	ADD BLOCK OF 1024 POINTS TO FDM EXPRESS

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For More Information

Learn more about Honeywell's Field Device Manager, visit our website www.honeywell.com/ps or contact your Honeywell account manager.

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