

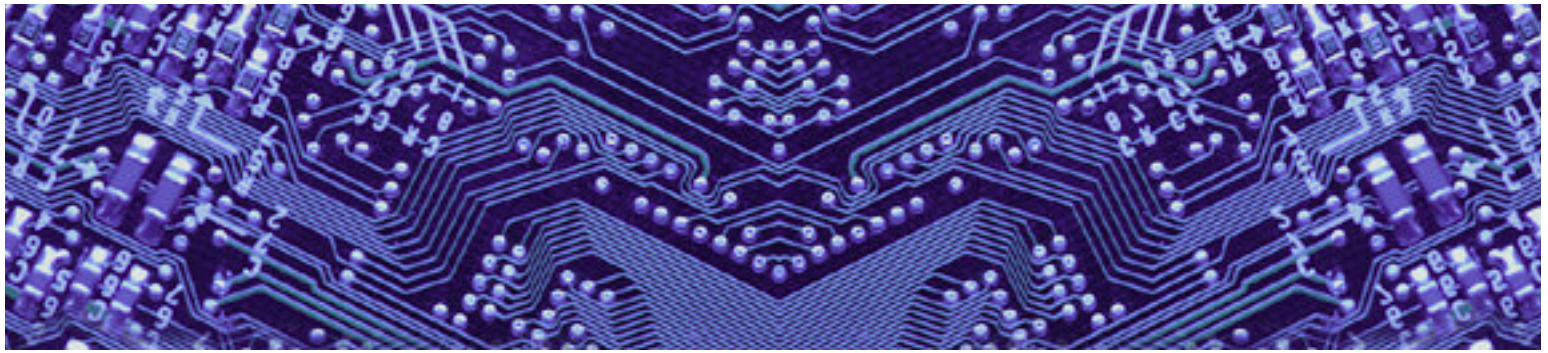
H1 Interoperability Test Kit (ITK) Frequently Asked Questions

PRODUCT QUESTIONS

What is the H1 ITK?	2
What can I do with the H1 ITK?	3
What are the benefits of the H1 ITK?	3
What is included with the H1 ITK?	3
What are the system requirements?	4
What additional components do I need to use the H1 ITK?	4
Are there optional components to the H1 ITK?	4
What are the latest updates to the H1 ITK?	4
What are field diagnostics?	5
What are the DD 5.1 enhancements?	5
What support is covered under a <i>new</i> license agreement to the ITK?	6
What additional support options are available to keep up-to-date with the latest versions?	6
How do I get support?	6

REGISTRATION QUESTIONS

Which Descriptive Device (DD) files will be posted to the foundation's website?	7
Can I schedule a device test with the latest H1 ITK version?	7
Am I required to re-register my existing registered device to the latest H1 ITK version?	7
Can I self-register my H1 devices with this software?	7
What ITK versions are available for registration?	8
How do I maintain my current device registration?	8
What updates were added to previous H1 ITK versions?	9
My device is currently registered to H1 ITK. I would like to develop enhanced DDs for this existing device that take advantage of the new visualization support. Do I need to complete full device testing under H1 ITK or can I simply test my new DD/CF?	11
If I submit a device to test under H1 ITK 6.1.1, what type of DDs should I provide?	11
Which DD technology versions are supported by the ITK?	12
Are DD6s required for the H1 ITK 6.1.1?	12



PRODUCT QUESTIONS

What is the H1 ITK?

One of the founding principles of the Fieldbus Foundation™ is the support of interoperability — the ability to operate multiple devices from multiple manufacturers, in the same system, without loss of functionality.

The H1 Interoperability Test Kit (H1 ITK) tests the functionality of a device and its conformity with FOUNDATION fieldbus function block and transducer block specifications. An excellent tool for troubleshooting and debugging devices, the test kit includes all hardware and software required to ensure a manufacturer's complete device interoperability as specified by the foundation's official registration testing procedure.

The H1 ITK supports powerful field diagnostics capabilities, which standardize how all fieldbus devices communicate their diagnostic data to the host system and asset management system — regardless of the vendor.

Figure 1 shows a typical test configuration.

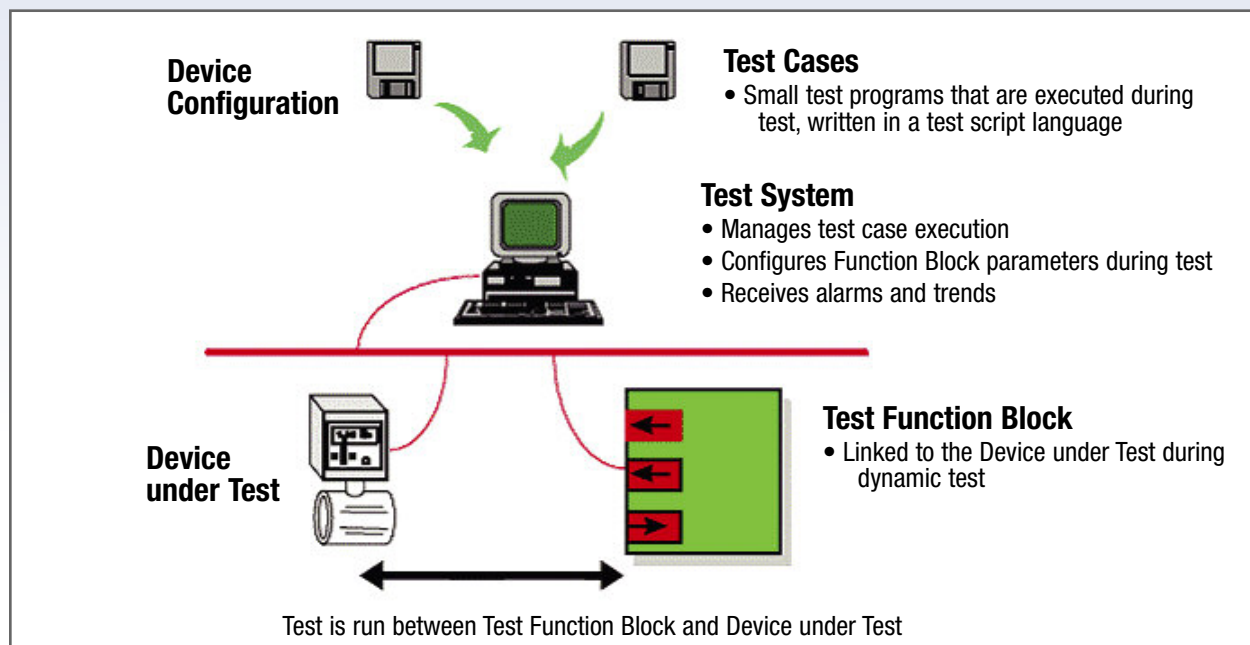
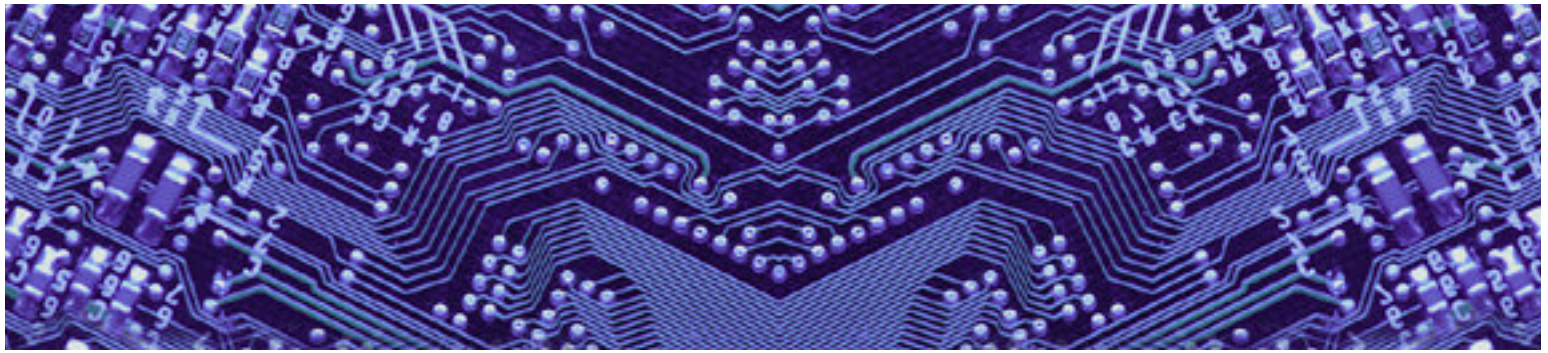


Figure 1: Interoperability Test Configuration



What can I do with the H1 ITK?

The H1 ITK is used for interoperability testing of H1 field devices. The kit will verify the functionality of a device and its conformity to the Fieldbus Foundation Function Block Specifications. The included software allows you to run tests identical to those used by the Fieldbus Foundation before sending your device for official registration. With the H1 ITK, you can select to run the full set of tests or only a portion of the available tests.

What are the benefits of the H1 ITK?

- Assists in Device Development (test during development)
- Pre-testing a device to minimize testing costs
- Runs all or a portion of the test cases
- Enables developers to implement field diagnostics capabilities

What is included with the ITK?

New licenses include:

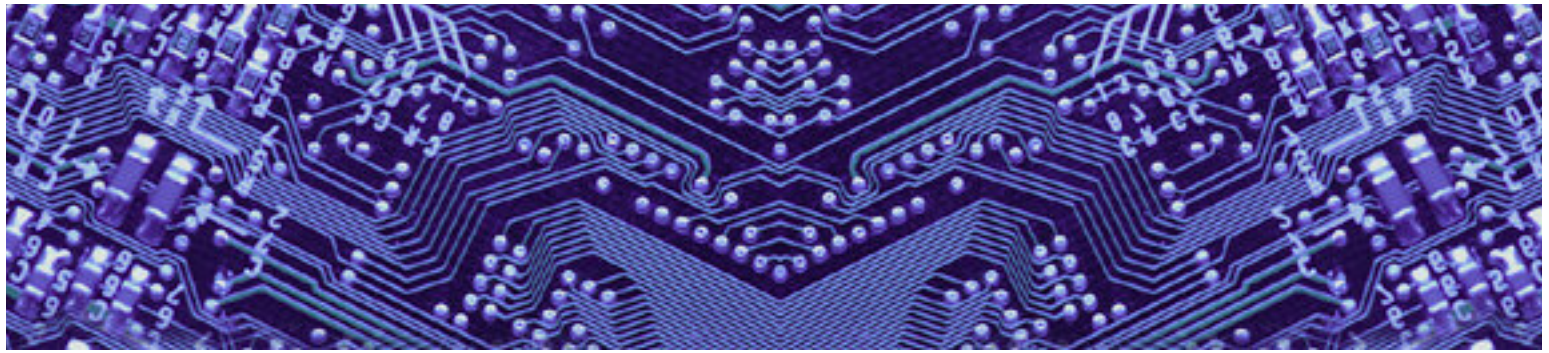
CD containing:

- H1 ITK Test Library
- H1 ITK Executable
- H1 ITK Test Cases (source and binary)
- H1 ITK User's Manual
- H1 ITK Test Case Library Document
- H1 ITK Test Case Description
- DD Viewer Software
- Check Prompt Application (for the Automation Toolkit)
- USB H1 Software Driver

USB H1 Interface Card

(Optional) – The H1 ITK can be ordered with a PCI-FBUS Interface instead of the standard USB Interface. Call for pricing. *(ITK 6.0 or above required)*





Test Function Block

NOTE: Those with active maintenance agreements can access software updates via Fieldbus Forums.

What are the system requirements?

One PC is required:

- One machine for Test System
(Windows® XP/Windows Vista (32- or 64-bit)/Windows7 (32- or 64-bit),
available PCI slot USB port)

What additional components do I need to use the H1 ITK?

- Fieldbus Segment (power supply and conditioner, terminators)
- Two (2) DB9 to Fieldbus cables (one for the Interface Card, and one for the Test Function Block)
 - You can make these cables by yourself by connecting the Fieldbus+ to pin 6 and Fieldbus- to pin 7. See FF-816/IEC61158 (Fieldbus Specifications) for additional details.

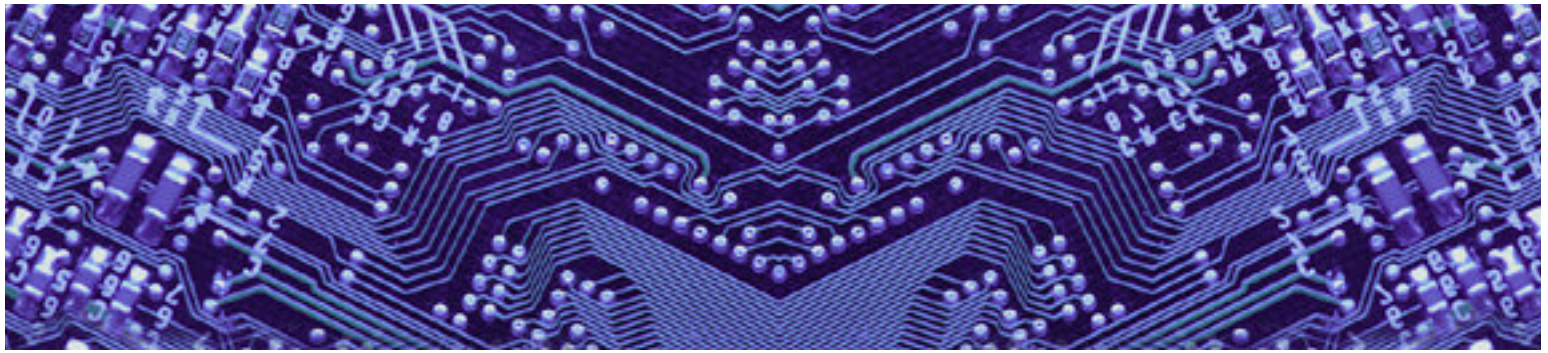
Are there optional components to the H1 ITK?

Yes. The Interoperability Test Kit Automation Tool eliminates the need for manual intervention during interoperability testing. The tool controls the bus power, simulate jumper, and write protect jumper automatically, when prompted by the test cases.

What are the latest updates to the H1 ITK?

The H1 ITK has been updated to version 6.1.1, which includes 64-bit Microsoft Windows support, an updated version of the NI Communications Manager (4.1.1), and updated test cases for the recently added AALM Function Block, CS Function Block, OS Function Block, Analog Positioner Transducer, and Discrete Positioner Transducer.





What are field diagnostics?

In a FOUNDATION fieldbus system, field diagnostics profiles provide a way of standardizing how all devices communicate their diagnostic data to the host system and asset management system — regardless of the vendor. The technology enables powerful role-based diagnostics, meaning the right information is sent to the appropriate person when they need it. This approach supports categorization of diagnostics according to the NAMUR NE107 recommendations.

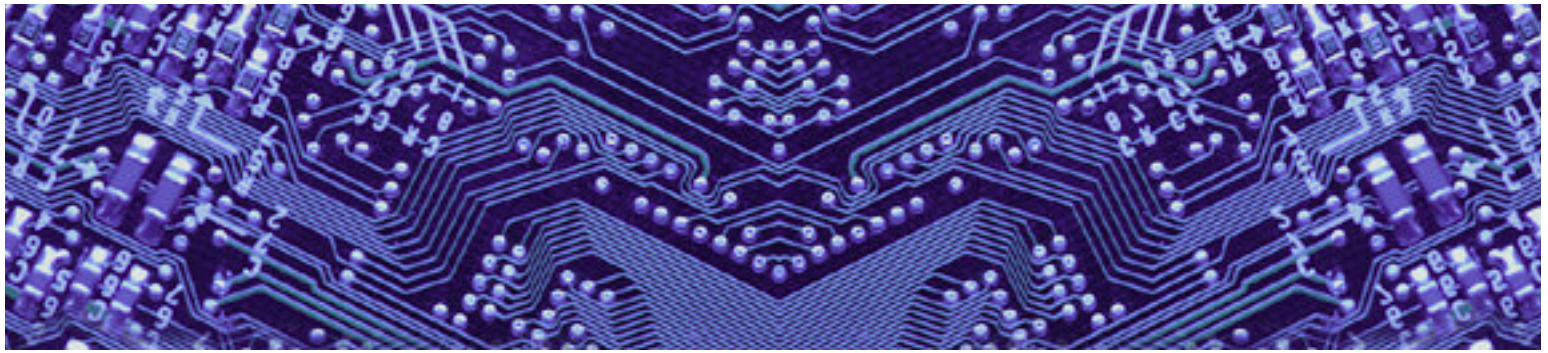
FOUNDATION technology has always utilized push diagnostics allowing the user to receive alerts much quicker, instead of the traditional method of requesting diagnostic information from devices. Field diagnostics technology will now enhance user control and distribution of messages between field devices and host/asset management systems. This will allow for faster response times as each message is presorted according to criticality, whether it is a process alarm or a maintenance alarm.

What are the DD 5.1 enhancements?

The Device Description (DD) 5.1 enhancements are intended to help device developers, system suppliers and end users advance the performance of their FOUNDATION fieldbus products through device level menus and methods. The enhancements are fully described in the foundation's FF-900 Device Description Language Specification found in the latest Technical Specification package. Device developers will need the latest Device Description Integrated Development Environment (DD-IDE) tool to validate and generate these enhanced DDs. Contact the Fieldbus Foundation at info@fieldbus.org for more information on obtaining these latest tools and specifications.

The ITK supports the enhancements with the updated National Instruments Communication Driver and DD Viewer. The DD 5.1 Super Viewer allows examination and verification of a Device Description. This viewer supports validation of existing DDs and the new DD 5.1 format. Device developers can inspect their DD, execute methods and render the new visualization elements supported by DD 5.1 technology.





What support is covered under a *new* license agreement to the ITK?

Support includes general questions, corrections, bug fixes and product enhancements and is granted for the first 90 days under *new* signed license agreements.

What additional support options are available to keep up-to-date with the latest versions?

Maintenance agreements are available for purchase and will give an additional 12 months of support beyond the standard included support. Pricing for this maintenance agreement can be found on the tools page of our website. All updates are available to active maintenance agreement holders and can be downloaded via the Fieldbus Forums.

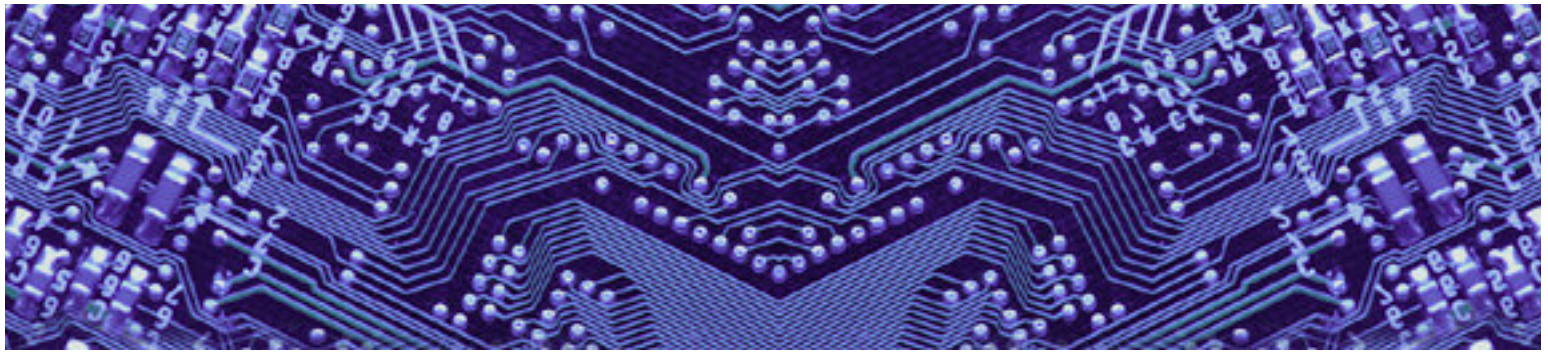
How do I get support?

You may e-mail support@fieldbus.org.

Or call the Fieldbus Foundation at (512) 794-8890.

Questions may be posted to the Fieldbus Forums at <http://forums.fieldbus.org/>.

If you do not have access to the Fieldbus Forums and wish to join, please be sure to follow the instructions located in the “Register” menu. If you need assistance, please contact us.



REGISTRATION QUESTIONS

Which DD files will be posted to the foundation's website?

Latest DD4 files (extension .ffo and .sym), DD5 files (extension .ff5 and .sy5) and Capabilities file (.CFF) will be posted in a single zip archive.

Can I schedule a device test with the latest H1 ITK version?

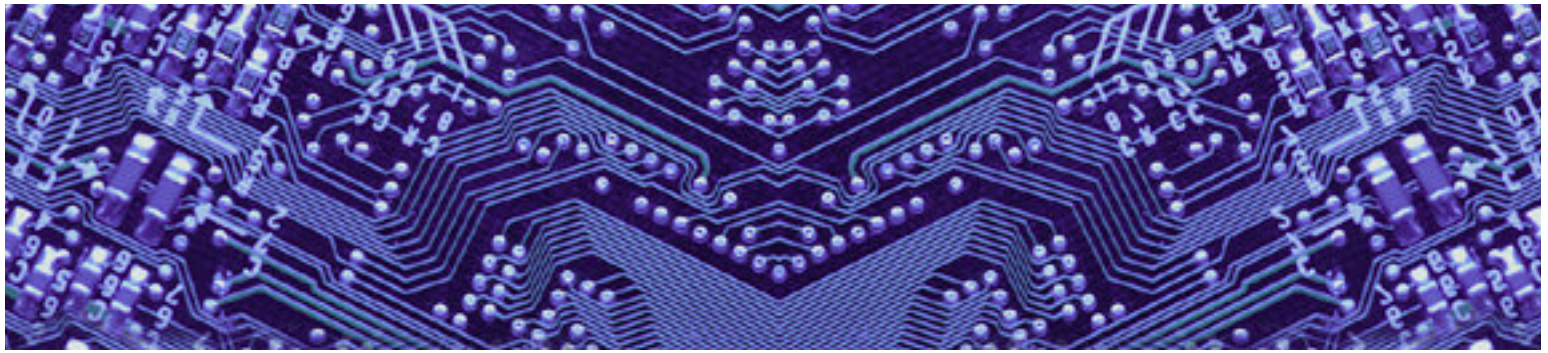
Yes. The foundation currently supports test campaigns using ITK 6.0, ITK 6.0.1, ITK 6.1.0 and ITK 6.1.1.

Am I required to re-register my existing registered device to the latest H1 ITK version?

No. However, test cases for new features and block profiles are continuously added to the H1 ITK. We encourage you to take advantage of the latest available test requirements by keeping devices up to date with the H1 ITK.

Can I self-register my H1 devices with this software?

No, registration for all devices must be done at the Fieldbus Foundation. The H1 ITK test kit will assure that your device meets the specifications prior to testing. The kit will also reduce downtime and registration fees incurred during official registration.



What ITK versions are available for registration?

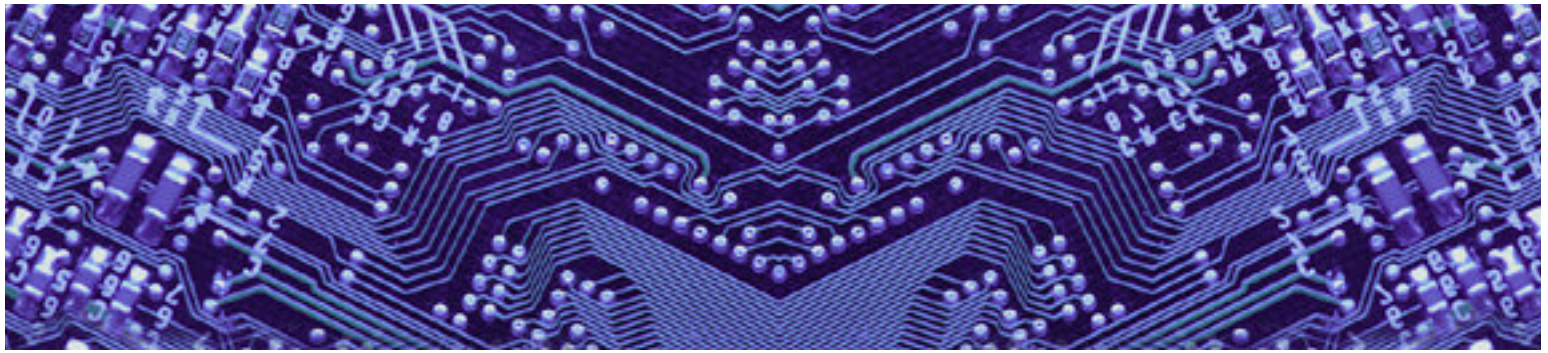
Major ITK product releases have a window of 12 months where device vendors can choose between the prior version and the current version. After this window expires, your new device registration will require testing to the latest version. Minor ITK product releases have a 6-month window where devices can be registered to the prior version.

Versions eligible for new registration:

Version	Release Date	Registration Close Date
4.0x		No longer eligible
4.5x	March 2004	No longer eligible
4.6x	June 2004	No longer eligible
5.0	March 2006	No longer eligible
5.0.1	May 2007	No longer eligible
5.1	November 2008	No longer eligible
5.2	September 2009	No longer eligible
6.0	September 2010	No longer eligible
6.0.1	October 2011	No longer eligible
6.1.0	January 2013	May 2014
6.1.1	November 2013	

How do I maintain my current device registration?

Currently registered devices can update DD, CFF, and H1 physical layer, and still maintain their current registration certificates. The DD/CF files can be updated by running a DD/CF test as described in the DD/CF registration process document, FF-531. ITK 5 registered devices can have their DD/CF registrations maintained via a DD/CF Self-Test using the ITK 4/5 DD and CF Re-Registration Test Schedule in ITK 6.1.0 and above. Changes are not allowed to the stack or function block application; these changes require a new device revision and a full ITK test on the latest version of the ITK. Details can be found in the Device Registration Process, FF-524, located in the Testing and Registration Services Forum.

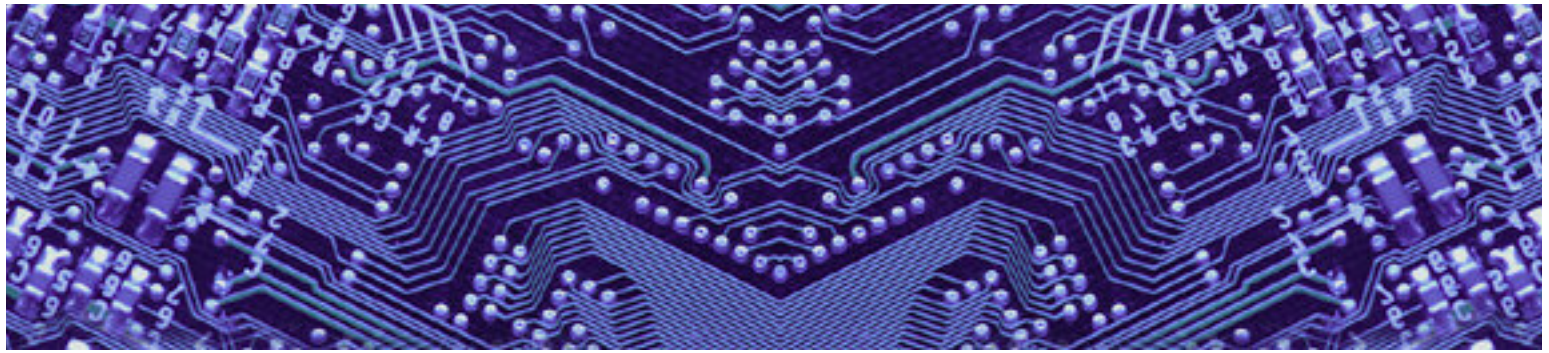


What updates were added to previous H1 ITK versions?

H1 ITK 5.0 – Updates allowed testing of devices with DD 5.0 files, which provided new features focused on device data organization, graphical visualization consistency, and support for persistent data storage. Specific enhancements included: multi-bit alarm testing for both single and multi-bit alarms, which provides for more thorough testing; block instantiation as specified in the Capabilities File (CF), ensuring interoperability on a FOUNDATION fieldbus network when a block is instantiated; and testing for valid/invalid behavior during common software download, ensuring interoperability when downloading software/firmware to a device via a FOUNDATION fieldbus network.

H1 ITK 5.1 – Updates supported Temperature Transducer Blocks, Device Description (DD) 5.1 functionality, and Field Diagnostics Profiles enhancing organization and integration of device diagnostics within FOUNDATION fieldbus systems. Specific enhancements included: Cross-block Device Description, National Instruments (NI) Communication Driver 3.2.2, and updated DD Viewer. Other updates included support for the FF-904 Temperature Transducer Block Specification (single and dual sensor), FF-912 Field Diagnostics Profile Specification, and Resource Block parameter set to implement the Field Diagnostics Profile.

H1 ITK 5.2.0 – Updates included Positioner Transducer Block test cases to support the FOUNDATION fieldbus Positioner Transducer Block Final Specification (FF-906), which is a key resource supporting the organization and integration of advanced device diagnostics within fieldbus systems. This specification provides standard definitions for positioner transducer blocks, including an analog positioner for basic and complex device access, a discrete positioner for basic and complex device access, and a combination analog/discrete positioner for basic and complex device access. It also includes parameter structure definitions for better data organization with fieldbus devices, including partial/full stroke test (PST/FST) of valves. The document conveniently groups parameters in function-based categories and offers a variety of helpful diagrams.

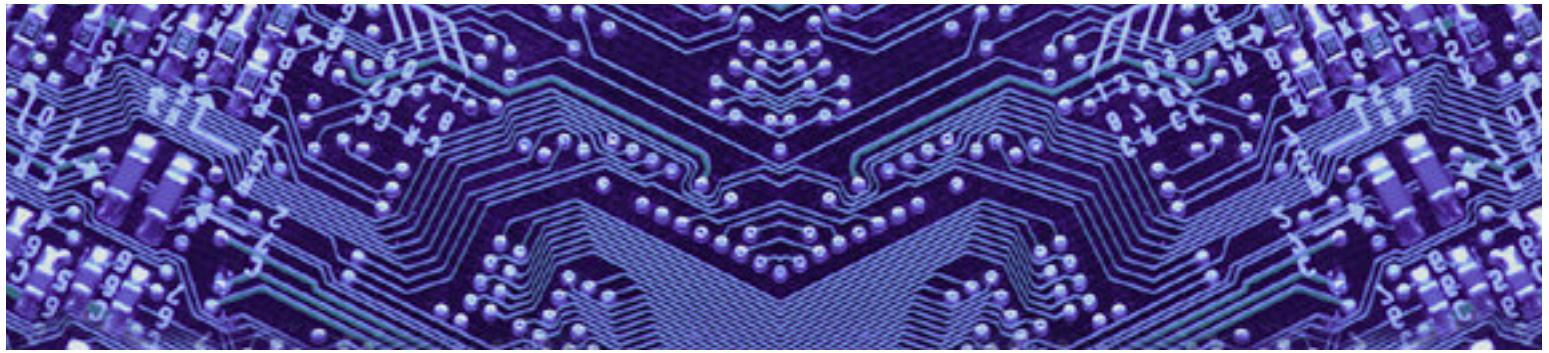


H1 ITK 6.0 – Updates included a test for new, required field diagnostics capabilities, which standardize how all Fieldbus devices communicate their diagnostic data to the process control and asset management systems — regardless of vendor. The test kit also employed an all-new, intuitive user interface. ITK 6.0 also included support for testing Custom Profiled Function Blocks, all test system software components were built with VC9, and compatibility with the USB interface hardware available from National Instruments.

H1 ITK 6.1.0 – Updates included a series of standardized function blocks and transducer blocks enabling increased test coverage for developers of FOUNDATION fieldbus H1 devices. This includes Flow Totalizer, Analog Alarm, Control Selector and Output Splitter function blocks, as well as flow, pressure, temperature, analog positioner, discrete positioner and analog/discrete transducer blocks.

The new H1 ITK test cases are focused on backwards compatibility among FOUNDATION fieldbus devices. This enhancement supports device replacement automation and enables the test kit to verify consistent behavior between device and host implementations in fieldbus-based control systems. Automation of device replacement allows the configuration in an existing field device to be restored in a newer version of that instrument without manual intervention. This “plug and play” solution ensures features are consistent between different generations of devices without reengineering the host configuration or changing any other element of the H1 network other than the new instrument.

The use of common transducer blocks also improves interoperability and simplifies device replacement by enabling a minimum level of configuration across all types of instruments. This results in greater predictability in fieldbus implementation, while reducing integration risks.



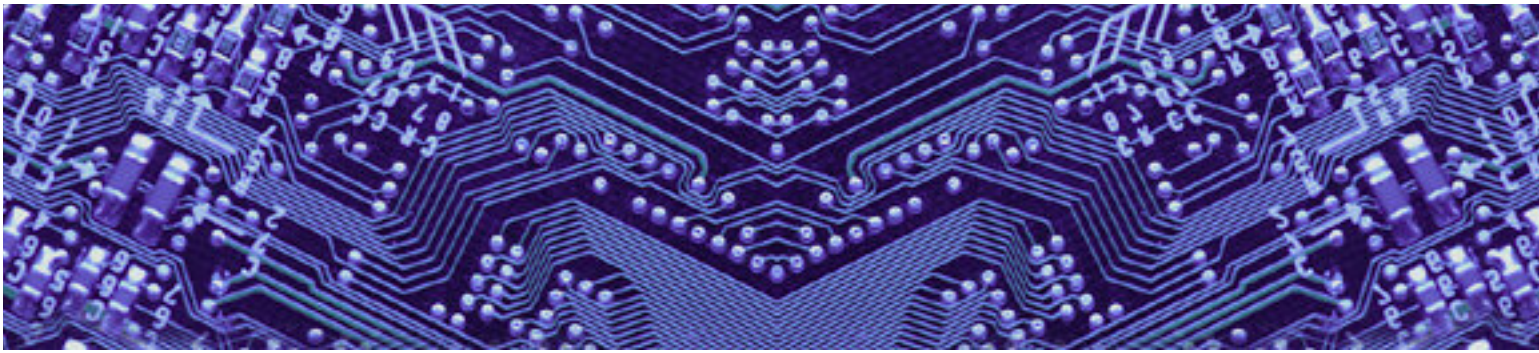
The technology enhancements with H1 ITK 6.1.0 will help increase the intelligence of smart field devices, unlocking complex control logic functionality that previously resided at the Distributed Control System (DCS) level and allowing it to be moved to more-capable field instruments. This functionality makes it easier to implement control-in-the-field (CIF) strategies. Embedded control functionality in FOUNDATION devices is one of the key enablers for achieving high availability control and a stepping-stone towards single-loop integrity.

My device is currently registered to H1 ITK. I would like to develop enhanced DDs for this existing device that take advantage of the new visualization support. Do I need to complete full device testing under H1 ITK or can I simply test my new DD/CF?

If your device firmware is unchanged (see FF-524 Device Registration Policy on Fieldbus Forums for more detail), then the device is eligible to complete a DD/CF test under the H1 ITK. The new DD/CF will be posted on the Fieldbus Foundation's web site in addition to the existing DDs tested under the previous H1 ITK.

If I submit a device to test under H1 ITK 6.1.1, what type of DDs should I provide?

You must provide both DD4 files (extension .ffo) AND DD5 files (extension .ff5). The DD5 files are a requirement for registration to the current and future H1 ITK. Each set of DD files will be tested separately using the DD related test cases.



Which DD technology versions are supported by the ITK?

The DD technology version requirements are defined in the ITK Profile Specification.

	ITK 4	ITK 5	ITK 6
DD4	Required	Required	Required
DD5	Not Supported	Optional	Required

Are DD6s required for the H1 ITK 6.1.1?

There is currently no DD6 specification. The DD technology versions are independent of the ITK versions.