

Foundation Fieldbus Linking Device Firmware Upgrade

Catalog Numbers 1757-FFLD2, 1757-FFLD4

These release notes describe enhancements and anomalies in the 1757-FFLD firmware, revision 2.1 and earlier. This document also describes firmware upgrade procedures and system requirements.

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About the Linking Device

The Foundation Fieldbus linking device bridges an Ethernet connection to either 2 or 4 H1 ports. Each H1 port can support 16 fieldbus devices (with 8...10 recommended). See the Foundation Fieldbus Linking Device Installation Instructions, publication [1757-IN021](#), for maximum specifications.

Each H1 network can support a maximum of 64 publisher and 64 subscriber VCR connections. The linking device enables RSFieldbus host communication to the H1 ports via the Fieldbus Foundation's High-speed Ethernet (HSE) network.

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By supporting H1 and Ethernet protocols, the linking device is capable of bridging Rockwell Automation products on the network to Foundation Fieldbus devices on H1 networks.

The linking device supports the Logix5000 software Clock Update Tool to sync time.

IMPORTANT

Before operating your linking device, consider these items:

- When you upgrade your 1757-FFLD firmware to revision 2.1, if you have not already done so, you must also upgrade RSFieldbus software to version 2.03. Previous versions of RSFieldbus software are not compatible with revision 2.1 firmware.
 - The 1757-FFLD firmware revision 2.1 requires that you use new Device Description (DD) files to work with RSFieldbus software, version 2.03. You can download the DD files at the [Distributor/Channel Extranet](#) or contact technical support. Refer to the RSFieldbus User Manual, publication [RSEBUS-UM001](#), for DD file installation instructions.
 - If you flash upgrade the linking device's firmware, do not cycle power until the flash upgrade is complete.
 - We do not support using the 1757-FFLD and 1757-FFLDC linking device in the same RSFieldbus project or allowing them to communicate with the same HSE server (even if they are not in the same RSFieldbus project).
 - We do not support using the 1757-FFLD linking device with firmware revision 1.6.1 and 2.1 in the same project and/or system. When you replace 1757-FFLD firmware revision 1.6.1, and a complete system upgrade is not practical, you are required to backflash 1757-FFLD firmware revision 2.1 to firmware revision 1.6.1. Follow the same procedures for the firmware upgrade with a revision 1.6.1 firmware flashkit, except you will be doing a backflash from firmware revision 2.1 to 1.6.1. See [page 4](#).
 - In RSLogix 5000 programming software, version 17 and earlier, the only electronic keying option is Disable Keying for the linking device. Beginning with version 17.1 of the RSLogix 5000 programming software, you can select Major Revision 2, which allows additional keying options of Exact Match and Compatible with Disable Keying.
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Before You Begin

Be sure your system meets these requirements before upgrading:

- RSLinx software, version 2.52 minimum
- RSFieldbus software, version 2.03

If your system meets the requirements above, follow these steps before upgrading.

1. Save and close all running RSFieldbus projects.

All data stored in the linking device will be lost during the upgrade.

2. Disconnect the linking device from the fieldbus network so that it is not controlling an active process.
3. Close all running programs.
4. Verify connectivity between your computer and all linking devices by using RSLinx software.
5. Use the BOOTP/DHCP server to reassign each linking device to its original IP address.
6. Leave DHCP enabled.

See the Foundation Fieldbus Linking Device Installation Instructions, publication [1757-IN021](#), for information on using BOOTP.

IMPORTANT

Do not close BOOTP. The linking devices must be able to communicate with BOOTP to complete the firmware upgrade.

7. Go to the Flash Firmware Updates site:
<http://support.rockwellautomation.com/ControlFlash/>.
8. Extract the .zip file to a folder on your hard drive.

Proceed to [Upgrade Firmware](#) to continue with the upgrade.

Upgrade Firmware

After completing the preparations, follow these steps to install ControlFlash software and upgrade your firmware. If you have another version of ControlFlash software, you must install this version for compatibility.

1. Locate the new folder to which you extracted the .zip files and double-click the setup.exe file to run the ControlFlash setup wizard.
2. At the Welcome to ControlFlash Setup window, click Next.
3. Click Yes to accept the license agreement.
4. Click Next to accept the default location.
5. At the Setup Complete window:
 - a. Uncheck Yes, I want to view the README file checkbox.
 - b. Check Yes, I want to launch ControlFlash checkbox.
 - c. Click Finish.
6. At the Welcome to ControlFlash window, click Next.
7. Click 1757-FFLD and click Next.
8. Browse to the linking device that you want to upgrade, select it, and click OK.
9. Select Revision number 2.1 and click Next.
10. Click Finish.
11. Click Yes to confirm the upgrade.
12. Click OK.

The firmware upgrade begins and may take 10 minutes or more to complete. After the firmware upgrade is complete, the status window opens. The Status box is green if the upgrade is successful; red if unsuccessful. If unsuccessful, retry the upgrade procedures until the Status box is green.

13. Click OK.

The Welcome window opens again.

14. Once steps [6...13](#) have been completed on all linking devices, click Cancel, then Yes to exit the ControlFlash upgrade process.

IMPORTANT

If you need to restart a 1757-FFLD linking device directly after a ControlFlash update, do **not** cycle power until the H1 lights are blinking on the device.

ControlFlash software automatically restarts after an update. For the H1 lights to flash on a linking device, you need to make sure an IP address has been assigned. The prior IP address should have been cleared because of the ControlFlash update.

15. To assign an IP address, use the BOOTP/DHCP server to assign each linking device an IP address.

The H1 lights should start blinking.

16. Reload the fieldbus configuration.

IMPORTANT

If you are updating an existing RSFieldbus project that includes 1757-FFLD firmware revision 1.6.1, to 1757-FFLD firmware revision 2.1, you will need to do a bridge exchange in RSFieldbus software. Refer to the RSFieldbus User Manual, publication [RSFBUS-UM001](#), for instructions.

Limitations

These limitations apply for the linking device:

- The first time you right-click the linking device in RSLinx software, selecting available menu options returns an error stating that the RSLinx software could not communicate with the module. Click OK to clear the error, and RSLinx software functions normally.
- In some cases, a time-out error may occur when Assigning Tags. In all known cases, this error is not accurate and you can verify that tags have been assigned.
- A 1756-ENBT Ethernet module in a ControlLogix redundancy rack cannot communicate with a 1757-FFLD linking device. This is because the linking device is considered I/O in this configuration and a 1756-ENBT module in a redundancy rack does not support I/O communication. To communicate with a linking device in a redundant ControlLogix system with a 1756-ENBT module, use this configuration:
 - Place the 1756-ENBT module that communicates with the linking device in a separate rack that is not part of the redundant pair. The separate rack can be one of the 1756 I/O racks connected to the redundant pair through the ControlNet network.
 - Place a ControlLogix controller in the same rack as the 1756-ENBT module. The controller communicates with the linking device through the 1756-ENBT module. Use messaging or produce/consume tags in this controller to communicate over the ControlNet network to the controllers in the redundant system.

If you perform any of these functions, you must restart the linking device to continue normal operation:

- Change IP Ethernet network settings (via BOOTP or RSLinx software).
- Change mode (Static IP, Dynamic/DHCP, BOOTP).
- Change subnet.

You should perform these changes only after you have taken the linking device offline.

Enhancements

This revision of the 1757-FFLD firmware contains the following enhancements.

1757-FFLD Firmware Enhancements

Firmware Revision	Enhancement	Description
2.1	H1 publisher/subscriber VCR increase	<p>The 1757-FFLD linking device supports 64 publisher and 64 subscriber Virtual Communication Relationship (VCRs) per H1 port.</p> <p>A 4-port linking device supports a maximum of 256 publishers/subscribers and a 2-port linking device supports a maximum of 128.</p>
1.6	New functions to reset button	<p>The reset button lets you restore the linking device's factory default settings.</p> <ul style="list-style-type: none">• Dynamic Host Configuration Protocol (DHCP) network configuration.• Administrative account user name and password will be cleared.• No downloaded fieldbus configurations. <p>To perform a reset, the linking device's power must be on with the H1 status indicators flashing.</p>

1757-FFLD Firmware Enhancements

Firmware Revision	Enhancement	Description
1.6	Diagnostic web pages	<p>This firmware revision contains web pages that provide the linking device's status and diagnostic information.</p> <ul style="list-style-type: none">• Home page with general information.• H1 Live List.• Virtual Communication Relationship (VCR) Pages.• Ethernet network settings.• Ethernet statistics.• Configure H1/HSE captures. <p>To capture information about the communication between the computer and the linking device, an additional driver must be installed. Refer to KnowledgeBase Tech Note ID G128737547 at http://rockwellautomation.com/support for more information.</p> <ul style="list-style-type: none">• Web server log.• 1757-FFLD log.• Set the time, date, and time zone.• Restore the 1757-FFLD linking device to its factory default settings.

1757-FFLD Firmware Enhancements

Firmware Revision	Enhancement	Description
1.5	EDS file included	The 1757-FFLD firmware includes its electronic data sheet (EDS) file. This lets RSNetWorx for EtherNet/IP software, version 5 or later, upload and register the EDS file directly from the linking device. Previously, you had to find the file on a CD or a website and manually install the EDS file.
	SNTP synchronization	The linking device synchronizes to a Simple Network Time Protocol (SNTP) server that lets you synchronize all fieldbus devices attached to a linking device across all channels.

Corrected Anomalies

These corrected anomalies are organized by the firmware revision that corrected them.

1757-FFLD Corrected Anomalies

Firmware Revision	Corrected Anomaly	Description
2.1	With the 1.6.1 firmware, use of Emerson's 375 Field Communicator may cause H1 communication disruptions.	The linking device supports the 375 Field Communicator on the same H1 network. RSFieldbus software is the primary configuration tool for the linking device and fieldbus devices attached to it. Lgx00063953
1.5	Anomalies that caused watchdog faults.	The linking device operates correctly on systems where multiple devices are configured as link masters.

Known Anomalies

The following are known anomalies in the Foundation Fieldbus linking device.

1757-FFLD Known Anomalies

Firmware Revision	Known Anomaly	Description
2.1	<p>During a download from RSFieldbus software, version 2.03, to the linking device, you may receive download failures. After performing a device update to correct download failures, devices in the project may go offline or remain dimmed in the Live list.</p>	<p>The download procedure causes loss of control of your devices and anything linked to them. Do these steps to correct download problems.</p> <ol style="list-style-type: none"> 1. Cycle power to the linking device, H1 network, and devices. 2. After you are back online, download the project to the linking device. <p style="text-align: right;">Lgx00081886</p>
	<p>When actively monitoring fieldbus device data through RSFieldbus online characterization, strategy monitoring, or the RSFieldbus HSE OPC server, the server may fail to recover from repeated communication disruptions (multiple disruptions per hour) over an extended period of time (1 or 2 days).</p>	<p>Do these steps to restart a server after communication disruptions.</p> <ol style="list-style-type: none"> 1. Close RSFieldbus software and all programs accessing the OPC server. 2. Restart the computer hosting the server. 3. Resolve all network communication issues and disruptions. 4. Restart RSFieldbus software and any programs accessing the OPC server. <p style="text-align: right;">Lgx00079734</p>

1757-FFLD Known Anomalies

Firmware Revision	Known Anomaly	Description
2.1	<p>After an IP address has been set to static in the linking device through the BOOTP server (2.3.2.0), you have these two options to change this:</p> <ul style="list-style-type: none"> • Enable BOOTP. • Enable DHCP. <p>Selecting BOOTP displays the message that it is successful, but it does not change the IP; it leaves it at the static IP.</p> <p>Selecting DHCP displays the message that it has failed and has not changed it to DHCP, but it actually is successful and it is now set to DHCP.</p>	<p>After setting an IP address to static in the linking device through the BOOTP server and you want to change to a dynamic network configuration, BOOTP is not supported; DHCP is available.</p> <p>The Disable BOOTP/DHCP button is operational for DHCP only; disregard any error messages.</p> <p style="text-align: right;">Lgx00093581</p>
	<p>When the linking device is powered up and detects a duplicate IP address, these status indicators are listed in the Foundation Fieldbus Linking Device Installation Instructions, publication 1757-IN021:</p> <ul style="list-style-type: none"> • Module status: Flashing Red. • NS (network status): Red. • Mode: Flashing Green. 	<p>These status indicators should be:</p> <ul style="list-style-type: none"> • Module status: Flashing Green. • NS (network status): Off. • Mode: Flashing Green. <p style="text-align: right;">Lgx00093217</p>

1757-FFLD Known Anomalies

Firmware Revision	Known Anomaly	Description
2.1	<p>You had to set the User Name/password before the hidden pages could be accessed.</p>	<p>The User Name/password are preset to 'default' and 'password'. You can edit the User Name/password.</p> <p>If the User Name/password are not set in 1757-FFLD linking device revision 1.6.1 and flash upgraded to 2.1, the User Name/password are not changed to the new preset values.</p> <p style="text-align: right;">Lgx00093770</p>
	<p>If the 1757-FFLD Ethernet port configuration is set to auto-negotiate and the managed switch port has been configured for 100 Mbps/half duplex, the 1757-FFLD duplex will go to full and not match the half duplex setting of the switch port.</p>	<p>If you set the speed and duplex for the switch port of a managed switch, the connected device must also be configured for the exact same speed and duplex. Otherwise, a speed/duplex mismatch occurs.</p> <p>For detailed EtherNet/IP connection information, see the EtherNet/IP Performance and Application Guide, publication ENET-AP001.</p> <p style="text-align: right;">Lgx00093582</p>

Additional Resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
Foundation Fieldbus Linking Device Installation Instructions, publication 1757-IN021	Provides details on how to install the 1757-FFLD linking device.
RSFieldbus Installation Guide, publication RSFBUS-IN001	Provides details on how to install the RSFieldbus software.
RSFieldbus User Manual, publication RSFBUS-UM001	Provides information on using RSFieldbus software to configure a FOUNDATION Fieldbus network.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <http://literature.rockwellautomation.com>. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

Notes:

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://support.rockwellautomation.com>.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States	1.440.646.3434 Monday – Friday, 8 a.m. – 5 p.m. EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

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