Release Notes

Allen-Bradley

ControlLogix EtherNet/IP Module

Catalog Numbers 1756-EN2T, 1756-EN2F, 1756-EN2TXT

About This Publication

This publication describes enhancements, anomalies, and other concepts related to the ControlLogix® EtherNet/IP module firmware.

To learn how to use these modules in a redundant system, refer to the ControlLogix Redundancy System Release Notes, publication <u>1756-RN628</u>.

Required System Components

Use the following versions of software with these modules.

Software	Compatible Version
RSLogix™ 5000 software	18.00 or later
RSLinx® Classic software	2.56 or later
RSNetWorx™ for EtherNet/IP software	10.0 or later
ControlFLASH™	11.0 or later
USB CIP Driver	3.03 or later

Enhancements

These firmware revisions contains these enhancements:

Enhancements with Revision 5.028

Revision	Adds support for
5.028	Digitally signed firmware option for additional security When installing the firmware into your module, the ControlFLASH utility will give warnings that proceeding will make your module incompatible with some revisions of firmware. Once the upgrade is complete, your module will only accept upgrade attempts that include signed firmware. Any unsigned firmware updates will be rejected by the module. To allow backward compatibility, modules ship with unsigned firmware installed and must be upgraded to take advantage of this feature.

Enhancements with Revision 5.008

Revision	Adds support for
5.008	Various security enhancements.
	Default gateway address used when IP address is set by using the switches.

Enhancements with Revision 5.007

Revision	Adds support for
5.007	Sockets and the increased packet size in controller and communication module firmware.
	Improved Integrated Motion on the EtherNet/IP network and Precision Time Protocol (PTP) performance when using Stratix 6000™ or Stratix 2000™ Ethernet switches.

Enhancements with Revision 4.002

Revision	Adds support for
4.002	Redundant I/O (does not apply to 1756-EN2F module).

Enhancements with Revision 3.006

Revision	Adds support for
3.006	Backplane double data rate (DDR) communication.

Enhancements with Revision 3.004

Revision	Adds support for
3.004	Unicast I/O for rack-optimized connections.
	CIP Sync for time synchronization applications. Lgx00115114
	Enhanced module performance for greater throughput with Integrated Motion on the EtherNet/IP network.
	Enhanced manner in which the module's communication capacity is calculated and reported (from packets per second to a percentage of utilization). **Important:** To best calculate utilization, use RSNetWorx for EtherNet/IP software to plan your network.
	Enhanced ability of the modules to recover after various types of hardware faults. Lgx00103681
	Enhanced compliance to ODVA standards. Lgx00104174, Lgx00104806

Corrected Anomalies

These firmware revisions contains these corrected anomalies:

Corrected Anomalies with Revision 5.007

Revision	Anomaly
5.007	**CORRECTED:** When there are multiple consumers of connected data (multicast), connections may not reestablish correctly after being lost. Lgx00121220
	CORRECTED: A connection error occurred on a 1756-L7*x* controller in the same configuration with a 1738-ASCII module. Lgx00121409
	CORRECTED: Motion group sync is lost when the Ethernet cable is removed and inserted. The motion group does not get notified that the PTP clock is no longer synced until the cable is reinserted and the port transitions back into Master or Slave mode. A few sync updates are required to requalify as synced. Lgx00121776

Corrected Anomalies with Revision 4.003

Revision	Anomaly
4.003	**CORRECTED**: The module's performance could degrade (possibly dropping connections and eventually asserting) when operating under heavy HMI load (close to 100% CPU) for a long period of time. Lgx00114874

Corrected Anomalies with Revision 4.002

Revision	Anomaly
4.002	**CORRECTED**: Improved compatibility between IGMP reports and switches (IGMP reports created at a faster rate than some switches could process). Lgx00114187
	CORRECTED: Restored third-party device support from firmware revision 2.*x*. With firmware revisions later than 2.*x*, TCP window size limit would prevent some third-party products (with smaller TCP windows) from connecting to the system. Lgx00112096

Corrected Anomalies with Revision 3.004

Revision	Anomaly
3.004	**CORRECTED**: Navigating to the Application Connections or Bridge Connections Web pages from the main tree results in loss of memory. Navigating to these same pages through the System Data menu does not result in memory loss. Lgx00104323
	CORRECTED: The module asserts when it receives a specially crafted CIP message. 'Specially crafted' means that the message may have malformed attributes, and may be malicious. Lgx00102260
	CORRECTED: I/O in rack connections prevented from entering the correct state during fault conditions. Lgx00104816, Lgx00105037
	CORRECTED: Certain modules do not communicate correctly across the backplane. Lgx00106697
	CORRECTED: More than 193 CIP connections prevented from being made through the module. Lgx00107086

Known Anomalies

This firmware revision contains these known anomalies.

Known Anomalies with Firmware Revision 3.004

Revision	Anomaly
3.004	Connections with an RPI of less than 1 μs are listed as having an RPI of 0 in the Application Connections and Bridge Connections Web pages.
	To view the RPI in microseconds, open the detailed pages by clicking Diagnostics> Advanced Diagnostics> Miscellaneous > System Data. Click Connection Manager, followed by either Application Connections - Detailed Info, or Bridge Connections - Detailed Info.
	Generic CIP messages that set instance attributes 3 and 5 of the module's TCP/IP object may time out. To work around this, confirm the attributes' values by reading them and comparing them with the values to be set.
	When the network cable is disconnected from a 1756-EN2T or 1756-EN2F module, the Ethernet Link object (class code 0xF6) Interface Speed instance attribute (attribute 1) reports 10 rather than 0. To determine the state of the Ethernet link through CIP messaging, use the Link Status bit of the Interface Flags instance attribute (attribute 2).

Application Notes

IMPORTANT	Be sure that the speed and duplex settings on the 1756-EN2T and 1756-EN2F modules are configured identically to the settings on the switch port to which the module is connected. Both the module and the switch should be configured to autonegotiate, or both manually set to 100/Full.
	A mismatch in speed and duplex settings could result in significant reduction of system performance.
	The 1756-ENBT module with firmware revision 1.40 or earlier only supports autonegotiation. You must set the connected switch port to autonegotiation.

- With firmware revision 3.004, you can no longer use abbreviations of the SNMP (Simple Network Management Protocol) community strings. For example, with earlier firmware revisions, 'pub' could be used instead of 'public'. With this firmware revision, the full community string must be used.

- Connection timeouts could occur between Quality of Service (QoS) enabled products and older products that do not support QoS. Rockwell Automation has released firmware in various products to address this incompatibility.

  Visit the Knowledgebase at http://www.rockwellautomation.com/knowledgebase/ and download Tech Note 66325 for a listing of compatible product firmware.

- If you use various 1756 EtherNet/IP communication modules in the same chassis, for example, a 1756-ENBT module with a 1756-EN2TR module, do not use the Rack Optimized communication format.

  If you must use the Rack Optimized communication format, we recommend that you place the 1756-EN2TR module in a separate chassis from the 1756-ENBT module.

- Do not upgrade the firmware for more than one module simultaneously through the USB port.

- When you cycle power to a secondary 1756-EN2T module, do not manually browse a subnet by using an EtherNet/IP configured driver.

  If you fail to follow this recommendation, an operating 1756-EN2T module may fault with a duplicate IP address error if power is applied to another device on the network that has an identical IP address.

- When using time synchronization with a Logix5000™ controller and RSLogix 5000 software, version 18 or later, or one of the following EtherNet/IP modules in a chassis, any others of these EtherNet/IP modules in that chassis must be at firmware revision 3.*x* or later.

  EtherNet/IP modules that this restriction applies to include:

  – 1756-EN2T
  – 1756-EN2F
  – 1756-EN2TXT
  – 1756-EN2TR
  – 1756-EN3TR

- Although you can create two entries in the RSLogix 5000 software controller organizer for the same remote Ethernet modules, one by specifying an IP address and one by specifying a host name that resolves to the same IP address, you will see a module in use error (16#0100) when you go online with the controller. To avoid IP address duplication, make sure that all entries have a unique IP address.

- The firmware of both the primary and secondary Ethernet modules can be upgraded when the redundant chassis pair is disqualified. Neither the primary or secondary Ethernet modules can be upgraded when the redundancy chassis pair is qualifying or already synchronized.

To upgrade the module, do one of the following:

- Use a module in the secondary chassis other than the EtherNet/IP module to perform the upgrade through the backplane.
- Remove the EtherNet/IP module from the secondary chassis and place it in a separate chassis to upgrade it.

TIP During the upgrade, communication with the EtherNet/IP module is lost.

- When updating a 1756-EN2F module from revision 1.003 to a revision later than 1.004, you must update to revision 1.004 before updating to the later revision.
- If you update the 1756-EN2F module to firmware revision 1.004 by using the module USB port, install the USB driver before the ControlFLASH firmware update tool times out.
- When updating the 1756-EN2T or 1756-EN2F module firmware from a revision earlier than 2.003 to a revision later than 2.003, you must update to revision 2.003 before updating to the later revision.

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
ControlLogix EtherNet/IPModules Installation Instructions, publication 1756-IN002	Provides details about how to install the module, how to upgrade firmware, and controller technical specifications.
EtherNet/IP Network Configuration User Manual, publication ENET-UM001	Provides information about how to use your module after installation.
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://www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Allen-Bradley® distributor or Rockwell Automation sales representative.

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products.
At http://www.rockwellautomation.com/support, you can find technical manuals, 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. You can also visit our Knowledgebase at http://www.rockwellautomation.com/knowledgebase for FAQs, technical information, support chat and forums, software updates, and to sign up for product notification updates.

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

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 or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html, or contact your local Rockwell Automation representative.

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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