Release Notes

ControlLogix EtherNet/IP Bridge Module, Firmware Revision 5.001

Catalog Number 1756-ENBT

About This Publication

This publication describes enhancements, anomalies (corrected and known), and other concepts related to the ControlLogix EtherNet/IP Bridge Module, firmware revision 5.001.

To learn how to use the 1756-ENBT module in a redundant system, refer to the ControlLogix Redundancy System Release Notes, publication 1756-RN628.

Compatible Versions of Software

Use the following versions of software with the 1756-ENBT module.

If using	Use this version or later
RSLogix 5000 programming software	For I/O control, use version 8.02 or later. However, the 1756-ENBT module works with the 1756-ENET/B selection in version 7.0 if the Compatible or Disable keying options are used.
RSLinx software	Version 2.30.01 or later
RSNetWorx for EtherNet/IP	5.11

Enhancements

The following table lists the enhancements for the 1756-ENBT module.

Firmware Revision	Enhancement
5.001	Adds support for Unicast for rack-optimized connections.
4.008	Enhanced web server security.
4.007	Decoupling the link between a TCP connection and the associated CIP connection. As a result, TCP connections can be closed without affecting existing CIP connections.
4.003	ControlLogix system redundancy.
3.9	Setting the IP address or upgrading firmware more quickly after power is applied to the module due to a reduction of wait time required after module power is applied.
3.3	• Embedded electronic data sheet (EDS) file - the module contains its own EDS file within its firmware. This feature requires the use of RSNetWorx software, version 5.0 or later. • Dynamic Host Configuration Protocol (DHCP) - when connected to a network with a DHCP server, that server automatically assigns an IP address to the module. This feature requires the use of RSLogix 5000 (version 13 or later) or RSLinx (version 2.43 or later) software. • Email - by using a MSG instruction, the controller can send email through the module.

Firmware Revision	Enhancement
3.2	Duplicate IP address detection. When you change the IP address or connect the module to an EtherNet/IP network, the module checks to make sure that the IP address assigned to this module is not the same as that for any other device on the network. If the module determines that there is a conflict (some other device on the network already has the IP address), the EtherNet/IP port of the module goes into Conflict mode, where the module's: • OK status indicator blinks red. • Network (NET) status indicator is solid red. • front display indicates the conflict.
	Automatic IP address swapping when used in a ControlLogix redundancy system. During a switchover, the module now swaps its IP address with its partner module in the other redundant chassis. The automatic IP address swapping lets you use the same IP address to communicate with a primary module regardless of which chassis is primary.
	Enhanced embedded web pages for the 1756-ENBT module to make them easier to manage and easier to use.

Firmware Revision	Enhancement
2.3	Beginning with this revision of the firmware, a sub-minor revision has been added when the revision number is scrolled on the display. For revision 2.3 firmware, the display will scroll 2.03.10, where 2 = major revision, .03 = minor revision, and .10 = sub-minor revision. This does not affect how you use and refer to firmware revisions of released products; continue to use the major and minor revision numbers only. Electronic keying in RSLogix 5000 software keys to the major and minor revisions. The sub-minor number cannot be used for keying.
	Redundancy support for EtherNet/IP explicit messaging in a ControlLogix redundancy system (such as in HMI applications). With this firmware revision, the 1756-ENBT module can be placed directly in a redundant chassis. Minimum 1756-ENBT module requirements for ControlLogix redundancy support include: • hardware, CAT REV E0. • firmware, revision 2.3.

IMPORTANT Automatic IP address swapping is compatible only with revision 13 (or later) of the ControlLogix redundancy release. To determine the exact revision of firmware to use with redundancy, refer to the ControlLogix Redundancy System Release Notes, publication 1756-RN608.

Corrected Anomalies

These anomalies have been corrected with firmware revision 5.001.

Firmware Revision	Corrected Anomaly
5.001	Corrected an anomaly that I/O from rack-optimized connection went to program state instead of fault state when communication was lost on the Ethernet network. Lgx00104541
	Corrected anomaly associated to 'FAIL 5004' error caused by mishandling of large unconnected messages. Lgx106223
4.008	Unable to set module static IP address when gateway address is 0.0.0.0. Lgx00090840
	Corrected an anomaly in which the 1756-ENBT module needed to be reset after a change to the gateway address. Lgx00087097
	Corrected an anomaly in which the 1756-ENBT module accepted an invalid gateway address. Lgx00087096

Firmware Revision	Corrected Anomaly
4.007	When connecting to a device with a more rapid response time (for example, a computer or a 1756-EN2T module), the 1756-ENBT module's attempt to open the TCP connection may time out. The time out occurs because the faster device has sent a reply to the 1756-ENBT module before the 1756-ENBT module socket is fully open and the module is unprepared to receive the reply. The 1756-ENBT module misses the reply and the TCP connection times out. Firmware revision 4.007 corrects this anomaly by preparing the 1756-ENBT module to receive the reply earlier. Lgx00079880
	Module asserts when several users access the module's website at a given time. Firmware revision 4.007 corrects this anomaly by making more memory available for the website to function properly when accessed by several users. Lgx00080499
	When the 1756-ENBT module's subnet mask is set to 000.000.000, the module is not recognized on the network. Firmware revision 4.007 corrects this anomaly by using a default subnet mask if 000.000.000 is entered. Lgx00078991
4.006	In some applications, the data from the backplane that is multi-cast by the 1756-ENBT module is delayed. This delay results in the safety I/O connections being dropped by the controller. Lgx00074401
	When large numbers of safety I/O modules are used in an application, the 1756-ENBT module may halt communication and a STOP OS error is displayed on the module. This error occurs because the interrupt stack size is exceeded. Firmware revision 4.006 corrects this anomaly by increasing the interrupt stack size. Lgx00075528

Firmware Revision	Corrected Anomaly
4.003	Sometimes you would not get a reply when you pinged a 1756-ENBT module. Lgx00062979
3.008	Module appears to lock up during powerup from short-duration power cycles. The module status indicator is solid green and all other status indicators are off. No communication is possible from the Ethernet port or from the backplane. The display hangs with PASS.
	• When a poorly-formed Class 3 message is received on the backplane or over an Ethernet network, the module may appear to lock up. • Bad UDP checksum would be created when the UDP do-not-fragment bit is set. This bit is used only when you write a custom EtherNet/IP driver. • When processing an open message that is not correctly sized, the module could lock up. The firmware now verifies the size of a forward open message and processes it without system lock up.
3.004	A secondary chassis synchronized even if a module was not connected to the EtherNet/IP network.
	Module erroneously reported a duplicate IP address under these conditions: • High HMI traffic • Secondary chassis was powering up (depended on your configuration)
3.003	When DNS services are used with firmware revision 3.2, the module may lock up.
2.004	When multiple controllers own a remote 1756-ENBT rack using rack optimization, inputs from that remote rack may not update in the controller tag databases. No errors would be reported by the controllers.

Firmware Revision	Corrected Anomaly
2.004	When using RSLinx software version 2.4*x.x* in certain conditions, an unusually high volume of messages appears to be processed by the 1756-ENBT module. The module may appear to be locked up due to high volume; however, it is really overloaded. The temporary workaround is to remove the Ethernet connector.
2.003	Erroneous generation of UDP checksum.
	A module-in-use error is falsely reported when the product is running near capacity.

Application Notes

The following notes may apply to your application and use of the 1756-ENBT module.

Quality of Service (QoS)

Connection timeouts could occur between QoS-enabled products and older products that do not support QoS. Rockwell Automation has released new firmware in various products to address this incompatibility. Refer to Knowledgebase document, Tech Note 66325, for a listing of compatible product firmware. The document is available at:

http://www.rockwellautomation.com/knowledgebase/

Ethernet Switch Port Configuration

The 1756-ENBT module supports the following Ethernet settings:

- 10 M half-duplex
- 10 M full-duplex
- 100 M half-duplex
- 100 M full-duplex
- Autonegotiate

It is IMPORTANT that the speed and duplex settings on the 1756-ENBT module are configured identically to the settings on the switch port that the module is connected to (that is, both autonegotiate, or both manually set to 100/FULL). A mismatch in speed and duplex settings could result in significant reduction of system performance.

Firmware revision 1.40 or earlier of the 1756-ENBT module only supports autonegotiation. You must set the connected switch port to autonegotiation.

Changing Ports on an Ethernet Switch - Autonegotiation Setting Only

If you change the connection of the module from one port to another port, whether the new port is on the same or a different switch (or a hub), do the following.

1. Disconnect the cable from the port to which the module is currently connected.

2. Wait until the module Link Status indicator is off.

3. Connect the cable to the new port.

This procedure will restart the autonegotiation process at the module side. Another option is to restart the module itself.

Changing the Subnet Mask

After setting or changing the subnet mask on an already configured 1756-ENBT module, you must cycle power on the module for the subnet mask to take effect.

Diagnostic Counters

RSLogix 5000 programming software and RSLinx software display many diagnostic counters for the 1756-ENBT module. However, some of these fields are not supported by the module. The fields that are not supported are permanently displayed as 0.

Internet Group Management Protocol (IGMP) Support

The 1756-ENBT module supports the following versions of IGMP:

- Version 1.0 (firmware revision 2.4 and earlier)
- Version 2.0 (firmware revision 3.2 and later)

Performance Considerations

- In general, the 1756-ENBT module is capable of supporting 5000 packets/second. However, it is possible in some applications, depending on the combination of connection count, RPI settings, and communication formats, that the product may be able to achieve only 4000 packets/second.

- When performing both implicit and explicit communication in an EtherNet/IP system by using the 1756-ENBT module, communication, such as that for HMI, may slow I/O communication performance in applications with high node count (64 and above). Adjust RPI values or use additional 1756-ENBT modules to achieve desired performance in the system.

Additional Resources

Resource	Description
EtherNet/IP Modules in Logix5000 Control Systems User Manual, publication ENET-UM001	Provides information about using all types of EtherNet/IP modules in a ControlLogix system.
ControlLogix Redundancy System User Manual, publication 1756-UM523	Provides information about redundancy in the ControlLogix system, including a section about using EtherNet/IP modules.
ControlLogix Redundancy System Release Notes, publication 1756-RN608	Provides information regarding the enhancements and anomalies specific to the use of the 1756-ENBT module in a redundant system.
ControlLogix EtherNet/IP Bridge Module Installation Instructions, publication 1756-IN019	Provides information about installation procedures and product specifications.

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

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