



ControlLogix EtherNet/IP Communication Interface Module, Release 3.2

Catalog Number 1756-ENBT

These release notes describe changes in firmware revision 3.2 and earlier of the ControlLogix™ EtherNet/IP Communication interface module, catalog number 1756-ENBT, Series A.

Use these notes along with your *ControlLogix EtherNet/IP Communication Interface Module User Manual*, publication 1756-UM051.

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Version 3.2 - Enhancements

- The 1756-ENBT module supports 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 LED blinks red
 - network (NET) LED is solid red
 - front display indicates the conflict

For more information on this feature, refer to chapter 3 of the *EtherNet/IP Modules in Logix5000 Control Systems User Manual*, publication ENET-UM001.

- When used in a ControlLogix redundancy system, the 1756-ENBT module supports automatic IP address swapping. During a switchover, the module now swaps its IP address with its partner module in the other redundant chassis. This allows you to use the same IP address to communicate with a primary module regardless of which chassis is primary. To let the modules swap IP addresses during a switchover:
 1. Allocate 2 consecutive IP addresses for each set of 1756-ENBT modules (one in each chassis), e.g. 130.130.55.200 and 130.130.55.201.
 2. Give the same IP address, gateway address, and subnet mask to both modules in the redundant pair, e.g., set both IP addresses to 130.130.55.200.)

The module in the primary chassis uses the IP address to which it is configured, e.g., 130.130.55.200).

The module in the secondary chassis uses the IP address of the primary + 1, e.g., 130.130.55.201).

For more information on this feature, refer to the *ControlLogix Redundancy System User Manual*, publication 1756-UM523.

- The embedded web pages for the 1756-ENBT have been enhanced to make them easier to manage and overall more user-friendly.

Previous Releases of Firmware

Version 2.4

Corrected Anomalies

- 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.
- Under certain conditions when using RSLinx version 2.4x.x, a high volume of messages through the 1756-ENBT module would appear. As a result the module may appear to be locked up, but was really overloaded. Momentarily removing the Ethernet connector would temporarily correct the problem.

Version 2.3

Enhancements

- Beginning with this version of the firmware, a sub-minor revision has been added when the revision number is scrolled on the display. For version 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.

Note: Electronic Keying in RSLogix 5000 keys to the major and minor revisions. The sub-minor number cannot be used for keying.

- Added 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 requirements for ControlLogix redundancy support include:

- hardware, CAT REV E01

- firmware, version 2.3

To learn how to use the 1756-ENBT module in a redundant system, refer to the *ControlLogix Redundancy System Release Notes*, publication 1756-RN582P.

Corrected Anomalies

- erroneous generation of UDP checksum
- the falsely-reported “module in use” error when the product is running near its capacity

Version 1.61

Enhancements

- Added the ability to modify the default passwords in SNMP using SNMP management software.
- Added the ability to modify the TCP inactivity timeout value for a target. For more information on how to use this feature, refer to the Technical Support KnowledgeBase (search for keyword “inactivity”) or contact Technical Support at 440.646.3223.
Note: This feature is for advanced users and specific applications only. Most applications do not require the modification of the factory default TCP timeout value.

- Added the CPU utilization counter to the embedded Web page (select Diagnostic Information > Class 1 CIP Packet Statistics)

Corrected Anomalies

- Erroneous generation of IP/UDP checksum.
- The 'EXCP – 0300' error which would occasionally occur when module is remaking connections.
- The operation of the software reset function from RSLogix 5000™.
- Host Name operation to not default to using the IP address string.
- Added a 'back off' delay table so that the module would not flood the network with bootp requests when an error occurs setting the IP configuration from the bootp server.

Version 1.40

Corrected Anomalies

- When the module is connected to a device that supports only 1/2 duplex (10 or 100 Mbps), it would incorrectly use full duplex as an operating mode. As a result of the incorrect operating mode, collisions and CRC errors could occur at an extremely high rate.
- In this version, the "Bandwidth Exceeded" error message will be properly reported when the module is excessively loaded (based on CPU utilization and/or frames/sec count). Please note that operating the module in this "Bandwidth Exceeded" state for a long period of time could result in unexpected module failure (i.e., red light).

Version 1.33

Corrected Anomaly

Previously, the module would power up into an autonegotiation phase. Then, if it did not detect autonegotiation packets, it would try to force 100Mbit operation. Finally, if it still did not detect valid traffic, it would default to 10Mbit and stay there. The firmware has been changed to continually attempt to autonegotiate until it is successful.

Software Compatibility Requirements

To use the 1756-ENBT module, you need the correct versions of RSLogix 5000 and RSLinx™ software.

- RSLogix 5000 - 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. For Gateway applications, there are no software compatibility issues with RSLogix 5000.
- RSLinx, version 2.30.01 or later

Other Important Considerations

Ethernet Switch Port Configuration

The 1756-ENBT module supports the following Ethernet™ settings:

- 10Mbps half duplex
- 10Mbps full duplex
- 100Mbps half duplex
- 100Mbps full duplex

Depending on the module and firmware version, different port configuration is required:

Modules with Firmware Revision 1.40 or Earlier

Mode selection is done automatically based on the IEEE 802.3u autonegotiation protocol. If a module is connected to a port on a 10/100Mbps switch, you must set this port to **autonegotiate**.

If this port is set manually to one of the modes listed above, a mismatch between module and switch modes of operation may occur. This will result in significant reduction of system performance

Modules with Firmware Revision 1.61 or Later

Starting with version 12.0 of RSLogix 5000, you can manually configure the communication rate and duplex of the ENBT module. Additionally, you can manually configure the communication rate and duplex on both the ENBT module and the switch port that is connected to the module. However, the configurations must match on both devices.

Changing Ports on an Ethernet Switch - Autonegotiation Setting Only

If you reconnect the module from one port to another one, regardless of 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 LED 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 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.

IGMP Support

The 1756-ENBT module supports IGMP protocol, version 1.0.

Performance Considerations

- In general, the 1756-ENBT module is capable of supporting 5,000 packets/sec. 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 4,000 packets/sec.
- When performing both implicit and explicit communications in a EtherNet/IP system using the 1756-ENBT module, communications such as HMI may slow down I/O communication performance in applications with high node count (64 and above). Adjust RPI values or put in additional ENBT modules when necessary to achieve desired performance in the system.

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www.rockwellautomation.com

Corporate Headquarters

Rockwell Automation, 777 East Wisconsin Avenue, Suite 1400, Milwaukee, WI, 53202-5302 USA, Tel: (1) 414,212,5200, Fax: (1) 414,212,5201

Headquarters for Allen-Bradley Products, Rockwell Software Products and Global Manufacturing Solutions

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414,382,2000, Fax: (1) 414,382,4444
Europe: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36-BP 3A/B, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Headquarters for Dodge and Reliance Electric Products

Americas: Rockwell Automation, 6040 Ponders Court, Greenville, SC 29615-4617 USA, Tel: (1) 864,297,4800, Fax: (1) 864,281,2433
Europe: Rockwell Automation, Brühlstraße 22, D-74834 Elztal-Dallau, Germany, Tel: (49) 6261 9410, Fax: (49) 6261 17741
Asia Pacific: Rockwell Automation, 55 Newton Road, #11-01/02 Revenue House, Singapore 307987, Tel: (65) 351 6723, Fax: (65) 355 1733

Publication 1756-RN591H-EN-P - July 2004

PN 957899-88

Supersedes Publication 1756-RN591G-EN-P - April 2004

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