Release Notes

ControlLogix ControlNet Interface Module

Catalog Numbers 1756-CNB and 1756-CNBR

Use These Release Notes

These release notes describe changes in version 5.38.40 (series D) of the ControlLogix ControlNet Interface Module, catalog numbers 1756-CNB and 1756-CNBR.

Use these notes with your ControlLogix ControlNet Interface Module User Manual, publication 1756-6.5.3, December 1999.

Corrected Anomalies

This section describes anomalies corrected in recent firmware revisions.

Anomalies Corrected in Version 5.38.40

This version of firmware corrected anomalies related to ControlLogix Redundancy systems. Please refer to the ControlLogix Redundancy System Release Notes, publication 1756-RN582P, for more information on these fixes.

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Anomalies Corrected in Version 5.37

This version of firmware corrected an anomaly where, on rare occasions, scheduled data connections timed out or scheduled data were sent on the wrong ControlNet network update time (NUT).
On very rare occasions, this condition could persist for a few NUT times and potentially result in a connection timeout. Connections would then automatically be re-established by the controller.

The connection timeout and automatic reconnection process yields a connection loss of approximately 3 seconds. During this time, affected I/O connections use their fault states.

Anomalies Corrected in Version 5.36

This version of firmware corrected several System Redundancy related issues with the 1756-CNB and 1756-CNBR. For more information, refer to the ControlLogix System Redundancy Release Notes, publication number 1756-RN582N-EN-E, available through the Automation Bookstore at www.theautomationbookstore.com.

Anomalies Corrected in Version 5.32

With version 5.32, we corrected these anomalies:

- We improved the tolerance of the CNB module to handle delayed 'ACK' messages from third party devices.
- The CNB now verifies the node address when doing forward open signature checks.
- We corrected the problem of long recovery times for connections after multiple connection interruptions.
- We corrected the ASSERT in redunob.c error. This typically occurs when the module is in a rack containing a large number of controller, CNB, or DNB modules.

- We corrected the problem of CNB stuck in 'NET ERR' state.
- We corrected the ASSERT in smacdrvr.c line 2042 error.

Anomalies Corrected in Version 5.27

With version 5.27, we corrected these anomalies:

- Accessing a CNB as a PLC-5 from RSView caused a redlight and exception handlers ASSERT error.
- A CNB keeper ASSERT error was intermittently seen at node 1 at powerup. The workaround prior to this repair was to change the CNB node address to something other than one.
- An ASSERT in txlist.c error was intermittently seen on a two-node network when a cable was broken.
- A 1784-PCICS module and a single-media 1756-CNB failed to form a two-node network.
- RSNetWorx would display 'On-Line/Off-Line Mismatch' window continuously even after saving the latest edits successfully.
- A correction was made to the manner in which the CPU utilization was calculated. Previous values were 'high' by as much as 10% in the 10% CPU utilization range. The error reduced linearly by 1% for each 10% increment in CPU utilization and therefore was 'high' by only 1% in the 90% CPU utilization range.

Enhancements to the Firmware

This section describes enhancements in recent firmware revisions.

Enhancements to Version 5.38.40

- Beginning with this version of the firmware, a sub-minor revision will be added to the revision of the firmware (major rev., minor rev., **sub-minor rev** > i.e., 5.38.40). The sub-minor revision number is added to help better identify and differentiate pre-released products. There should be no change in user behaviors when referencing the firmware revisions of released products. This number is not printed on the product label, however, it is scrolled on the displayed upon module power-up.

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

- This version of firmware enhances the rate at which ControlNet network configuration, station status, and error counter information is gathered. With this enhancement, this data will be gathered and updated every 3 seconds to more closely match other system timing such as connection re-establishment.

Enhancements to Version 5.36

This version of the product enhanced the internal RAM memory test to improve memory fault coverage.

Enhancements to Version 5.32

We made these enhancement in version 5.32:

- The 1756-CNBR modules can now be used with the 1756-CNB I/O Configuration entry in RSLogix 5000 under 'compatible' keying.
- This version of the product is ControlNet International 'conformance tested'. All future releases will continue to be CI compliant.

Enhancements to Version 5.27

We made these enhancements in version 5.27:

- We optimized the 1756-CNB(R), version 5.27, for the ControlLogix Redundancy system. Please use this compatibility table when implementing ControlLogix redundancy. Refer to the latest ControlLogix Redundancy Release Notes for the most up to date compatibility chart.

Product	Minimum requirement for redundancy
RSLogix5000	Version 8.52.00
RSLinx	Version 2.30.01
RSNetWorx	Version 3.00.02
1756-CNB(R)	F/W version 5.27
1757-SRM	F/W version 2.15
Logix5555 Processor	F/W version 8.78

- We added the ability to present diagnostic information on the 4-char display on the module. This information can now be displayed:

Display	Description	
n C # #	## indicates the total number of open connections Max = 64	
n U # #	## indicates the total number of unconnected buffer usage Max = 20	
% C # #	## indicates the module's CPU utilization percentage Max = 99%	
B x # #	## indicates the number of bandwidth exceeded occurrences since the last module reset Max = 99 Note: This counter display is disabled until the module detects at least one bandwidth exceeded event	
K p # #	Keeper status	
	If # # equals:	The module is:
	Ov	Offline with valid keeper information
	Oi	Offline with invalid keeper information
	Av	An active keeper
	Ai	An active Invalid keeper
	Iv	An inactive valid keeper
	Ii	An inactive invalid keeper

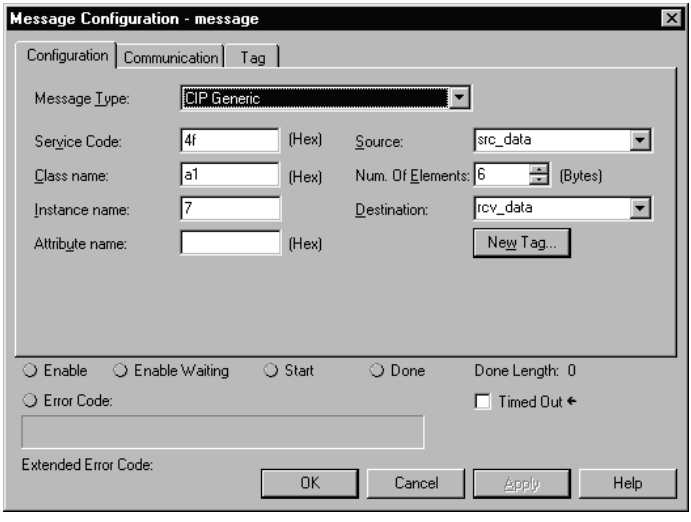
- We added 16-bit minor fault counters internal to the CNB for these fault conditions (this feature was introduced in version 5.22):

  – Bandwidth Exceeded – Increments whenever there are no 'receive' buffers available to handle incoming ControlNet data.
  – Network error count – Increments whenever a 'lonely' or network mismatch condition is detected.
  – ICP receive error count – Increments whenever the CNB detects a Backplane error on the module.

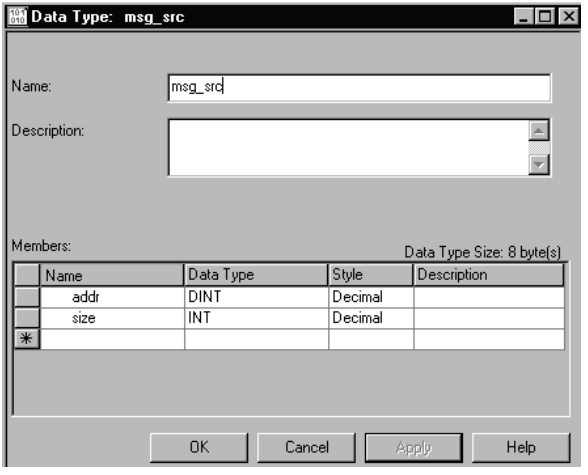
– ICP address error count – Increments whenever the CNB detects a Backplane address error on the module.

These read-only counters are accessible to ladder programs using CIP generic messaging. These counters are continuous and will rollover from 65,535 to 0. The counts are reset only at module powerup.

The following is an example of how to set up a CIP Generic MSG to display these diagnostic counters. Fields that are not associated with any captions must be configured exactly as shown.



Source Tag configuration: The source tag used in the above MSG instruction must be a User Defined Tag consisting of a DINT and an INT. The following figure shows what that User Defined data type looks like.



To display diagnostic counter information, the user must put the appropriate value that associates with the address of the diagnostic counter into the DINT portion of the source tag and the value associated with the size of the counter into the INT portion of the source tag. When the message is executed with the appropriate counter configuration, the assigned diagnostic counter value will be written to the destination tag (in the above example: rcv_data).

This table shows the address and size of each of these diagnostic counters.

Address	Size	Counter
00 00 00 0000	02	Bandwidth Exceed
00 00 00 0400	02	Network Error
00 00 00 0600	02	ICP Receive Error Count
00 00 00 0800	02	ICP Address Error Count

ControlLogix I/O Rack Connection Limitations

When using ControlLogix I/O with a remote ControlNet Adapter (1756-CNB or 1756-CNBR), as many as 5 controllers can create rack optimization connections to the ControlNet Adapter. All subsequent rack connection requests will fail.

It is possible that more than one Logix5550 controller can configure the same remote 1756-CNB module for rack optimization, since each RSLogix 5000 project configures the I/O for only one Logix5550 controller. As many as five Logix5550 controllers can communicate to the same 1756-CNB (or 1756-CNBR) module via a rack optimization connection. If more than five Logix5550 controllers configure the same 1756-CNB module for rack optimization, RSNetWorx for ControlNet software will schedule the network, but only five Logix5550 controllers will communicate to that 1756-CNB module. The RSLogix 5000 project files for the Logix5550 controllers that fail to communicate to that 1756-CNB module will show that 1756-CNB module as faulted, with the message, "16#011a Connection Request Error: Out of Connection Resources."

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