The NX3B2C-17 module is the Nexus version of the 2762-17 module. The major difference between this module and the 2762-17 is that there is no separate block transfer and single transfer operations. The NX3B2C-17 instead appears as a node on the ControlNet network. Other differences include the ability to program the module for 1000 and 1800 turn transducers, the addition of transducer fault latch parameter, and different input configurations for controlling manual jogging and Emergency Stop Inputs. The ability to choose the output state if the network connection is lost, as well as the ability to disable a channel, has also been added to the module.

Output Tags (16 Words sent from the PLC to the NX3B2C-17 unit)

Word 0 = Motion Control Channel 1
- bit 0 = start move profile
- bit 1 = stop move profile
- bit 2 = jog up
- bit 3 = jog down
- bit 4 Enable External Jog
- bits 5 to 15, reserved, must be zero

Word 1 = Motion Control Channel 2
- bit 0 = start move profile
- bit 1 = stop move profile
- bit 2 = jog up
- bit 3 = jog down
- bit 4 Enable External Jog
- bits 5 to 15, reserved, must be zero

Words 2 to 15 = Output words used to program the module during a programming cycle. The bit set in the upper byte of word 2 determines the function of output words 3 to 15.

Note 1: Output words 0 and 1 do not use the programming cycle. The module will act on the state of these bits immediately, without the use of the Transmit or Acknowledge bit.
Note 2: Motion Profiles will not be allowed when a programming cycle is taking place. If either the Transmit or Acknowledge bits are set when any motion is requested, a Command Ignored error will be generated.
Note 3: If the transmit bit transitions from 0 to 1 when any motion, either a move profile or a jog, is occurring, a Command Ignored error will be generated and motion will continue.
Note 4: If the transmit bit transitions from 0 to 1 during the same scan that a move operation is started, then neither operation will be performed and a Command Ignored error will be generated.
Note 5: The NX3B2C-17 must see at least one scan where the jog control bits are both zero when changing the direction of the jog operation. A Command Ignored Error will be generated if the jog bits request a change in direction in the same program scan.
Note 6: If a Command Ignored Error is generated by any of the conditions listed above, the error will have to be cleared using the Clear Error Command before any move profiles will be allowed to occur.
Note 7: The *JOG Function* is allowed at any time. You can jog in either direction even if the current position is currently outside of the travel limit ranges. This functionality is true of both the jog inputs or the backplane jog commands and is intended to allow the press to be jogged back into position regardless of the current position.

Word 2: Command Word

bits 0 to 7: Programming Block dependent, see descriptions below
bit 8 = Transducer Setup
bit 9 = Positioning Setup
bit 10 = Auxiliary Commands
bit 11 = Apply Preset Transducer Position
bits 12 to 14: Reserved, must equal zero
bit 15: Transmit bit. A 0 to 1 transition of this bit initiates a programming cycle.

Transducer Setup: Word 2, bits 0 to 7
Command Bit 8 is also set

bit 0: Channel Number, 0 = channel 1, 1 = channel 2
bit 1: Transducer Fault Latch, 0 = fault latched, 1 = fault self clearing
bit 2: Direction, 0 = positive, 1 = negative
bit 3: Set to disable the Transducer channel LED. Even though the LED is off, the module will still provide resolver position and status information to the network.
bit 4: Set to disable the Transducer channel. With the channel disabled, the LED will be off and there will be no status bits or resolver data reported to the PLC. A disabled channel will ignore any command for motion and will only accept a Transducer Setup Command with the Transducer Channel enabled (bit 4 reset).
bits 5 to 7: reserved, must equal zero

Transducer Setup: Words 3 to 15

Word	Parameter	Default
3	Transducer Type	180
4	Number Of Turns	1800
5	Upper 3 digits Scale Factor	737
6	Lower 3 digits Scale Factor	280
7	Upper 3 digits Linear Offset	0
8	Lower 3 digits Linear Offset	0
9	Upper 3 digits Preset Value	0
10	Lower 3 digits Preset Value	0
11	Upper 3 digits Upper Travel Limit	737
12	Lower 3 digits Upper Travel Limit	279
13	Upper 3 digits Lower Travel Limit	0
14	Lower 3 digits Lower Travel Limit	0
15	0	0

Note 1: The Most Significant bit in the upper word of the Linear Offset, Preset Value, Upper Travel Limit, and the Lower Travel Limit is the sign bit. Setting this bit will cause the parameter to be negative.
Note 2: Programming the transducer setup data will clear any offset generated by an apply preset operation.

Transducer Setup Parameter Ranges

Parameter	Range
Transducer Type	100, 180, 1000, 1800
Number of Turns	HTT-20-100: 0.1 to 100.0 turn resolution (0.1 turn resolution entered as 1 to 1000) HTT-20-180: 0.1 to 180.0 turn resolution (0.1 turn resolution entered as 1 to 1800) HTT-20-1000: 1 to 1000 turn resolution (1 turn resolution entered as 1 to 1000) HTT-20-1800: 1 to 1800 turn resolution (1 turn resolution entered as 1 to 1800)
Scale Factor	2 to (Number of Turns * 4096) for HTT-20-100 or HTT-20-180 2 to (Number of Turns * 409.6) for HTT-20-1000 or HTT-20-1800
Linear Offset	-999,999 to (1,000,000 – Full Scale Count)
Preset Value	Linear Offset to (Linear Offset + Full Scale Count – 1)
Upper Travel Limit	(Lower Travel Limit + 1) to (Linear Offset + Full Scale Count – 1)
Lower Travel Limit	Linear Offset to (Upper Travel Limit – 1)

Note: The Full Scale Count = (Transducer Type * Scale Factor/Number of Turns) –1

Positioning Setup: Word 2, bits 0 to 7
Command Bit 9 is also set

bit 0: Channel Number, 0 = channel 1, 1 = channel 2
bit 1: Program Direction, 0 = approach the target from a position greater than the target position, 1 = approach the target from a position less than the target position.
bits 2 to 7, reserved, must equal zero

Positioning Setup Words 3 to 15 Function

Word	Positioning Setup	Default
3	Upper 3 digits Target Position	0
4	Lower 3 digits Target Position	0
5	Upper 3 digits Overshoot Offset	0
6	Lower 3 digits Overshoot Offset	0
7	Upper 3 digits Low Speed Offset	0
8	Lower 3 digits Low Speed Offset	0
9	Upper 3 digits Stop Offset	0
10	Lower 3 digits Stop Offset	0
11	Upper 3 digits Target Range	0
12	Lower 3 digits Target Range	0
13	Retry Value	0
14	0	0
15	0	0

Note: The Most Significant bit in the Target Position is the sign bit. Setting this bit will cause the parameter to be negative.

Positioning Setup Parameter Ranges

Parameter	Range
Target Position	Linear Offset to (Linear Offset + (Full Scale Count - 1))
Overshoot Offset	(Low Speed Offset + 1) to (Full Scale Count – 1) if Low Speed ≠ 0 (Stop Offset + 1) to (Full Scale Count – 1) if Low Speed = 0
Low Speed Offset	0 and (Stop Offset + 1) to (Overshoot Offset – 1)
Stop Offset	1 to (Overshoot Offset - 1) if Low Speed Offset = 0 1 to (Low Speed – 1) if Low Speed ≠ 0
Target Range	0 to (Full Scale Count – 1)
Retry Value	1 to 255

Note: The Full Scale Count = (Transducer Type * Scale Factor/Number of Turns) –1

Auxiliary Commands Data Word 2, bits 0 to 7
Command Bit 10 is also set

bit 0: Read Back Channel Bit, 0 = channel 1, 1 = channel 2
bit 1: Clear Errors (This bit can be set with any of the other Auxiliary Command bits)
bit 2: Read Position and Velocity
bit 3: Read Transducer Setup
bit 4: Read Positioning Setup (This also reports the Stop Offset Value adjusted that has been adjusted during a move profile.)
bit 5: Set to program the input and output state if the network connection is lost. Bit 6 specifies the options
bit 6: The state of this bit is only read when bit 5 is set. Programming the input and output state with bits 5 and 6 affects both channels.

Bit 6	Input and Output State
0	The outputs will be disabled and the inputs ignored if the network connection is lost.
1	The module will continue to operate normally if the network connection is lost. If a move profile was in progress, it will run to completion. If a jog operation was in progress, the jog will continue. The inputs will continue to function.

Note 1: The module and motion status bits remain in their last state when the network connection is lost.
Note 2: The function of bits 5 and 6 did not work properly in the Version 0 firmware. Only one unit with serial number 422 was shipped with this firmware version.

bit 7: Reserved, must equal zero

Words 3 to 15 are reserved and must be zero

Apply Preset Position Data Word 2, bits 0 to 7
Command Bit 11 is also set

bit 0: Apply Preset Channel 1
bit 1: Apply Preset Channel 2
bits 2 to 7, reserved, must equal zero

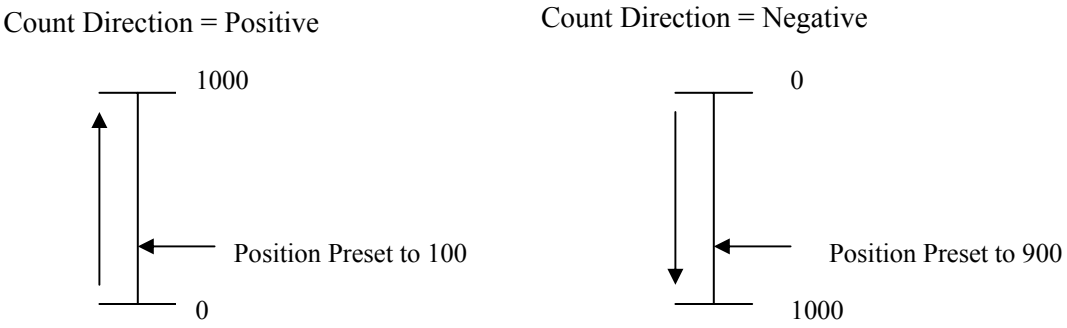
Words 3 to 15 are reserved and must be zero

Note: The Preset Value can be applied to both channel 1 and channel 2 during the same programming cycle.

Applying the Preset Value, Count Direction = Negative

The affect of the Apply Preset function on the current position data is different when the Count Direction parameter is set to positive than when the parameter is set to negative. When the Count Direction parameter is set to positive, the current position data becomes the Preset Value. When the Count Direction parameter is set to negative, the current position data is offset to the (Scale Factor – Preset value). This results in the Apply Preset function always changing the position to the same physical location, as illustrated by the following example.

Scale Factor = 1000
Preset Value = 100



So, applying the Preset Value with the Count Direction set to negative causes the position data to become 900, not 100.

Input Tags (18 Words sent from the NX3B2C-17 Unit to the ControlLogix PLC)
(16 Words sent from the NX3B2C-17 Unit to the PLC 5)

Note: Input words 0 and 1 in the ControlLogix System will always be zero.

Function	ControlLogix Word	PLC-5 Word
Channel 1 Status	2	0
Channel 2 Status	3	1

With the exception of the Acknowledge bit, which is located in bit 15 of the channel 1 status, the bits used in both status words have identical functions.

Bits 0 to 3: Output Status

Bit	Function
0	Set when a move or jog is in process, position increasing
1	Set when a move or jog is in process, position decreasing
2	Profile move proceeding at high speed
3	Profile move proceeding at low speed

Note: The function of bits 0 and 1 is reversed if the module is set for negative increasing counts.

Bits 4 to 7: Channel Motion Status

Bit # 7 6 5 4	Function
0 0 0 0	Stopped. Move profile terminated before it completed or a jog is stopped within the lower and upper travel limits.
0 0 0 1	Stopped, In Position. The present position is within the specified Target Range, regardless of how the position was reached. True only after the Stop Offset is reached.
0 0 1 0	Jogging Up. Position is manually forced to increase.
0 0 1 1	Jogging Down. Position is manually forced to decrease.
0 1 0 0	Positioning Up, Low Speed. Move Profile active, position increasing at low speed.
0 1 0 1	Positioning Down, Low Speed. Move profile active, position decreasing at low speed
0 1 1 0	Positioning Up, High Speed. Move Profile active, position increasing at high speed.
0 1 1 1	Positioning Down, High Speed. Move profile active, position decreasing at high speed
1 0 0 0	At Upper Travel Limit. Position $\geq$ Upper Travel Limit.
1 0 0 1	At Lower Travel Limit. Position $\leq$ Lower Travel Limit.
1010 – 1100	Reserved
1 1 0 1	The channel Emergency Stop Input is Active. This bit pattern is removed when the input is removed..
1 1 1 0	Attempted to External Jog in both directions at the same time
1 1 1 1	Stopped, Not in Position. The present position is not within the specified target range. Also set if a move profile is started and the (target position + overshoot offset) $\geq$ upper travel limit or if the (target position – overshoot offset) $\leq$ lower travel limit.

Bits 8 to 10: Module Status

Bit # 10 9 8	Function
0 0 0	No Errors: Module operating without errors.
0 0 1	Transducer Fault. There is a transducer fault or wiring error. This fault takes priority over all of the other programming faults shown in this table.
0 1 0	NvRAM Error. Parameters have not been stored correctly.
0 1 1	Program Command Error. This error will appear during a programming cycle under the following conditions. 1. Indicates an error in the command bits stored in the Command Word. This error will be displayed in the status words of both channels. 2. Indicates that the unused words in the Auxiliary or Apply Preset Commands are not zero. 3. Sending an Apply Preset Command without bits 0 or 1 set. This error will appear during a motion operation under the following conditions. 4. If a move operation is started with two or more control bits set. 5. If a Stop Command is issued when there is no move profile taking place. 6. If a Stop Command is issued to stop a Jog operation.
1 0 0	Program Parameter Error. Set under the following conditions. 1. If a parameter sent with the last programming cycle is outside of its valid range. 2. If the unused words in the Transducer Setup or Positioning Setup programming blocks are not zero. 3. If a move profile is started and the Target Position is greater than the Upper Travel Limit or less than the Lower Travel Limit.
1 0 1	Command Ignored Error. Set under the following conditions. 1. Attempting to program the module when there is a NvRAM error. 2. Attempting to preset a position, jog a position, or run a move profile when the channel is in transducer fault. 3. If the Transmit Bit transitions from 0 to 1 when any motion, either a move operation or a jog, is occurring. 4. If either the Transmit or Acknowledge bit are set when any motion is requested. 5. If the transmit bit transitions from 0 to 1 during the same PLC scan that a move operation is started. In this case, neither operation will be performed. 6. Programming the module when a Program Parameter Error exists. The Program Parameter Error must be cleared using the Clear Error command before any additional commands will be accepted. 7. Issuing a move command on a channel that has been disabled. 8. Setting an unused bit in the move command words. 9. Setting a move profile bit when a different bit is already set. 10. Changing from Jog up to Jog down during the same programming scan. 11. Starting a move profile if the current position is above the upper travel limit or below the lower travel limit.
1 1 0	Reserved
1 1 1	Reserved

Bit 11: Global Motion bit

Set when any motion on the channel is taking place

Bits 12 and 13: Data reported in the remaining input words
(These bits will be set in both status words)

Bit # 13 12	Function
0 0	Position and Velocity
0 1	Transducer Setup
1 0	Positioning Setup
1 1	Reserved

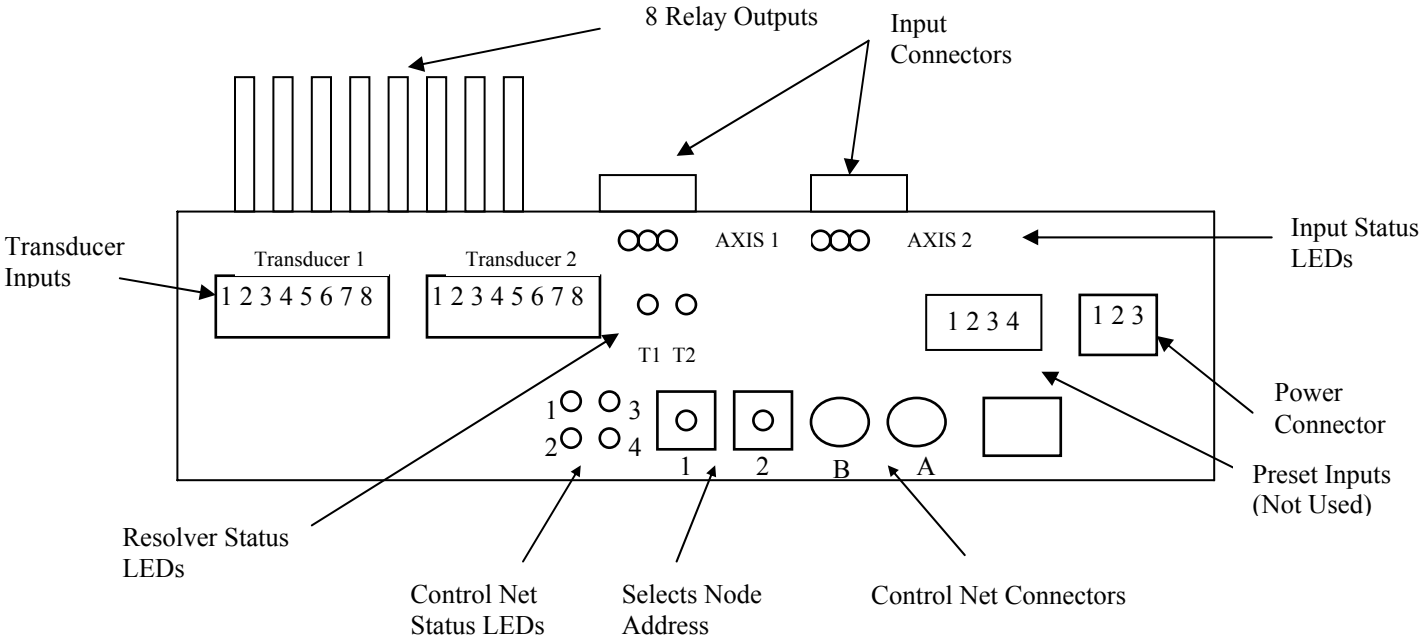
Bit 14: Reserved
Bit 15: Channel 1 Status word: Acknowledge bit
Channel 2 Status word: Reserved

Data Reported to Input Tags

ControlLogix Word	PLC-5 Word	Position and Velocity	Readback Transducer Setup	Readback Positioning Setup
4	2	Upper 3 digits channel 1 position	Bit level Transducer Setup parameters	Bit level Positioning Setup parameters
5	3	Lower 3 digits channel 1 position	Transducer Type 100, 180, 1000, 1800	Upper 3 digits Target Position
6	4	Upper 3 digits channel 1 velocity	Number Of Turns	Lower 3 digits Target Position
7	5	Lower 3 digits channel 1 velocity	Upper 3 digits Scale Factor	Upper 3 digits Overshoot Offset
8	6	Upper 3 digits channel 2 position	Lower 3 digits Scale Factor	Lower 3 digits Overshoot Offset
9	7	Lower 3 digits channel 2 position	Upper 3 digits Linear Offset	Upper 3 digits Low Speed Offset
10	8	Upper 3 digits channel 2 velocity	Lower 3 digits Linear Offset	Lower 3 digits Low Speed Offset
11	9	Lower 3 digits channel 2 velocity	Upper 3 digits Preset Value	Upper 3 digits Stop Offset
12	10	0	Lower 3 digits Preset Value	Lower 3 digits Stop Offset
13	11	0	Upper 3 digits Upper Travel Limit	Upper 3 digits Target Range
14	12	0	Lower 3 digits Upper Travel Limit	Lower 3 digits Target Range
15	13	0	Upper 3 digits Lower Travel Limit	Retry Value 1 to 255
16	14	0	Lower 3 digits Lower Travel Limit	0
17	15	0	0	0

Note 1: If the Most Significant bit in the upper word of the Linear Offset, Preset Value, Upper Travel Limit, Lower Travel Limit, and the Target Position parameters is set, then the value is negative.
Note 2: The bit level read back data for the transducer setup includes, bit 0 = channel number, bit 1 = transducer fault latch, bit 2 = count direction.
Note 3: The bit level read back data for the positioning setup includes, bit 0 = channel number and bit 1 = positioning direction.
Note 4: The readback data also includes the command bit.
Note 5: The last word in the above table are reserved for future use and will always be zero.

NX3B2C-17 Hardware Overview



Dimension: Length = 10 inches
Width = 4 inches (not including ControlNet Connectors)
Height = 4.75 inches (including relays)

Transducer Input Connectors

Pin Number	Function
1	R1
2	R2
3	Shields
4	S2F, S3F, S1C, S2C
5	S3C
6	S4C
7	S1F
8	S4F

F = Fine Resolver, C = Coarse Resolver

Resolver Status LED

LED Pattern	Function
solid green	Resolver OK
flashing green	Clearable Transducer Fault
flashing red	Non Clearable Transducer Fault
solid red	Module Fault
off	LED or channel disabled

Note: If only the channel 1 LED is alternating between red and green, than there is no communication between the unit and the Controlnet board.

Inputs

The NX3B2C-17 unit has six inputs that are divided into two groups, each with its own common. The inputs in the first group affect channel 1 and the inputs in the second group affect channel 2. Depending on what is connected to the common, the inputs can be either sinking or sourcing. The following table shows the function of the module's six inputs.

Input	Input Label	Common Terminal	Function
1	IN1	COM 1	channel 1 jog up
2	IN2	COM 1	channel 1 jog down
3	IN3	COM 1	Emergency Stop channel 1
4	IN9	COM2	channel 2 jog up
5	IN10	COM2	channel 2 jog down
6	IN11	COM2	Emergency Stop channel 2

Note 1: If the emergency stop inputs are active when motion is requested, then the motion will not occur. The module status bits show the state of the emergency stop input even if there is no motion in progress.
Note 2: After the Emergency Stop input is used, the control bit must transition from 0 to 1 before motion can resume
Note 3: If the emergency stop inputs are used, the motion control bits will have to transition from 0 to 1 before motion will start again.
Note 4: The Preset Inputs, located on the front of the module, currently have no function.

Input Status LEDs

Common Connection	Input Type	LED color when input active
Ground	sinking	Red
+DC voltage	sourcing	Green

Outputs

The NX3B2C-17's outputs consist of eight Opto 22 G4OC24 solid state relays. These relays have a logic voltage of 24Vdc and a line voltage of 5 to 60Vdc. They also have a turn on and turn off time of 50μs. The following table shows the function of each of the outputs.

Output	Function
K1	Channel 1 Motor Forward
K2	Channel 1 Motor Reverse
K3	Channel 1 High Speed
K4	Channel 1 Low Speed
K5	Channel 2 Motor Forward
K6	Channel 2 Motor Reverse
K7	Channel 2 High Speed
K8	Channel 2 Low Speed

Note 1: The outputs will be disabled if the channel is in transducer fault. Depending on how the module is configured, the outputs will either be disabled or remain active if the network connection is lost.
Note 2: The function of forward and reverse outputs will be reversed when the direction of increasing counts is set to negative.
Note 3: The outputs do not turn off if the PLC is in program mode.

Power Requirements

Power Connector

Pin	Function
1	24Vdc
2	DC Common
3	Shields

The NX3B2C-17 requires 500ma @24Vdc to operate. Even though the unit will operate within a voltage range of 10 to 30Vdc, it is recommended that the unit be powered with a supply that is within the operating range of the relays. The Opto 22 ODC24 have an operating range of 18 to 30Vdc.

ControlNet Connectors

The NX3B2C-17 has two BNC network connections labeled A and B.

Node Address Selection

The NX3B2C-17 has two rotary switches used to set the module's address on the network. Any node from 0 to 99 can be selected. Switch 1 sets the one digit and switch 2 sets the 10s digit of the address. For example, if the NX3B2C-17 is to be installed at node 46, switch 1 would be set to 6, and switch 2 would be set to 4. Note, changing the node address only takes affect at power up. Changing the address while power is applied to the NX3B2C-17 will generate a minor fault.

ControlNet Status LEDs

The following table describes the function of the four network status LEDs.

LED Number	Name	LED Pattern	Function
1	Channel B status	Solid Green Flashing Red/Off Solid Off	Channel Operating Correctly Channel Disconnected from Network Channel Disabled
2	Channel A status	Solid Green Flashing Red/Off Solid Off	Channel Operating Correctly Channel Disconnected from Network Channel Disabled
3	Module Owned	Solid Green Off Solid Red	Network Card is communicating with Nexus Network Card is not communicating with Nexus Incorrectly Configured Network. Possible causes are incorrect Node #, Number of I/O words, or Comm format.
4	Module Status	Flashing Green Solid Green Flashing Red Solid Red	Network Card is waiting for initialization Module is initialized and operating correctly Minor Fault (For example Node address changed) Major Fault, module must be restarted

Note: If the NX3B2C-17 is removed from the Network, than both LEDs 1 and 2 will flash RED.

Throughput Time

The NX3B2C-17 has a throughput time of 400µs. Also, there is a 1sec delay between when one direction relay turns off and the other direction LED turns on.

Network Update Time

The NX3B2C-17 has a minimum network update time of 5ms.

Programming Sequence

1. The ladder logic program writes the data into the output registers.
2. The ladder logic program then sets the transmit bit.
3. When the module detects the 0 to 1 transition of the transmit bit, it will respond by setting any error bits and the Acknowledge bit in the input registers.
4. When the ladder logic program sees that the Acknowledge bit is set, it will examine any error bits, and then reset the transmit bit.
5. The module will reset the Acknowledge bit. The programming sequence is now complete

Revision History

Version 0: Initial release of the specifications.
Version 1.0: Added details about the programming, as well as a description of the hardware.
Version 2.0: The following changes were made to the specifications.

1. The Jog and E-Stop status bits were moved from the module status to the motion status.
2. Information was added on how the ControlLogix PLC requires the use of two additional input words. These input words will always be zero.
3. Default Values were added to Transducer and Positioning setup data.
4. Additional information was added to the input and output information.
5. A description of the Transmit bit/Acknowledge bit programming sequence was added to the specifications.
6. A section was added on how the Apply Preset instruction works when the direction of increasing counts is set to negative.
7. Information was added on how the function of the Forward and Reverse outputs is different when the direction of increasing counts is set to negative.
8. Quickstart guides for both PLC-5 and ControlLogix systems were added to the specifications.
9. A note was added on how the programming of the output state when the network connection is lost does not function in the Version 0 firmware.

Version 3.0: The following changes were made to the specifications.

1. These specifications were written for the version 1 firmware where the problem of programming the output state for the loss of a network connection has been corrected. The warning message indicating that programming this parameter did not work was removed.
2. Additions were made to the conditions that will cause a Program Command Error, Program Parameter Error, and a Command Ignored Error.
3. Changes were made to the ranges of the positioning setup parameters.
4. A note was added on how the NX3B2C-17 must see at least one scan where the jog control bits are both zero when changing the direction of the jog operation.

Version 3.1: Released on 3/18/02. The following changes were made to the specifications.

1. The dimensions were added to the Hardware Overview
2. The RSLogix revision references were removed from the quickstart quide.
3. An additional status LED function was added. This feature always existed; it was just not referenced in the specifications.

Version 3.2: Released on 5/14/02. This version changed the name from NX3A2C-17 to NX3B2C-17.

Version 3.3 was released on 4/28/05. This version added a note to the functionality of ControlNet LED 3. A note on how jogging is allowed even outside of the upper and lower travel limits was also added.

Quick Start Guide
AMCI Nexus to ControlLogix

1. With the power off, use the rotary switches on the Nexus to select the desired node address.
2. Connect the Nexus to the ControlNet using a ControlNet Tap to coax media. Either the A or B port can be used, depending on how your network is configured.
3. Apply power to the Nexus unit.
4. Start RSLogix 5000
5. Start RSLinx and establish communications to the ControlLogix system.
6. Configure the ControlLogix hardware system, processor and discrete I/O. If it is not already present, also add the ControlNet adapter 1756-CNB(R) module to the system.
7. Right-click on the 1756-CNB(R) module and Click on **New Module…**
8. Define the NX3B2C-17 as a generic CONTROLNET-MODULE. Click on **OK** and define the properties as follows.

Name:	*Your Choice*
Description:	*Your Choice*
Comm Format:	Data-INT (must be set to Data-INT)
Node:	Set it to the same value as the Node address on the NX3B2C-17

Assembly Instance – 100, **Input** – 18 for the NX3B2C-17
Assembly Instance – 150, **Output** – 16 for the NX3B2C-17
Assembly Instance – 110, **Config** – 0 for the NX3B2C-17

9. Click on **Next>**
10. Define the RPI. The minimum value is 5.0ms, however the value may be set higher.
11. Click **Finish**.
12. Save and Download the file to the Processor
13. Start RSNetworx for ControlNet and either open an existing project or create a new one.
14. If this is the first time using the NX3B2C-17, register the appropriate EDS file and icon from AMCI's website www.AMCI.com.
15. Go Online. RSNetWorx will scan the ControlNet network and should discover the NX3B2C-17.
16. Click on the Enable Edits checkbox and then save the project.

At this point, the 1756-CNB(R) should be communicating; steady green LED and the top right LED (ControlNet Status LED #3) for the NEXUS communication should be on.

Go online to the ControlLogix processor. Select the **Logic** menu, followed by **Monitor Tags**. The data associated with the NX3B2C-17 is available under the name you chose when configuring it.

Quick Start Guide
AMCI Nexus to PLC-5

1. With the power off, use the rotary switches on the Nexus to select the desired node address.
2. Connect the Nexus to the ControlNet using a ControlNet Tap to coax media. Either the A or B port can be used, depending on how your network is configured.
3. Apply power to the Nexus unit.
4. Start RSNetworx. If this is the first time using the NX3B2C-17, register the appropriate EDS file and icon from AMCI's website www.AMCI.com.
5. From RSNetworx for ControlNet, go Online. After browsing the network, the NX3B2C-17 will appear as an "Extra Device" at the node selected by the Nexus' rotary switches.
6. Click the **Enable Edits** checkbox and choose "Use online data (upload)". Click **OK**. At this point you can right click on the NX3B2C-17 icon and select **Properties** from the pop-up menu. In the properties window, you can change the name associated with the unit and add a description.
7. Go Offline.
8. Click the **Enable Edits** checkbox.
9. Right Click on the PLC-5 icon and click on **Scanlist Configuration** in the pop-up menu.
10. In the Device Name column, right click on the name of the Nexus unit, and click on **Insert Connection** in the pop-up menu. The Connection Properties window will appear on the screen.
11. If needed, set the Input Size and Input Address of the Data Input File. This file resides in the PLC-5 and is used by all of the ControlNet nodes. Therefore, it must be large enough to hold all of the input data on the network. The number of words that the NX3B2C-17 transfers to the PLC-5 is shown below.

    16 Input words for the NX3B2C-17

12. If needed, set the Output Size and Output Address of the Data Output File. This file resides in the PLC-5 and is used by all of the ControlNet Nodes. Therefore, it must be large enough to hold all of the output data on the network. The number of words that the NX3B2C-17 receives from the PLC-5 is shown below.

    16 Output words for the NX3B2C-17

13. Set the Request Packet Interval time. This has a minimum acceptable value of five milliseconds, but can be set higher.
14. Click OK to close the Connection Properties window. In the Scanlist Configuration window, save the changes and close the window.
15. Go Online.
16. Verify that the PLC is in Program Mode.
17. Click on **Network** in the toolbar and select **Download to Network** from the pull down menu that appears. After the download is complete, the Nexus unit should be communicating with the PLC.

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