



ControlLogix DeviceNet Interface Module

Catalog Number 1756-DNB

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About This Publication

This release note provides revision information for this module. This release note corresponds to module revisions 7.001 and earlier.

IMPORTANT

Screens shown in this release Note are for illustration only. Information such as revision and series levels shown in these screens may be different from your application.

Compatible Revisions

To use 1756-DNB module revision 7.001, update your system to these software versions or later.

Update This Software	To This Version or Later
RSLinx Classic	2.43
RSLinx Enterprise	3.00
RSLogix 5000	15.00 If you are using a version earlier than version 15.00, see the section entitled Install the Firmware Update on page 3.
RSNetWorx for DeviceNet	7.00

Download the Firmware Update

Follow this procedure to download the firmware from the support Web site.

1. Go to <http://support.rockwellautomation.com>
2. In the left column (frame), select Firmware Updates under Download.
3. Follow the instructions on the Web site to access and download the firmware update kit.

The download process will require you to enter the serial number of your RSLogix 5000 programming software.

Install the Firmware Update

To install firmware, you can use the ControlFLASH utility through either a network connection or a serial connection.

1. Install the ControlFLASH firmware update kit.
2. Make sure the network is connected.
3. Start the ControlFLASH utility.
4. Click Next.
5. Enter the firmware revision of the target device.
6. Click Next.

RSLink software starts.

7. In the left pane, navigate to DeviceNet communications link that contains the module you want to update.

8. Click on the module you want to update.
-

WARNING

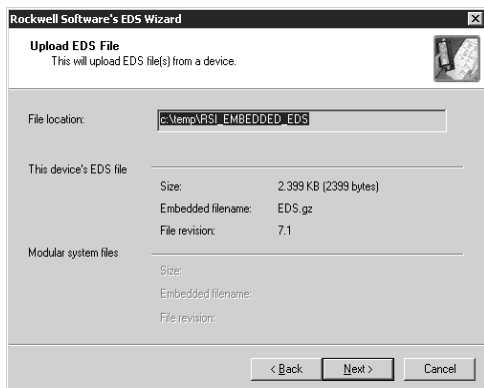
Ensure that the update you are about to make is the correct one for your device. If it is not, unpredictable system operation may result.

9. Click OK.
10. Click Finish.
11. When prompted, click Yes to start the update.
12. When the update is complete, verify that the module resets and the front panel LED displays 07/001.

Install Embedded EDS Files

For devices that support embedded EDS files (including 1756-DNB firmware revisions 5.002 and later), follow these steps to obtain and install the appropriate EDS file.

1. In RSNetWorx for DeviceNet software, right-click on the unrecognized device and choose Register Device.
2. Click Next.
3. Choose the Upload EDS file(s) from the device option.
4. Click Next.



RSNetWorx software uploads the EDS file from the device. When the upload is completed, you see a dialog box similar to this one:

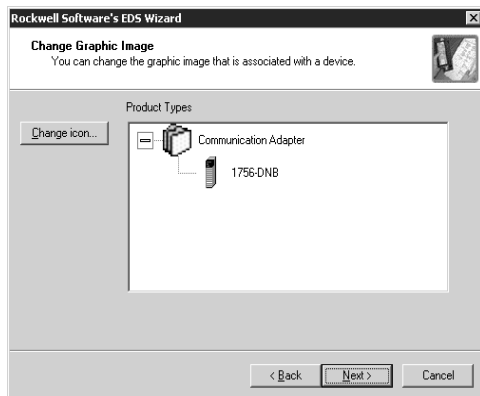


5. Click Next.

You see the status of the EDS installation.

6. Click Next.

You see the following informational dialog box.



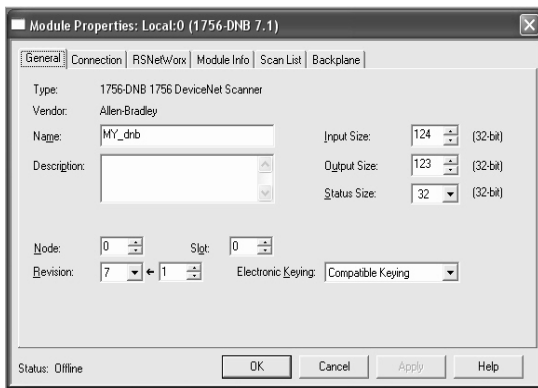
7. Click Next.
8. Click Next.
9. Click Finish.

Modify Module Keying

You may need to change module keying to allow RSLogix 5000 software to recognize multiple firmware revisions.

Follow this procedure to change module keying.

1. Start RSLogix 5000 software.
2. While offline, open a preconfigured RSLogix 5000 program that contains your 1756-DNB module.
3. Right-click on the module and choose Properties.
4. Select Compatible Keying.



IMPORTANT

If your control program requires an Exact Match, and you are using revision 7.001 firmware, you must upgrade RSLogix 5000 software to version 15 or later.

If Electronic Keying Is	Do This
Compatible Keying	No changes are needed.
Exact Match	1. Choose Compatible Keying from the pull-down menu. 2. Click Apply.

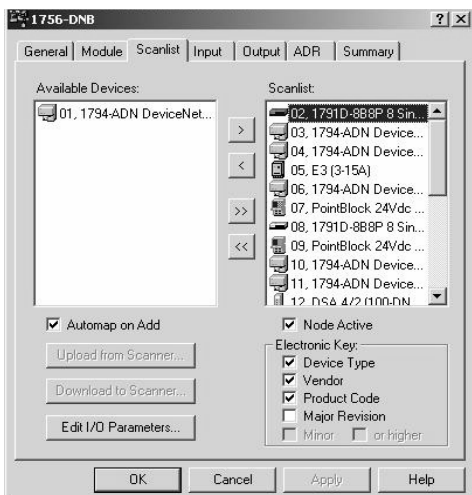
Revision 7.001 Enhancements

This firmware revision lets you perform these tasks while the 1756-DNB module is in Run mode.

- Add devices to the scanlist.
- Modify the configuration for devices already in the scanlist.
- Delete devices from the scanlist.

Follow this procedure to update the scanlist in RSNetWorx for DeviceNet software.

1. Double-click the module for which you want to change the scanlist.
2. Click the Scanlist tab.



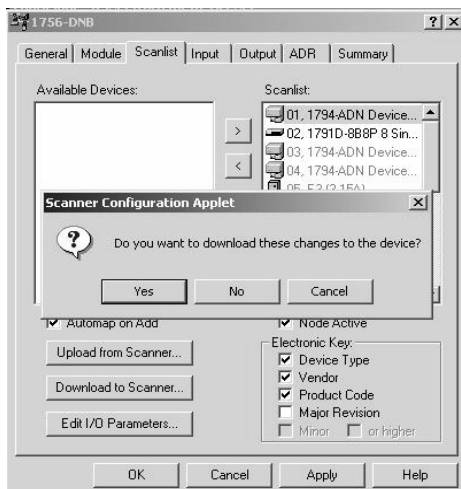
To	Click
Add the module to the scanlist	>
Remove the module from the scanlist	<
Add all available devices to the scanlist	>>
Remove all available devices from the scanlist	<<

3. For each device you add, you can do the following.

To	Click the
Make the node active	Node Active button
Change electronic keying	Appropriate checkbox in the Electronic keying field
Automap the input and output data in the scanner when adding a device to the scanlist	Automap on Add checkbox
Edit I/O configuration for each device in the scanlist	Edit I/O Parameters button

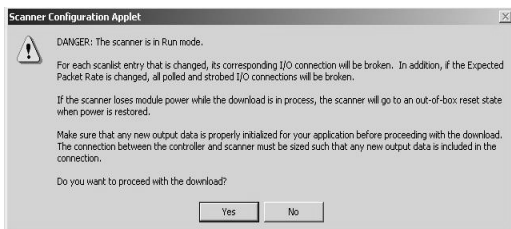
4. Click the Download To Scanner button.

You see a dialog box asking you if you want to download these changes to the device.



5. Click Yes.

You see a warning message telling you the 1756-DNB module is in Run mode, and asking you to verify the download.



WARNING



For each scanlist entry that is changed, its corresponding I/O connection will be broken. If the requested packet interval (RPI) is also changed, all polled and strobed I/O connections will be broken.

If the 1756-DNB module loses power while the download is in process, the 1756-DNB module will reset to its factory defaults.

Before proceeding with the download, ensure that any new output data is properly initialized for your application. The connection between the controller and the 1756-DNB module must be sized so that any new output data is included in the connection.

IMPORTANT

If safety connections are routed through a 1756-DNB module and the scanlist of that 1756-DNB module is changed to also include standard connections to the same safety modules while the 1756-DNB module is in Run mode, some safety connections routed to those safety modules may time out. To minimize the possibility of safety connection timeouts, add or change only one item in the 1756-DNB module scanlist per save.

If a safety connection times out, the safety I/O module associated with that connection will go to a known safe state with outputs turned off. The safety controller will attempt to reestablish the safety connection.

6. Ensure that you are ready to proceed with the download and click Yes.

Revision 6.002 Enhancements

Firmware revision 6.002 provides these enhancements.

Support for Series B Hardware

Firmware revisions 6.002 and later support both Series B and Series A hardware. Prior firmware revisions support only Series A hardware. Because of hardware differences between the Series A and B, the Series B hardware cannot be downgraded to a revision of firmware earlier than 6.002.

Use Revision 6.002 with Earlier Firmware Revisions

Tests with revision 6.002 firmware show the network polling time of a typical DeviceNet network at 250 Kbps and 500 Kbps is approximately twice as fast when compared to the same test run with earlier revisions of the 1756-DNB firmware. You must consider this significantly faster polling time when duplicating applications designed for earlier firmware revisions.

If your system control is programmed or dependant on specific 1756-DNB performance, then you can increase the Interscan Delay (ISD) in the revision 6.002 1756-DNB scanner to add a delay to the Polled network scan. This will allow the network scan time of revision 6.002 1756-DNB to more closely approximate that of the revision 5.002 module for system timing purposes.

DeviceNet Safety

Firmware revision 6.002 provides support for DeviceNet Safety.

Revision 5.002 Enhancements

Firmware revision 5.002 provides these enhancements.

DeviceNet AutoScan

By using AutoScan, you can easily create a scanlist without having to use RSNetWorx for DeviceNet software. Starting with major revision 4 of the 1756-DNB DeviceNet scanner, you could initiate an AutoScan of a DeviceNet network with your application program.

With RSLogix 5000 software version 13 and major revision 5 of the 1756-DNB DeviceNet scanner, you can initiate an AutoScan operation from the scanner properties dialog box in RSLogix 5000 software. AutoScan is well suited for networks that include simple devices having similar I/O sizes.

When initiating an AutoScan operation, the DeviceNet scanner scans the network and acquires all devices whose transmit and receive sizes fit into the predefined memory allocated for each device. Each device is assigned a configurable number of bytes for the I/O data in the scanner memory.

To initiate an AutoScan operation, access the Scanlist tab on the DeviceNet scanner properties dialog box in RSLogix 5000 software.

Embedded EDS Support

Prior to the release of RSNetWorx for DeviceNet software version 5, you had to manually install Electronic Data Sheet (EDS) files for new modules and for new firmware revisions of existing modules. If you did not install the new EDS file, RSLinx and RSNetWorx software would not recognize the device without an installed EDS file.

The 1756-DNB revision 5.002 module now includes the current EDS file as part of the firmware. You can use RSNetWorx software version 5 or later to upload and register the EDS file right from the module without having to locate a file on a CD or a web site.

Revision 4.001 Enhancements

Firmware revision 4.001 provides these enhancements.

The use of this release of the module requires you to add a new electronic data sheet (EDS) file to RSLinx and RSNetWorx for DeviceNet software to allow this 1756-DNB module revision to be recognized by the software. You can download the new EDS file from <http://www.ab.com/networks/eds/>.

AutoConfig Feature

A scanner can automatically map a network of slave devices into its scanlist without the use of RSNetWorx for DeviceNet software. For more information on how to use this feature, refer to the Technical Support Knowledgebase at <http://support.rockwellautomation.com> or contact Technical Support at 440.646.5800.

Quick Connect Feature

A reconnected slave node on a DeviceNet network can quickly go into operation by shortening the time required to make the logical connection between it and the scanner. For more information on how to use this feature, refer to the Technical Support Knowledgebase at <http://support.rockwellautomation.com> or contact Technical Support at 440.646.5800.

Electronic Keying

The module now supports the ability to perform electronic keying down to the major and minor revision level of a slave device.

Revision 3.007 Enhancements

Firmware revision 3.007 provides these enhancements.

Offlink Connection Support

RSLinx and RSNetWorx for DeviceNet software can now configure the 1734-ADN POINT I/O bus from other CIP-based networks using this revision of the 1756-DNB firmware. With this revision of the firmware, you can use Ethernet or ControlNet to connect to the module and then bridge through the 1756-DNB module and 1734-ADN bus to communicate on the POINT I/O bus. Without offlink connection support, you would have to physically connect to the local DeviceNet network that the 1734-ADN bus is on to configure modules on the POINT I/O bus.

Build Identification Number

We removed the Build Identification Number from the product name string of the module. This does not affect the functionality of the product.

Module LED Behavior

We modified the behavior of the module LEDs to be compliant with ODVA specification. See this table for the updated list:

	MOD/NET LED	I/O LED
Flashing Green	<ul style="list-style-type: none"> No scanlist present No connections established or timed out 	Module in IDLE mode
Solid Green	<ul style="list-style-type: none"> Scanlist downloaded At least one connection established, none timed out 	Module in RUN mode
Flashing Red	<ul style="list-style-type: none"> Minor recoverable fault (check Node Status Table) No network power 	N/A
Solid Red	<ul style="list-style-type: none"> Unrecoverable fault Bus Off error Duplicate MACID 	<ul style="list-style-type: none"> Unrecoverable fault Scanner halted
Off	<ul style="list-style-type: none"> No device power Module not online 	<ul style="list-style-type: none"> No network power No device power Module not on

Revision 3.005 Enhancements

A Build Identification Number has been added to the display sequence of the module. This number will be displayed along with the firmware revision of the module on boot up. The number will take the form of the letter 'Q' along with a numeric value. It is used for internal quality auditing purposes and does not in any way affect the functionality of the product.

Anomalies Corrected in Revision 7.001

When a 1756-DNB module was located in the same chassis as the 1757-PLX52 ProcessLogix controller (application version 500.1-01.17 and earlier), the 1756-DNB module remained in Run mode when the 1757-PLX52 controller was changed to IDLE from ControlBuilder software.

When a 1756-DNB module was located in a remote chassis, the 1756-DNB module remained in Run mode when any of the following occurred.

- The 1757-PLX52 controller was changed to IDLE from ControlBuilder software.
- Power was removed from the chassis in which the 1757-PLX52 controller was located.
- The ControlNet link between the 1757-PLX52 controller and the 1756-DNB module was broken.

Anomalies Corrected in Revision 4.005

This firmware revision corrects anomalies found in previous revisions of the product.

Slave Node Not Polling

If a configured slave node was configured as background poll and was the lowest numbered node in the poll list, that slave node would not be polled. This condition would be detected as Error Code 72 on the module. This anomaly applies to revisions 4.001 and 4.002.

Module Continually Responding to Explicit Messages

If you enabled AutoScan in the module and, at the same time, an RSLinx browse was active through the module, the module could stop responding to subsequent explicit messages originating from modules in the backplane. When browsing the backplane of a ControlLogix chassis, you see a red X through the module, indicating that the module is not responding to explicit messages.

This anomaly does not affect the operation of I/O data and was present only in revision 4.002 of the module.

Module Fault When Module Ownership Switched

The module could potentially hard fault when module ownership was switched from one controller to a second controller. This ownership switching was performed by inhibiting the connection from controller number 1 to the module, and immediately uninhibiting the connection from controller number 2 to the same module. When this fault occurred, the module LED would glow red and scroll this message on its front panel:

```
ASSY_SRV.C --- 512:4097,0,0,0
```

You must cycle power to the module to correct this condition.

Anomalies Corrected in Revision 4.002

The 1756-DNB firmware revision 4.002 corrects an anomaly found only in revision 4.001.

A timing window existed in revision 4.001 when it was executing its startup code. If this anomaly occurred, an ERC 4:2,0,0,0 error was shown on the front display of the module while it was in the process of powering up.

Anomalies Corrected in Revision 4.001

This firmware revision corrects anomalies found in previous revisions of the product.

Explicit Messages

If a group-2-only slave device dropped an explicit message, the module would no longer be seen in the backplane during an RSLinx or RSNetWorx software browse.

If an OPC/DDE client sent a bad explicit message, the module would no longer be seen in the backplane during an RSLinx or RSNetWorx software browse.

The module would send a bad explicit message if the explicit message size was greater than 250 bytes. This size can be configured on CIP-style message instructions in RSLogix 5000.

Anomalies Corrected in Revision 3.010

If a slave device dropped an explicit message during the slave initialization process performed by the scanner, the module would fail with an ERC 4:6 error code.

Anomalies Corrected in Revision 3.009

This firmware revision corrects anomalies found in previous revisions of the product.

If a module is powered up simultaneously with another DeviceNet device with the same node address, both nodes would go into Duplicate Node Detected mode.

If an explicit message was sent to the module through the backplane, commanding it to change its node address, the module would fault with an ERC Error: -- 4:2,0,0,0.

Anomalies Corrected in Revision 3.008

This firmware revision corrects anomalies found in previous revisions of the product.

Communication With Slave Devices

- If you change a slave device's Transmit or Receive size in the scanner's scanlist without changing the slave's corresponding Transmit or Receive size, and the I/O connection between the scanner and the slave device is maintained during the process, the scanner will not indicate an I/O data size mismatch error (ERROR code 77) when put back into Run mode.

IMPORTANT

The input data to the controller will not be updated during this condition.

For example, you modify the scanner's scanlist by changing the slave device's Receive size without changing the slave's corresponding Transmit size, then place the scanner back into Run mode. Inputs in the controller will not be updated and no error will be reported. Outputs will continue to be sent out.

- If the scanner module could not establish an I/O connection to a slave device due to configuration problems, further Explicit Messages to that device would not be sent by the scanner. When this occurs, the following conditions may occur.
 - The scanner module would disappear from the backplane in an RSLinx browse window.
 - The slave device in question would not show up in an RSLinx browse window or missing in a subsequent browse.
 - The scanner module would not attempt to reestablish a connection to that slave device once the scanner got into this state (until the scanner is reset or the DeviceNet cable is disconnected and reconnected).

Anomalies Corrected in Revision 3.007

The module would stop communicating to RSLinx or stop responding to ladder messages if you did not have the DeviceNet port connected and supplied with network power.

Anomalies Corrected in Revision 3.005

This firmware revision corrects anomalies found in previous revisions of the product.

Size Differences Between Inputs and Outputs

When the module input size was set for 20 DINTs and output size was set for 19 or fewer DINTs, the RUN/IDLE bit would be overwritten by random data, causing the module to change mode unexpectedly. This anomaly applies to revisions 3.003 and 3.004.

Watchdog Timer Error

This revision corrected the Watchdog Timer error that sometimes occurred during firmware upgrades. Once the module is upgraded to revision 3.005, flash upgrades will no longer require two steps.

TIP

Upgrades for previous versions of the module may still require two steps. See the README file in the upgrade kit for more information.

Fragmented I/O Messages

If a DeviceNet node was using fragmented I/O messages and did not finish its response before the module started another scan cycle, the output data from the controller was being mapped to the controller's input data table.

Additional Resources

For more information on the module, refer to these publications.

Publication Title	Publication Number
ControlLogix DeviceNet Interface Module User Manual	1756-UM515
DeviceNet Modules in Logix5000 Control Systems	DNET-UM004

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

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Notes:

Notes:

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, 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.

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

Installation Assistance

If you experience a problem with a hardware module 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 module up and running.

United States	1.440.646.3223 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell 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, it may need to be returned.

United States	Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for return procedure.

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