

CTI 2500 Series PLC System Application Note

TM RSNetWorx for ControlNet is a trademark of Rockwell International Corporation and NetView is a trademark of Cutler-Hammer.

Getting Started with the 2576 DeviceNet Scanner and the Cutler-Hammer Motor Starter Catalog Number W200M1CFC

Hardware Requirements

1. A PC running Windows 95, 98, or NT with a DeviceNet Interface Card.
2. CTI 2576 DeviceNet Scanner.
3. A CTI 2500 Series or Simatic® 505 processor with base and power supply.
4. Programming cable.
5. Cutler-Hammer Motor Starter Catalog Number W200M1CFC.
6. 24 DC Power Supply.

Software Requirements

1. DeviceNet Scanner Configuration Software (provided with 2576 Scanner)
2. *2576 Module Software [(DNM) provided with 2576 Scanner].
3. *2576 Scanner Software [(DNS) provided with 2576 Scanner].
4. TISoft or Workshop PLC programming package.

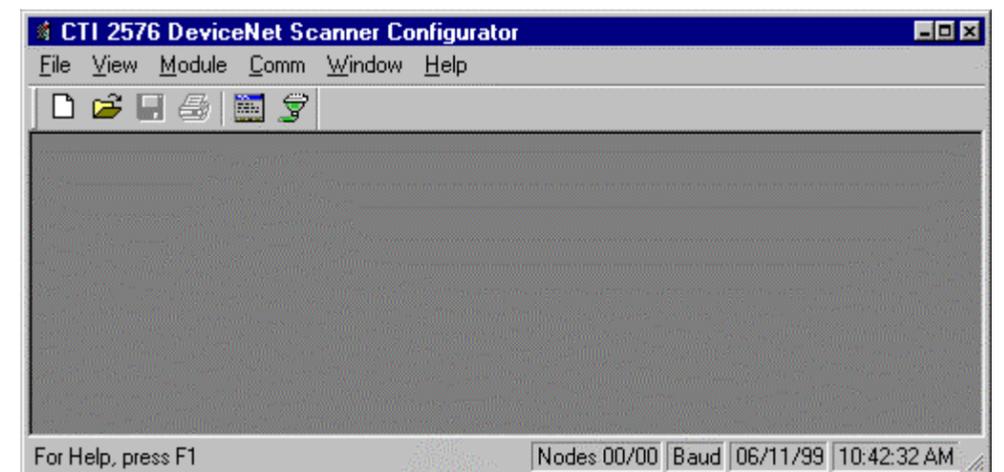
*These should already be loaded into the 2576's flash memory.

Implementation Steps

Note: The Active LED on the front panel flashing 3 times quickly indicates that the 2576 module software and the scanner software need to be loaded. If this happens follow steps 1-11 under *Download 2576 Module Software* and steps 1-4 under *Download the 2576 Scanner Software*. Otherwise, proceed to *Configuring the 2576 in the Base*.

Download 2576 Module Software

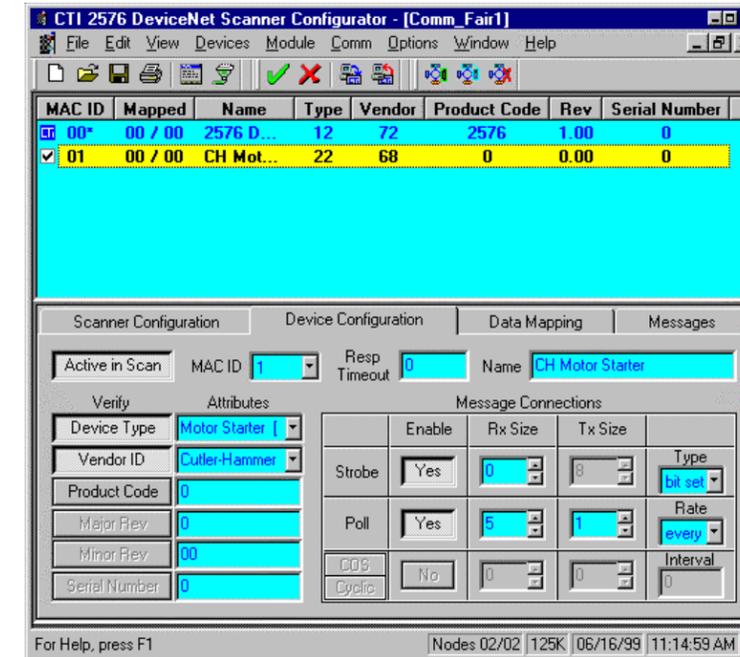
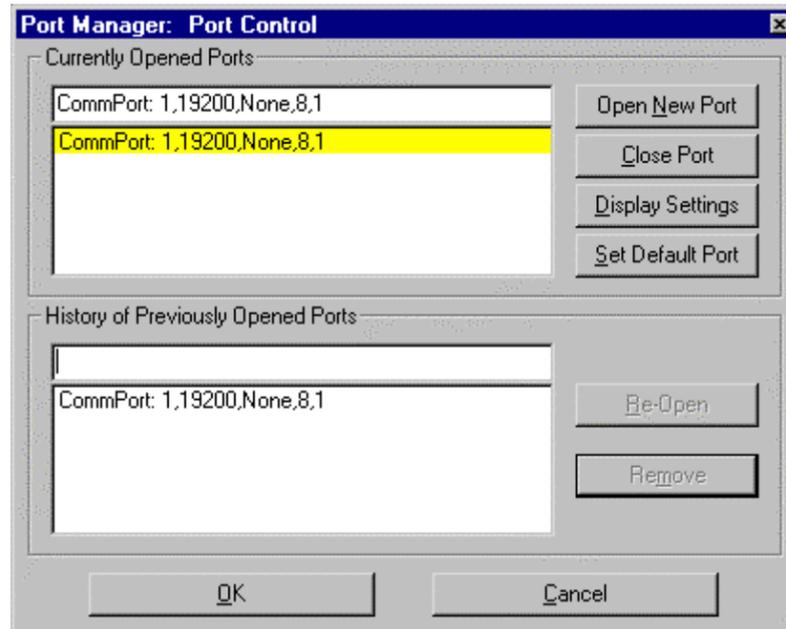
1. Start the 2576 Configuration Software. [DSC2576.EXE]



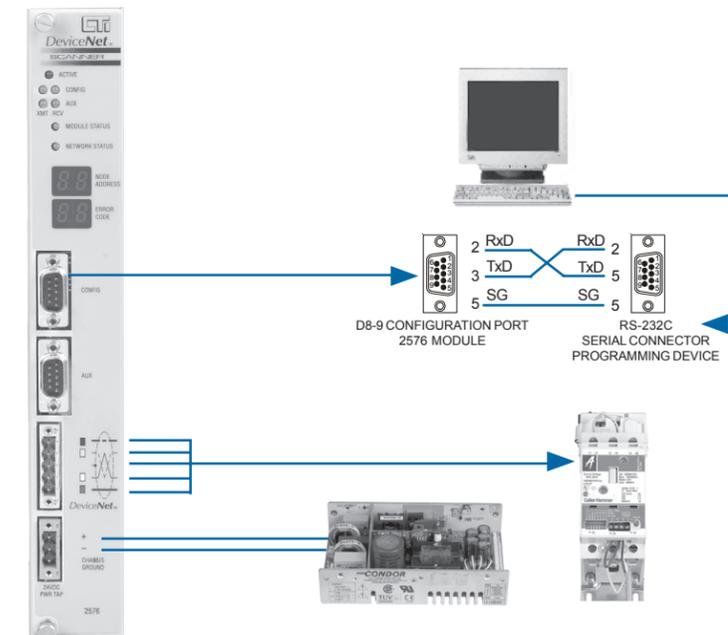
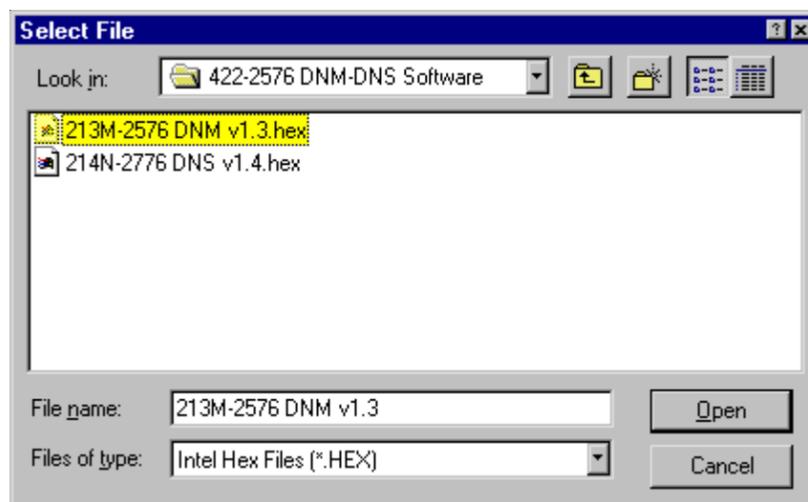
Control Technology Inc.

5734 Middlebrook Pike, Knoxville, TN 37921-5962
Phone: 865/584-0440 Fax: 865/584-5720 www.controltechnology.com

2. Apply power to the base containing the 2576.
3. Attach a communication cable from your PC to the 2576 Config port (a TISoft cable will work).
4. Locate the diskette containing the 2576 Module Software and Scanner Software and insert it into the 3 1/2-inch floppy drive.
5. Create a folder on your hard drive.
6. Copy folders named Supervisor and Scanner from the diskette to the folder you just created.
7. Open a Communication port to the module.



8. Under menu item **MODULE/SOFTWARE**, select **DOWNLOAD MODULE SOFTWARE**.
9. When prompted for a download file, select the file named **2576DNM.hex** located in the Supervisor folder you previously copied to your hard drive. (The version is part of the file name.)



10. After the download completes, cycle power on the base to reset the module.
11. The module Active Led should be blinking approximately two times per second, indicating that the supervisor is in control but no valid scanner program exists.

Identity Object Verification

This information can be used by the scanner to verify that the proper device is installed. Although entry of this data is optional, CTI recommends that you enter and verify at least some of the fields. These entries also improve configuration documentation. You may obtain the device data from vendor documentation, EDS files, or by using a configuration tool, such as RSNetworx™ or NetView™, to query the device.

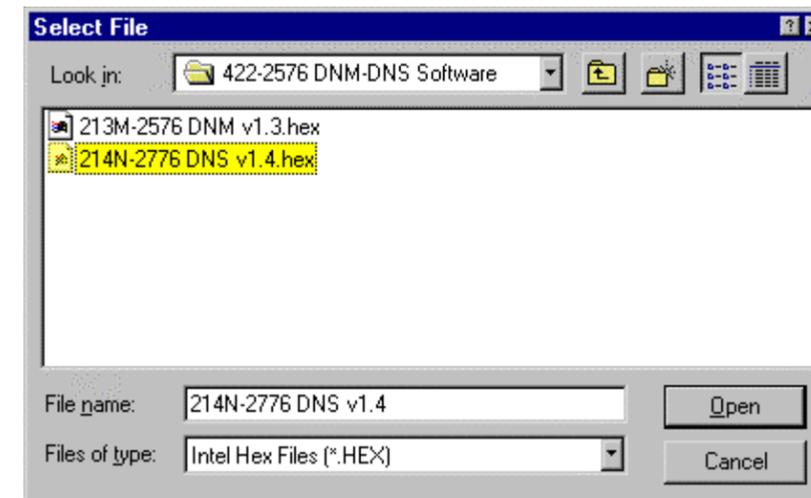
You may selectively enable verification of the device attributes by clicking the buttons in the Verify column to the left of the data field. Verification selection is hierarchical. You cannot select Vendor ID, for example, without first selecting Product Type.

Device Type	The Device Type indicates a class of device, such as a limit switch or a motor starter. When you select the Device Type description from the drop-down list, it will be translated to a standard ODVA code that will be displayed in the device list window. Except for certain test situations, you should always verify the Device Type.
Vendor ID	You may select the vendor name from a drop-down list. The description will be translated to a standard ODVA code that will be displayed in the device list window. You should verify the vendor if you are using vendor-specific features.
Product Code	The vendor assigns the product code. You should enter the data for configuration documentation. You may also wish to verify the information if the vendor makes logically different products with the same device type.
Revision	DeviceNet vendors assign a revision to the product each time it changes. A major revision indicates a significant change that could affect the logical operation of the device. Minor revisions do not usually affect logical operation.
Serial Number	For some applications you may wish to enter and verify the device serial number. If you choose to verify the serial number, then each time you swap out one device for another, you must change the configuration before the 2576 will scan the device.

1. Select **Devices, New**.
2. Enter a **MAC ID** (1), **Name** (CH Motor Starter), **Device Type** (Motor Starter[22]), **Vendor ID** (Cutler-Hammer Products [68]).
3. Select **Edit, Apply Changes**.
4. Choose **Strobe** (Yes), **RX Size** (0), **Type** (bit set).
5. Choose **Poll** (Yes), **RX Size** (5), **TX Size** (1), **Rate** (every).
6. Select **Edit, Apply Changes**.
7. Select **Module, Download Configuration**.
8. Select **Module, Reset Scanner**.
9. The 2576 will reset. When it has powered back up and established communications with the motor starter, the Active, Module Status, and Network Status will be on solid. The seven segment Node Address display will read "0" and the seven segment Error Code display will read "80" (Scanner OK).

Download 2576 Scanner Software

1. Under menu item **MODULE/SOFTWARE**, select **DOWNLOAD SCANNER SOFTWARE**.
2. When prompted for a download file, select the file named **2576DNS.hex** located in the Scanner folder you previously copied to your hard drive. (The version is part of the file name.)



3. After the download completes, cycle power on the base to reset the module.
4. The Active Led should now be solid showing that the module is operating normally.

Configuring the 2576 in the Base

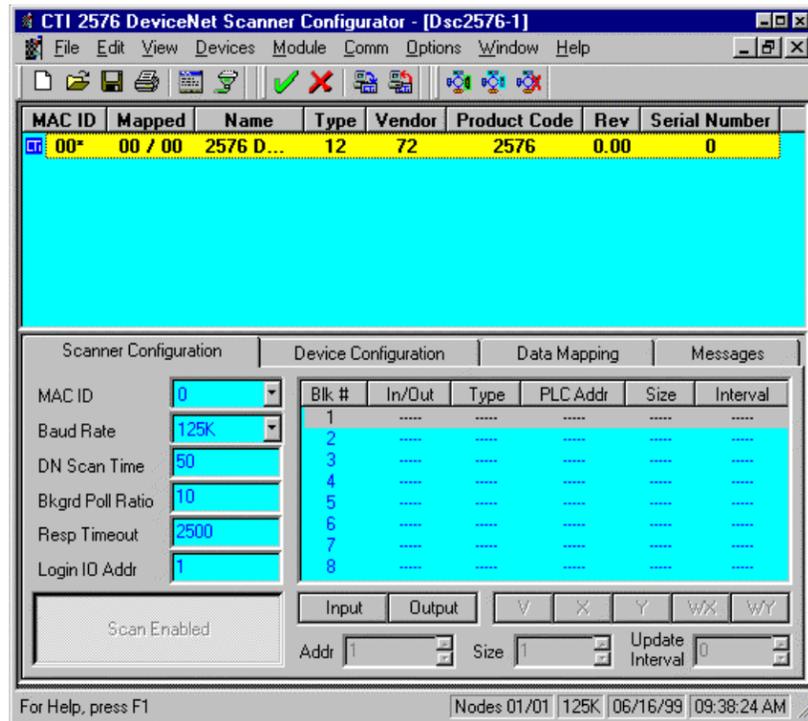
1. Install the 2576 into the base and apply power.
2. Using TISoft or Workshop, go on-line and select **Configure I/O**.
3. The 2576 logs in as a double-wide module as follows:

Slot	I/O Address	X	Y	WX	WY	Special Function
1	1	32	32	32	32	N
2	1	0	0	2	6	Y

Configuring the 2576 with the Scanner Configuration Software

This example will show how to configure a Cutler-Hammer motor starter, Catalog Number W200M1CFC, in the 2576 DeviceNet Scanner.

1. Start the 2576 Configuration Software. [DSC2576.EXE]
2. Select **FILE, NEW**.

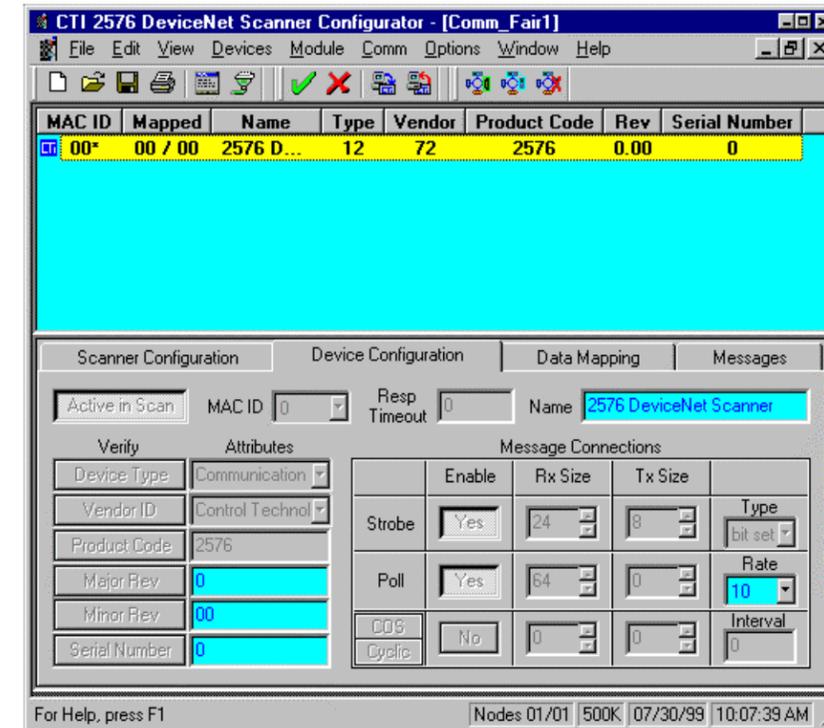


Note:
Changing the Login I/O Address only affects the mapping display. The actual PLC address is determined by the PLC I/O configuration. For consistency, you should make sure that the Login I/O Address you enter matches the PLC configuration.

The 2576 Scan List contains one entry for each node that the scanner will use as a source or destination for PLC data. Any device that will be read or written by the PLC must appear in the Scan List.

3. The following items may be entered under the Scanner Configuration Tab:
4. The default values will work for this example, as long as they match the motor starter's configuration.

MAC ID	(0 - 63). The MAC ID is the network address of the scanner. The MAC ID must be unique; no other device on the network may use it.
Baud Rate	(125KB, 250KB, or 500KB). Since all devices on the network must use the same baud rate, the slowest device on the network will determine the maximum baud rate that you may select. Many devices are limited to only 125KB data rates.
DN Scan Time	(10 - 1000 ms). This parameter specifies how often the scanner will start a new DeviceNet scan. You must set the scan time to a large enough value to allow all network devices which are expected to respond in one scan to do so. As a rough estimate, you should allow about two milliseconds for each device on the network.
Background Poll Ratio	(1 - 100 scans). The background poll provides a default "slow poll" option for devices in the scan list. You might use this for a device where data needs to be updated less frequently. Polling less frequently reduces the network load. The background poll rate is specified as a ratio of the scan. For example, a value of 20 represents once every twenty DeviceNet scans. (See Device Parameters in the <i>Installation and Operation Guide</i> for information on selecting background poll for a device.)
Response	(10 - 65535 milliseconds). The scanner uses the response timeout to determine when a device is not responding. This value is used as the timeout default. It may be overridden by data entered in the Device Information section. The configuration program initially sets this to 2500 milliseconds (2.5 seconds).
Login I/O Address	(1 - 65535). The login address specifies the starting address of the first X (discrete input) location used by this module. You may determine this value by using your PLC programming software to view the I/O configuration data. The configuration program uses this value to calculate the offsets for data mapping display. (See the Data Mapping section of the <i>Installation and Operation Guide</i> .)



The Device Configuration Tab applies to the device highlighted in the Scan List window. If you wish to modify an existing device, select the device by clicking the appropriate Scan List entry, then modify the data. If you want to enter data for a new device, you must first create a new device (or copy an existing device), then enter the device data.

General Data

Active in Scan	If the device is not active, no connection will be made to the device and it will not be scanned. Deactivating a device is usually done when you are testing a configuration and do not want to delete all the device data.
MAC ID	Range = 0 - 63. The MAC ID is a unique network address set in the device. This value must match the MAC ID for which the device is configured.
Response Timeout	This value determines the amount of time that may elapse before the device will be declared off-line. Setting this to 0 will use the global setting specified in the scanner configuration tab.
Name	You may enter this information to further describe the device. The Configurator will display this name in the scan window and it will appear on printed reports. The scanner does not verify this data.