

DNC Application Guide and Price List

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Thank you for your interest in Dostek DNC products. This guide includes a brief description of Dostek DNC software products, Behind-the-Tape Readers, and serial communication boards, hubs and adapters. For your convenience, prices are listed within each product description as well as in the summary price list at the end of the document.

Product brochures are available for download at:

www.dostek.com/brochure.htm (<- Click link to open web page)

Prices are quoted in US Dollars. Taxes, duties, shipping and handling are extra. Prices are subject to change without notice. Please confirm current prices before ordering by contacting Dostek by telephone at 1-888-355-5735 (toll free, USA and Canada) or 519-741-8669, or by email at sales@dostek.com.

How to Use This Document

When viewing this document on your computer (using Adobe Acrobat Reader), you may view a table of contents, print all or part of the document, search for text, or zoom in to view detail. Following is a list of some useful Acrobat Reader commands:

Function	Acrobat Reader Command
View Table of Contents	Choose 'Window', 'Show Bookmarks' from menu.
Jump to Section	Click a heading in the Table of Contents (Bookmarks).
Print Pages	Choose 'File', 'Print' from menu.
Search Text	Choose 'Edit', 'Find' from menu.
Zoom In	Choose 'View', 'Zoom' from menu.
Zoom to Full Page	Choose 'View', 'Fit Page' from menu.
Zoom to Page Width	Choose 'View', 'Fit Width' from menu.

SHORTCUTS

CLICK BELOW TO JUMP TO A SPECIFIC SECTION

Dostek DNC Software
Dostek Model 440A Behind-the-Tape Reader (BTR)
Communication Hardware (Boards, Hubs, Wireless)
Cables and Wiring Accessories
Services :: Installation, Repair and Tape Conversion
Summary Price List

1. Dostek DNC Software

Dostek DNC is available in three popular editions to suit virtually any DNC application: Professional, MultiPort and Lite.

The following chart provides an overview of how each Edition suits production machining and contour machining applications.

	PRODUCTION MACHINING Small to medium size programs loaded into CNC memory.	CONTOUR MACHINING Drip feed large complex contouring programs directly from computer.	
Lite	Basic upload/download for 1 to 32 CNCs.	Drip feed one CNC at a time.	\$295
Professional	Upload/download 1 to 32 CNCs. Side-by-side file comparison, advanced searching.	Drip feed up to 4 CNCs at a time.	\$495
MultiPort (with remote call-up)	Remote upload/download or drip feed 1 to 64 CNCs. No shop-floor computers are required. Also includes all features of Professional Edition.		\$695 to \$1,595
	All editions include File Manager, Text Editor, Configuration Editor, Navigator and Help Files. Dostek DNC does not use copy protection (hardware/software lock).		
	SUPPORT, TRAINING, INSTALLATION Toll-free telephone technical support is free for 90 days from date of purchase. E-mail support is always free. Professional installation as well as on-site and remote training and support services are available at reasonable cost.		

MultiPort Edition is usually chosen by users that would like to eliminate shop-floor computers and allow the CNC operators to access programs without leaving their station. Each CNC is connected to a central computer, usually located in the engineering office, and the CNC operators load and save files using a simple remote call-up procedure.

Professional Edition and Lite Edition are usually chosen by users that already need a computer located near the CNC machines, or multiple shop-floor computers installed at each CNC or work cell, to run additional software applications such as job tracking, document viewing or CAD/CAM programming. Professional Edition provides the following features not available with Lite Edition:

- Simultaneous communication with multiple CNCs (4 or more).
- Side-by-side comparison of two files (for example, original and edited program).
- Advanced searching: find files containing specific text such as part number or tool.
- Display all occurrences of specific text in Editor or Viewer, with one-click navigating.
- Event logging.

Dostek DNC Professional Edition (10-5000 :: \$495)

Dostek DNC Professional Edition includes an explorer-style file manager, program editor with side-by-side file comparison and a DNC communication application. You can connect all your CNCs to one computer, or you can connect each CNC or work cell (group of CNCs) to separate computers. One computer can drip feed to 4 or more CNCs at a time if needed.

To use multiple computers, a separate software license is required for each computer. Additional licenses cost only \$295 (or less, depending on quantity).

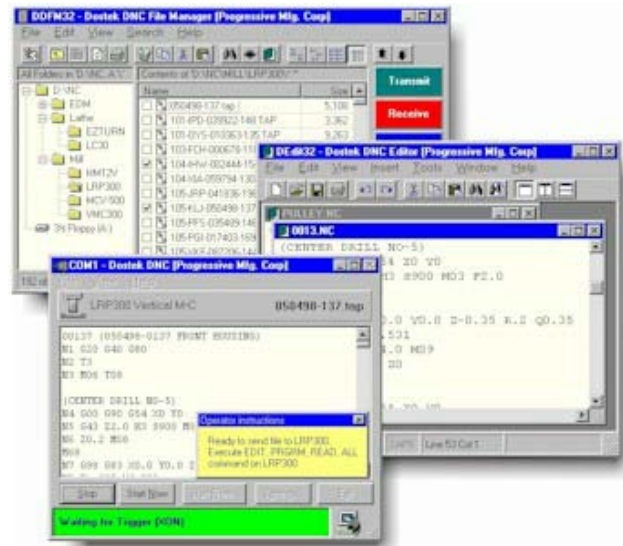
How it Works

Loading a file to the CNC is a simple 3-step process with Dostek DNC Professional Edition.

Step 1. At the computer, start the Dostek DNC File Manager and select a file.

Step 2. Click the 'Transmit' button.

Step 3. Go to the CNC machine and execute a 'Read' or 'Input' command.



File Manager

With the Dostek DNC File Manager, you can organize your files however you like. You decide which folders to make available, and you can choose folders on the local hard drive, any network drive (mapped drive or UNC name), or any removable media.

Files for the current folder are displayed in the right window. The advanced search function lets you find files by name, by date or by file contents. For example, you can find all files that contain a certain part number or tool, and even view a list of the lines in each file that contain the search text.

The buttons shown along the right edge of the File Manager window above can be customized to suit your preferences. You can choose from 4 button sizes, customize the colors, specify the commands and button legends, and even create buttons that launch other applications.

Communication

The Communication window lets you preview the file before you start sending, and lets you start or restart from anywhere in the file. A pop-up window can remind the operator of the command sequence required at the machine to load the files. If you select multiple files, they'll be queued so they all load in a single operation.

Convenience

With most CNC machines, you don't need to type in the program number when loading or saving a program. When sending to the CNC, Dostek DNC detects when the machine is ready to receive and starts sending automatically; there's no need to walk back and forth between the computer and machine.

Drip Feeding

When you're drip feeding, Dostek DNC scrolls the program on the screen so you can see where you are and what's coming next. And you can stop anytime and restart from another position. When the end of the program is reached, you can automatically restart from the beginning to run multiple parts.

Lite Edition (10-5010 :: \$295)

Dostek DNC Lite Edition works just like Professional Edition (previous section), but with the following limitations:

- no side-by-side file comparison to find differences between files
- no advanced searching or 'Find All' command in File Manager, Editor or Viewer
- communicate with only one machine at a time (can't drip feed multiple CNCs)
- no event logging

Because of its exceptionally low price, Lite Edition is ideal for basic uploading, downloading, drip feeding, editing and file management. There is no limitation on the number of CNCs or types of communication ports you can use with Lite Edition. For information about how Lite Edition works, please see 'Professional Edition' above.

To use multiple computers, a separate software license is required for each computer. Additional licenses cost only \$195 (or less, depending on quantity).

MultiPort Edition (10-5500-XX :: \$695 - \$1,295)

Dostek DNC MultiPort Edition includes a 'DNC Communication Server' application that provides "remote access" to allow CNC operators to upload, download and drip feed directly from their CNC. There is no need for operators to leave their workstation to retrieve files, and there is no need for shop-floor computers.

How it Works

The Dostek DNC communication server continuously monitors all of the designated computer COM ports for data received from the CNCs. To load a file from the computer into the CNC, the CNC operator executes a simple 3-step process.

Step 1. At the CNC, create (or edit) a designated 'command' file to include a simple one-line command string. For example, to load file "A7-53759", the CNC operator creates:

```
O7990  
(SEND A7-53759)
```

Step 2. Punch the designated 'command' file, and wait 5 seconds for the computer to receive and process the command. The computer prepares to send the requested file.

Step 3. Execute a 'Read' or 'Input' command on the CNC to load the part program into memory, or execute a 'Cycle Start' (or similar) command on the CNC to drip feed the part program directly from the computer. The computer detects that the CNC is ready to receive data and starts sending the file.

A single computer can serve 32 or more CNCs, and multiple computers can be used to serve a virtually unlimited number of CNCs.

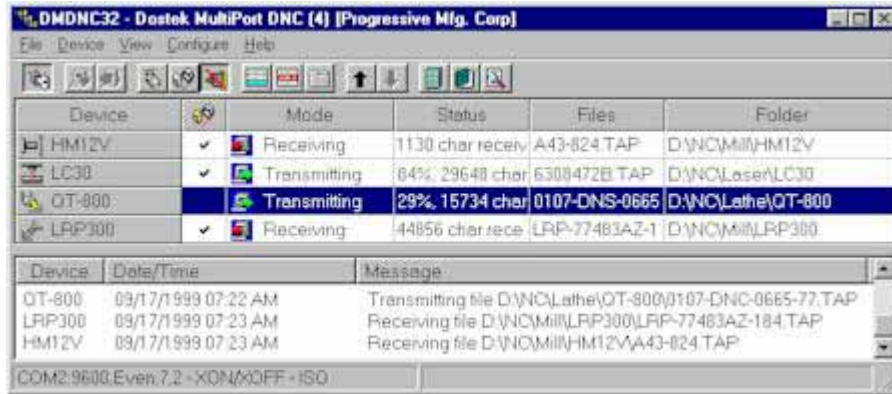
Because remote access requires continuous monitoring of all CNCs, each CNC must be connected to the computer by a separate COM port. Additional COM ports may be installed using multi-port serial boards or Ethernet, USB or wireless hubs.

Dostek DNC MultiPort Edition is priced according to the maximum number of communication ports that may be used simultaneously.

Dostek MultiPort DNC Price List		
4 ports maximum	10-5500-04	\$695
8 ports maximum	10-5500-08	\$795
16 ports maximum	10-5500-16	\$995
32 ports maximum	10-5500-32	\$1,195
48 ports maximum	10-5500-48	\$1,395
64 ports maximum	10-5500-64	\$1,595

MultiPort Edition vs Professional Edition

With Professional Edition, a separate window is opened on the computer to display the data as it is sent or received. There is a practical limit on the number of windows that may be opened simultaneously because of memory and processing overhead. With MultiPort Edition, the status of all CNCs is displayed in tabular form in a single window to minimize memory and processing overhead.



Dostek MultiPort DNC User Interface

The MultiPort DNC server application is included with all Dostek DNC editions, and may be used to provide remote upload/download/drip feed for a single CNC with Professional and Lite editions.

(4) BTR Edition (Free with BTR purchase)

Dostek DNC BTR Edition software is included free with purchase of a Dostek Model 440A BTR. The BTR Edition software is identical to Lite Edition, but is only capable of communicating with machines equipped with the 440A BTR.

2. Behind-the-Tape Reader (BTR)

The Dostek Model 440A Behind-the-Tape Reader (BTR) is an affordable RS-232 serial port retrofit for older NC/CNC machine tools equipped with tape readers. It lets you integrate older NC machine tools into a modern DNC system for loading or drip feeding of part programs or executive software directly from computer.

A 64Kb battery-backed memory (256Kb for 440AM expanded memory model) is included for file storage. Storage may be used to run the same program over and over again, or to continuously drip feed files of unlimited size.



The 440A BTR may be used to load or run standard ISO or EIA part program files or binary files such as machine executive software and diagnostics. Parallel (Facit) and serial (RS-232/current loop) ports are also provided to allow sending data from the CNC's punch output port back to the computer.

The 440A BTR is available for a special low price of only \$695 for prepaid orders. A CNC adapter kit is required for some applications. (Adapter kit is *NOT* required for replacement of all Fanuc tape readers, all Sanyo Denki 2601 tape readers, and most Remex, EECO and Decitek tape readers. Please call Dostek for specifics). An optional punch adapter cable may be required to connect the CNC tape punch output to the 440A BTR parallel or serial punch input connector.

Dostek 440A Behind-the-Tape Reader (BTR)				
Model	Description	Order Number	Price⁽¹⁾	Prepaid⁽²⁾
440AM	256Kb Expanded Memory	10-0440AM	\$995	\$695
	CNC adapter kit. Not required for Fanuc, Sanyo Denki 2601 and most Remex, EECO and Decitek replacement applications.	Please call	\$80-\$120	
	Optional punch adapter kit. May be required to use BTR for sending files from CNC back to computer.	Please call	\$60	
	Shipping (USA and Canada)		\$40	\$40
Each 440A BTR also includes: TOLL-FREE TELEPHONE TECHNICAL SUPPORT Dostek DNC software, BTR Edition, (file manager, editor, communication) 1-year limited warranty				
⁽¹⁾ US Dollars, taxes and duties extra, subject to change without notice. ⁽²⁾ Discounted price is available for PREPAID orders only; certain conditions apply (please call for details). Dostek accepts pre-payment by Visa, Mastercard, PayPal, bank wire transfer or company check.				

3. Communication Hardware (Boards, Hubs, Wireless)

Dostek DNC works with any device that includes a 'virtual COM port driver, including the following categories of communication hardware:

Category	Remarks
Computer's built-in COM port	Low cost. Only one or two available.
Mechanical switch box	Low cost. Requires manual operation. Communicate with only one CNC at a time.
Multiple-port plug-in expansion board	Moderate cost. Requires slot in computer.
USB/serial hub	Moderate cost. Easy to install.
Ethernet/serial hub	Higher cost per port. Not connected directly to computer. May be distributed on shop floor to save on cable length/cost.
Wireless Ethernet hub	Highest cost per port. Eliminates wiring problems.

Ethernet/Serial hubs do not require a direct connection to the computer; they simply plug into an existing network hub or switch using a standard and inexpensive Category 5 cable up to 300 feet in length. USB/Serial hubs connect directly to the computer, and must be located within 10 feet of the computer.

Any combination of communication hardware may be used. For example, an economical 8-port plug-in board may be used to connect machines close to the computer along with one or more Ethernet/Serial hubs to connect machines located farther away.

The most popular hardware categories, Multiple-port serial boards and Ethernet/serial hubs, are compared in the following chart.

Multiple-Port Serial Board	Ethernet/Serial Hub
Install in computer's PCI expansion slot.	Install externally.
Lower cost per port.	Higher cost per port.
Newer computers offer few expansion slots.	No expansion slot required.
Switching computers or repairing serial board requires opening computer case.	Switching computer or replacing hub does not require opening computer case.
Potentially higher wiring cost. Must connect a separate cable from each CNC back to the computer. Moving computer requires moving cables.	Potentially lower wiring cost. Ethernet/Serial hubs are available with 1, 2, 4 or 8 ports. Multiple hubs may be distributed throughout shop floor to minimize cable length.

(1) Compatibility Issues

Dostek has encountered problems with some third-party communication products that can prevent proper operation with some CNC models. All of the products described in the following paragraphs have been used successfully. You are welcome to contact Dostek to check for compatibility problems before purchasing unlisted hardware.

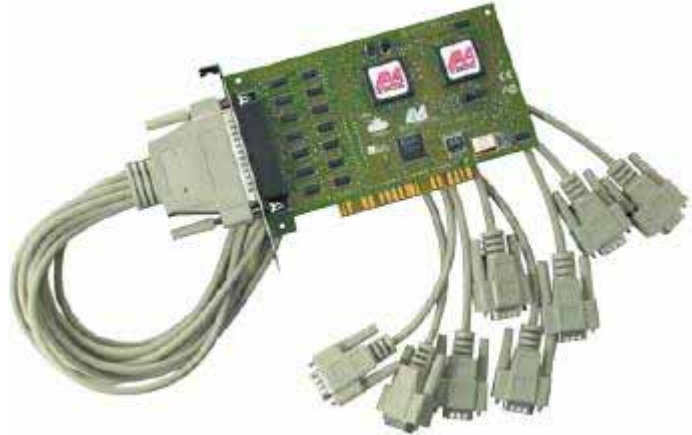
(2) 4-Port Serial Board (10-1894 :: \$150)

The Lava Quattro serial board plugs into one of the computer's PCI expansion slots and provides four standard DE9P serial connectors on the back of the computer.

(3) Economy 8-Port Serial Board (10-1898E :: \$250)

The Lava Octopus serial board plugs into one of the computer's PCI expansion slots and provides eight standard DE9P serial connectors on a fan-out cable that plugs into the back of the computer.

For additional wiring options, see 'Wiring accessories' below.



(4) Multi-Port Serial Boards With Panels (\$695 - \$2,195)

The Control RocketPort serial boards include convenient DB25S external connector panels for CNC connections. The panels may be mounted on a wall or table top to provide for neat, organized wiring. If you have existing cables with DB25 connectors, they may be compatible with the RocketPort connector panels, eliminating the need to use adapters or replace or rewire the connectors.

RocketPort boards are available with 8, 16 or 32 ports.

Control RocketPort Serial Boards		
8 ports	10-1808	\$795
16 ports	10-1816	\$1,195
32 ports	10-1832	\$2,195
Surge suppression: add \$20 per port.		



Ethernet/Serial Hubs (\$250 - \$625)

Ethernet/Serial hubs (which are often referred to as Ethernet/Serial Device Servers) are available from a variety of manufacturers featuring 1, 2, 4 or 8 ports. The Ethernet/Serial hub is not connected directly to the computer. Rather, it connects to your local area network using standard Category 5 network cable up to 300 feet in length. A 'virtual' COM port driver installed on the computer handles the transfer of COM port data between the computer and hub over the network.



Dostek recommends Quatech products because they have been specifically engineered for the low latency performance (response time for flow control) required by many older CNCs.

Quatech hubs provide standard DE9P serial connectors. For additional Ethernet/Serial options, please contact Dostek.

Quatech Ethernet/Serial Hubs		
1 port	10-2201	\$250
2 ports	10-2202	\$300
4 ports	10-2204	\$425
8 ports	10-2208	\$625
Surge suppression: add \$10 per port.		

USB/Serial Adapters/Hubs (\$79 - \$799)

USB/Serial hubs and adapters are available with 1, 2, 4, 8 or 16 ports. The hub connects directly to the computer using a USB cable up to 10 feet in length.

Many brands of USB/Serial adapters and hubs will not work properly with older CNC machine tools because of improperly-engineered device drivers. Dostek recommends Quatech products because they have been specifically engineered for the low latency performance (response time for flow control) performance required for CNC applications. Quatech hubs provide standard DE9P serial connectors. For additional wiring options, see 'Wiring Accessories' below.

Quatech USB/Serial Hubs		
1 port	10-2301	\$79
2 ports	10-2302	\$169
4 ports	10-2304	\$229
8 ports	10-2308	\$379
Surge suppression: add \$10 per port.		

Wireless Ethernet/Serial Adapters/Hubs (\$349 and up)

Wireless Ethernet/Serial devices provide high-speed connections to machine tools without the need to run cables. Although they are more expensive per port than other communication products, the cost can easily be offset by eliminating the expense of running cables, especially where long distances or high ceilings are involved.



Wireless Serial Adapters/Hubs				
		1-4	5+	
1 port	10-2601	\$375	\$350	
2 ports	10-2602	\$475	\$425	
4 ports	10-2604	\$895	\$850	

Using wireless devices for CNC communication also requires installation of one or more 'wireless access points', which provide the bridge to the wired local area network. Wireless devices can be located up to 300 feet from an access point, but range may be reduced by obstructions or environmental factors.

These devices conform to the 802.11b and 802.11g standards, which provides a data throughput of 11 million bits per second (Mbps) and 54 Mbps respectively. Data rate falls back to lower speeds automatically as the signal quality degrades (due to distance or other factors). However, even at the lowest rate of 1 Mbps, the transfer rate is about one hundred times faster than a 9600 baud RS-232 serial connection.

Reducing Wireless Cost

While it may be most convenient to install a separate wireless device for each CNC, sharing a wireless antenna among several CNCs can significantly reduce the cost. For example, an 8-port wired Ethernet/Serial hub may be used with a wireless Ethernet bridge to connect up to eight CNCs for less than \$800 (compared with \$3,000 for eight separate wireless adapters).

A mix of wired and wireless devices can also reduce cost by employing the more expensive wireless devices only where wiring would be expensive or problematic.

4. Cables and Wiring Accessories

Dostek offers a complete range of cables and wiring accessories. Please call Dostek at 1-888-355-5735 (toll free, USA and Canada) to discuss your requirements.

(1) CNC Communication Cable (60-2550 :: \$79 and up)

The Dostek 60-2550 CNC communication cable is available in two standard lengths: 25 feet (60-2550-25 :: \$79) and 50 feet (60-2550-50 :: \$99). The DE9S connector on one end plugs into a standard computer COM port, and the DB25P connector on the other end plugs into most common CNC models. Other lengths and wiring configurations are available.

(2) RS-232 to Category 5 Wiring Adapters (\$22)

Inexpensive and readily-available Category 5 cable (widely used for 10/100-Base-T local area network wiring) can be used with wiring adapters to connect the computer and CNC serial ports. Although adapters are available online and from many computer and electronic stores, they require some soldering and assembly to work with most CNC models. Pre-wired and assembled RJ45/DE9 and RJ45/DB25 adapters are available from Dostek for only \$22 each (quantity discount available).



(3) RS-232 Test Kit (80-5911 :: \$79)

The RS-232 Test Kit includes a full set of the tools and adapters needed to monitor and troubleshoot RS-232 serial communication: one each RS-232 Mini Tester, 9/25 adapter, 25/9 adapter, 9-pin loopback adapter, 25-pin loopback adapter, and two gender changers.



The RS-232 Mini Tester provides LED indicators to display the status of each of the RS-232 signals. The loopback adapters connect the RS-232 output signals back to the input signals so the computer can test for proper operation of the computer COM port and cables. The 9/25 and 25/9 adapters let you use the Mini Tester with both 25-pin and 9-pin serial ports and cables.

5. Services :: Installation, Repair, Tape Conversion

Dostek offers a full range of professional services including DNC system design, installation, training and repair, as well as specialized services such as punched-tape duplication and transcription to computer disk files.

5.1 Remote Training and Assistance

Remote service puts Dostek's technical expertise to work for you as a timely and affordable alternative to costly on-site service calls. For new customers, Dostek can remotely install and configure your software, show you how to use it, and help you test communication with your CNCs. For existing customers, Dostek can help you hook up a new machine or quickly diagnose a problem and get you back up and running. To take advantage of remote service, all you need is a high-speed Internet connection and a telephone.

6. How to Order

To request a quotation or to place an order, please contact Dostek at 1-888-355-5735 (toll free, USA and Canada), 519-742-5721, or send an email to sales@dostek.com.

Dostek accepts payment by VISA, Mastercard, PayPal or check for *prepaid* orders destined for United States, United Kingdom and Canada. PayPal payments require a PayPal membership, and may be charged to Visa, Mastercard, American Express, Discover or a bank account. For orders destined for all other regions, Dostek accepts prepayment by bank funds transfer only; please contact Dostek for more information.

Corporate purchase orders may be accepted subject to credit approval and minimum order. Other conditions may apply; please contact Dostek for more information.

Dostek ships all orders by UPS. Please call Dostek for current shipping rates.

Online Order Form

For your convenience, an online interactive order is available at the Dostek website. The order form is based on an Excel spreadsheet, so you must have Microsoft Excel software (or compatible) installed on your computer in order to use the order form. Space is provided for entering credit card details if you wish to pay for your order with Visa or Mastercard. If you complete the credit card portion of the order form, please print and fax your order to 519-741-8669; for security reasons, please do not send credit card information by email.

Instructions for completing the form are included in the form itself.

To view the online order form, please click the following link:

<http://www.dostek.com/Dostek%20Order%20Form.xls>