

# Dostek 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
- Dostek Model 440A Behind-the-Tape Reader (BTR)
- Third-party serial communication boards, hubs and adapters available from Dostek.

Product brochures are available for download at:

[www.dostek.com/brochure](http://www.dostek.com/brochure) (<- 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.

To place an order, or to obtain more information, contact Dostek by telephone at 1-888-355-5735 (toll free, USA and Canada) or 519-742-5721, or by email at [sales@dostek.com](mailto:sales@dostek.com).

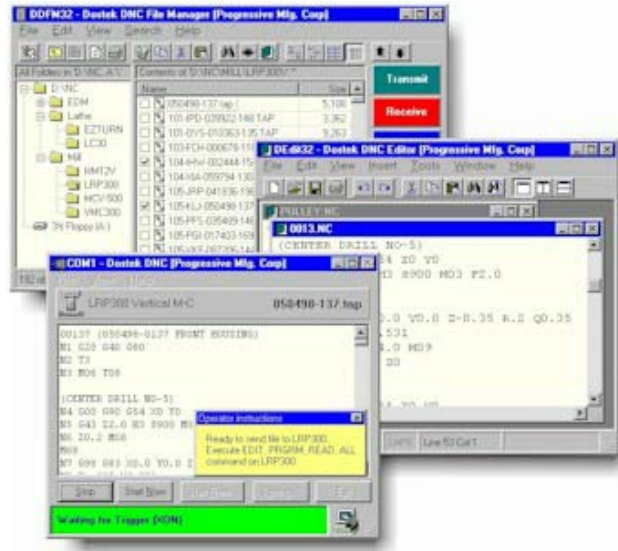
## How to Use This Document

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	Click <b>Show bookmarks</b> in <b>Window</b> menu.
Jump to Section	Click a heading in the Table of Contents (Bookmarks).
Print Pages	Click <b>Print</b> in the <b>File</b> menu.
Search Text	Click <b>Find</b> in the <b>Edit</b> menu.
Zoom In	Click <b>Zoom</b> in the <b>View</b> menu.
Zoom to Full Page	Click <b>Fit page</b> in the <b>View</b> menu.
Zoom to Page Width	Click <b>Fit width</b> in the <b>View</b> menu.

# 1. Dostek DNC Software

Dostek DNC software includes an Explorer-style file manager, a multiple-document program editor, two DNC communication applications ("classic" and "remote callup server"), several supplementary applications, and document and help files.



Dostek DNC is available in three editions covering the entire range of DNC applications:

- Lite Edition
- Professional Edition
- Ultimate Edition

Editions differ in:

- The number of CNCs you can connect for remote call-up or simultaneous drip-feeding.
- Advanced features, including file comparison and searching.
- The amount of free remote and telephone technical support provided.

FEATURE COMPARISON	Lite Edition	Professional Edition	Ultimate Edition
Remote call-up, max CNCs	1	16	64
Classic drip-feed, max CNCs	1	8	8
Side-by-side file comparison	No	Yes	Yes
Advanced searching	No	Yes	Yes
Cost (first computer)	<b>\$295.00</b>	<b>\$495.00</b>	<b>\$795.00</b>
Cost (each additional computer)	\$95.00	\$145.00	\$295.00
Order number	10-5010	10-5000	10-5040

You can connect all your CNCs to one computer, or you can connect each CNC or work cell (group of CNCs) to a separate computer. A separate software license is required for each computer.

With Dostek DNC, you can:

- Load a part program into the CNC's memory from a computer file.
- Run (drip feed) a part program on the CNC directly from a computer file. (Providing the CNC is capable of running a program from the RS-232C serial port or tape reader).
- Save a part program from the CNC's memory to a computer file.
- Load and save CNC data, such as tool offsets, machine parameters, and even machine executive software.

You can use Dostek DNC for "classic" communication or for "remote callup." The main differences are:

- With classic communication, you select a file or folder on the computer, and then go to the CNC and execute a load, run (drip feed) or save command to complete the transfer.
- With remote callup, there is no need to leave the CNC. The Dostek DNC software continuously monitors all CNCs. To save a file from the CNC to the computer, you simply punch it. To load or run a program from the computer, you first send a short "command" program from the CNC to the computer. For example, to load or run file "A1234," you might first send a command like this from the CNC to the computer:

```
07999 (DNC REMOTE CALLUP)
(Load A1234)
```

- With classic communication, each transfer occurs in a separate window, and each window scrolls the data during the transfer so you can monitor progress in great detail.
- With remote transfers, all transfers occur in the same window, one per line, and only the status of the transfer is displayed (data is not scrolled). This greatly reduces computing overhead and allows simultaneous communication with up to 64 CNCs.
- Remote callup eliminates the need for shop-floor computers. One computer services up to 64 CNCs, and the computer can be located in the office or a secure computer room.
- To use remote callup, each CNC must be connected to a separate computer COM port. With classic communication, you can use a switch box to share one COM port with several CNCs.

Lite Edition is ideal for basic DNC applications. You can connect any number of CNCs to the computer, but you can communicate (load, run or save) with only one CNC at a time.

Professional Edition and Ultimate Edition let you communicate with multiple CNCs at the same time, and include advanced features including searching and side-by-side file comparison. You can use classic communication with up to 8 CNCs at a time, or use remote call-up with up to 16 (Professional) or 64 (Ultimate) CNCs.

## **1.1 How it Works**

You can use Dostek DNC for "classic" communication or for "remote callup."

### **Classic DNC**

Loading a file to the CNC using the "classic" DNC method is a simple 3-step process.

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

**Step 2.** Click the "Send" button.

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

### ***Notes:***

#### **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.

## Remote Callup

Loading a file to the CNC using the "remote" DNC method is 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.

### Notes:

- Remote callup uses the Dostek DNC Remote Server application, which continuously monitors all CNCs.

| CHANNEL | MODE         | STATUS           | FILE          | FOLDER             |
|---------|--------------|------------------|---------------|--------------------|
| HM12V   | Receiving    | 1130 char receiv | A43-824.TAP   | D:\NC\Mill\HM12V   |
| LC30    | Transmitting | 84%, 29648 char  | 6308472B.TAP  | D:\NC\Laser\LC30   |
| OT-800  | Transmitting | 29%, 15734 char  | 0107-DNS-0665 | D:\NC\Lathe\OT-800 |
| LRP300  | Receiving    | 44856 char rece  | LRP-77483AZ-1 | D:\NC\Mill\LRP300  |

| CNC    | Date/Time           | Message                                                   |
|--------|---------------------|-----------------------------------------------------------|
| OT-800 | 09/17/1999 07:22 AM | Transmitting file D:\NC\Lathe\OT-800\0107-DNC-0665-77.TAP |
| LRP300 | 09/17/1999 07:23 AM | Receiving file D:\NC\Mill\LRP300\LRP-77483AZ-184.TAP      |
| HM12V  | 09/17/1999 07:23 AM | Receiving file D:\NC\Mill\HM12V\A43-824.TAP               |

COM2:9600,Even,7,2 -XON/XOFF - ISO

- A single computer can simultaneously serve up to 64 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.

## 2. Behind-the-Tape Reader (BTR)

The Dostek Model 440A Behind-the-Tape Reader (BTR) is an affordable RS-232 serial communication 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.

256Kb battery-backed memory is included for file storage. You can use the memory to run the same program over and over again, or to continuously drip feed files of unlimited size.



The 440A BTR lets you load or run standard ISO or EIA part program files or binary files such as machine executive software and diagnostics. Standard parallel (Facit) and serial (RS-232/current loop) puncher ports let you send data from the CNC's punch output 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 (see table, below). 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.

| <b>Dostek 440A Behind-the-Tape Reader (BTR)</b>                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                      |                     |                            |                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------|------------------------------|
| <b>Model</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Description</b>                                                                                                   | <b>Order Number</b> | <b>Price<sup>(1)</sup></b> | <b>Prepaid<sup>(2)</sup></b> |
| 440A                                                                                                                                                                                                                                                                                                                                                                                                                                                               | BTR Communication Interface                                                                                          | 10-0440A            | \$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)                                                                                            |                     | \$50                       | \$50                         |
| Each 440A BTR also includes:<br><b>TOLL-FREE TELEPHONE TECHNICAL SUPPORT<sup>(3)</sup></b><br>Dostek DNC software, BTR Edition, (file manager, editor, communication)<br>1-year limited warranty                                                                                                                                                                                                                                                                   |                                                                                                                      |                     |                            |                              |
| <sup>(1)</sup> US Dollars, taxes and duties extra, subject to change without notice.<br><sup>(2)</sup> Discounted price is available for PREPAID orders only; certain conditions apply (please call for details). Dostek accepts pre-payment by Visa, Mastercard, PayPal (includes Amex), bank wire transfer or company check.<br><sup>(3)</sup> Toll-free telephone technical support is free for 60 days from date of purchase. Support by email is always free. |                                                                                                                      |                     |                            |                              |

### 3. Communication Hardware

This section recommends communication products that work well for CNC communication.

To use Dostek DNC's remote callup feature, each CNC machine must be connected to a separate COM port.

The following table describes common types of Windows-compatible RS-232C communication hardware.

| <b>Communication Hardware</b>                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Computer's built-in serial COM port                                                                                                                                                                                                                                                                 | If your computer is equipped with a built-in serial COM port, you can connect one CNC to the computer, or you can use a mechanical switch box to connect 4 or more CNCs to the computer                                                                    |
| USB/serial adapter                                                                                                                                                                                                                                                                                  | Dostek currently does not recommend using USB/serial adapters. Of the products tested, ALL have bugs in their device driver or firmware that cause problems for CNC communication.                                                                         |
| Wired Ethernet/serial adapter                                                                                                                                                                                                                                                                       | Wired Ethernet/serial adapters are available with 1, 4 or 8 serial COM ports. Ethernet/serial adapters plug into the network, not directly to the computer. You can install the adapters on the shop floor to reduce cabling cost and improve reliability. |
| Wireless Ethernet/serial adapter                                                                                                                                                                                                                                                                    | You can install a wireless Ethernet/serial adapter at each CNC to eliminate wiring. You must also install one or more wireless access points to provide shop-floor wireless coverage.                                                                      |
| Multi-port serial board                                                                                                                                                                                                                                                                             | Serial boards plug into the computer's expansion slot. Once common, they are now rarely used due to potential compatibility and maintenance problems.                                                                                                      |
| <b>Notes:</b> <ul style="list-style-type: none"><li>&gt; You can use a combination of communication hardware types.</li><li>&gt; Be careful when choosing communication hardware. Some brands or models do not work well for CNC communication due to hardware and software design flaws.</li></ul> |                                                                                                                                                                                                                                                            |

### 3.1 Recommended Single-Port Communication Hardware

Dostek recommends single-port wired or wireless Ethernet/serial adapters. They provide electrical isolation to reduce the risk of damage caused by electrical surges.

RS-232C signals are grounded. When you use multiple-port boards or hubs, the ground wires from all CNCs are connected together at the computer or hub. Communication problems or electrical damage can occur if any machine is improperly grounded or an electrical surge occurs.

With both wired and wireless single-port Ethernet/serial adapters, the CNC machines are electrically isolated from the computer and from each other.

Also, the lower cost of single-port adapters makes it affordable to keep a spare unit on hand to eliminate downtime due to equipment failure.

#### Moxa NPort Wired Ethernet/Serial Adapter (\$150, order #10-2401)

The Moxa NPort wired Ethernet/serial adapter plugs in to your computer network and provides a standard DE9P RS-232C serial port. You can connect any number of NPort 5110 Ethernet/serial adapters to your computer.

The NPort adapter provides 1500 volts of magnetic electrical isolation on the Ethernet port, and 15000 volts electrostatic protection on the RS-232C signals.

To use the NPort adapter, you:

- install the adapter in, on or near the CNC machine
- plug the adapter's power cable into a standard power plug
- install a Category 5 network cable between the adapter's RJ45 network port and your LAN switch or hub
- install a short RS-232C serial cable between the adapter's DE9P serial connector and the CNC's RS-232C serial port
- install the Moxa device driver software on the computer, and then assign a static IP address and COM port number to the device

The NPort adapter is covered by Moxa's limited 5-year warranty.



### Moxa NPort Wireless Ethernet/Serial Adapter (\$350, order #10-2601)

The Moxa NPort wireless Ethernet/serial adapter connects to your 802.11 wireless network, and provides a standard DE9P RS-232C serial port. You can connect any number of NPort wireless adapters to your computer.

The NPort wireless adapter works with your wireless access points, and provides a wireless range of up to 100 meters in open areas. It provides total electrical isolation and 15000 volts electrostatic protection on the RS-232C signals.

To use the NPort wireless Ethernet/serial adapter, you:

- install the adapter on or near the CNC machine
- plug the adapter's power cable into a standard power plug
- install a short RS-232C serial cable between the adapter's DE9P serial connector and the CNC's RS-232C serial port
- install the Moxa device driver software on the computer, and then assign a static IP address and COM port number to the adapter

The NPort wireless adapter is covered by Moxa's limited 5-year warranty.



### 3.2 Multiple-Port Ethernet/Serial Hubs

Multiple-port Ethernet/serial hubs are an affordable way to replace older systems and continue using existing cabling. However, single-port wired or wireless Ethernet/serial adapters are a better choice because of the electrical isolation they provide.



The 4-port and 8-port Ethernet/serial hubs provide standard DE9P RS-232C serial COM ports. The hubs connect to your local area network (LAN) 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.

| Ethernet/serial Hubs |                                                   |       |
|----------------------|---------------------------------------------------|-------|
| 10-2204              | 4-port Ethernet/serial hub                        | \$425 |
| 10-2204-SS           | 4-port Ethernet/serial hub with surge suppression | \$465 |
| 10-2208              | 8-port Ethernet/serial hub                        | \$625 |
| 10-2208-SS           | 8-port Ethernet/serial hub with surge suppression | \$695 |

### 3.3 Multiple-Port Serial Boards

Multiple-port serial boards are an inexpensive way to add COM ports to a computer. Disadvantages include:

- No electrical isolation; all machines are connected to a common ground.
- Some computers may not have a compatible plug-in slot available.



| Serial Boards |                                                        |       |
|---------------|--------------------------------------------------------|-------|
| 10-2502       | 2-port PCI serial board<br>Bus: PCI (5V)               | \$60  |
| 10-2508       | 8-port PCI serial board<br>Bus: PCI / PCI-X (5 / 3.3V) | \$195 |

## 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.

### Economy CNC Communication Cable (\$30/\$40)

The Dostek 60-2555-10 (10 feet, \$30) and 60-2555-25 (25 feet, \$40) cables are cross-linked null modem cables ideal for most CNC communication applications. These cables provide a DE9S (socket) connector for connecting to the computer, and a DB25P (plug) connector for connecting to the CNC.

### Custom CNC Communication Cable (\$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.

### 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).



### RS-232 Test Kit (\$79, order #80-5911)

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.

### 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 place an order or request a quotation, please contact Dostek.

### 6.1 Payment Methods

Dostek accepts payment by Visa, Mastercard, PayPal, purchase order or bank funds transfer.



**Visa and Mastercard.** Order by telephone or fax using your credit card. For your security, Dostek does not electronically store credit card information. Credit card payment may not be available for some orders destined outside USA and Canada.

**PayPal.** Using the PayPal™ online payment system is easy and secure. A PayPal account is not required. When you receive your detailed PayPal invoice by email, simply click the link and enter your payment information. PayPal payment options include Visa, Mastercard, your PayPal funds or registered bank account, or some American Express cards (according to the PayPal Web site, American Express does not permit use of corporate cards with PayPal).

**Corporate purchase order.** Subject to prior credit approval by Dostek.

**Bank Funds Transfer.** Inter-bank wire payment is available for orders delivered outside USA and Canada.

### 6.2 Shipping

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

### 6.3 Returns/Refunds

All sales are final. However, returns and refunds may be considered when warranted.

To ensure your purchase is suitable for your application:

- Contact Dostek to discuss your needs.
- Download a free trial copy to evaluate software before you decide.
- Take advantage of Dostek's free technical support during your software trial.

To return a product, contact Dostek to obtain authorization. Unauthorized returns are not accepted. A restocking fee may apply.

| Contact Dostek |                               |
|----------------|-------------------------------|
| Toll free:     | 888-355-5735 (USA and Canada) |
| Telephone:     | 519-742-5721                  |
| Facsimile:     | 519-741-8669                  |
| Email:         | sales@dostek.com              |
| Internet:      | www.dostek.com                |