

# Product Description

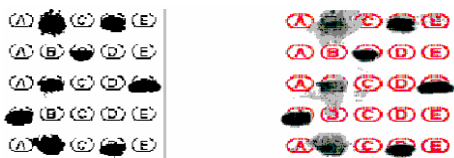
## PRODUCT NAME: 5000i<sup>®</sup> Image Scanning System

### Description

The 5000i<sup>®</sup> image scanning system from NCS Pearson is a “smart scanner” designed for demanding data collection and image capture applications.

Using NCS Pearson’s Picture Perfect<sup>™</sup> technology, the 5000i system helps to ensure each sheet’s electronic image is a high quality representation of the paper original. It interprets multiple-choice questions accurately because it uses grayscale images—not bi-tone images—to distinguish between marginal marks.

Multiple-choice answer accuracy is better using grayscale images. Notice how erasure marks can be mistaken for a mark in the bi-tone image (left) but not the grayscale (right).



### Flexibility

The 5000i system can function as a straightforward data capture device, a bi-tone or grayscale image capture scanner, a “smart” data capture system using Microsoft<sup>®</sup> C++ user exit software routines, or any combination of the above.

Electronic images are typically converted to data after scanning, but the 5000i system can extract data while the paper is still on the scanner’s bed. This allows you to:

- separate documents not completed with the required information to the alternate output hopper
- interpret an optical character recognition (OCR) field using Real-time OCR and print a content-dependent message on the document
- create CCITT compressed TIFF (Tagged Image File Format) images and use real-time data capture to generate the archive index values for use with a document management system

### Productivity

The 5000i system offers three features to reduce scanning imperfections: Dynamic Deskew<sup>™</sup>, Image Quality Sentry<sup>™</sup>, and Quick Check.

- Dynamic Deskew minimizes paper skew at the source.
- Image Quality Sentry notifies the operator of dust, erasure fragments or other irregularities that affects the quality of the image and offers instructions on how to improve the situation.
- Quick Check evaluates the mechanical integrity of the 5000i system to help ensure accurate data capture.

### Compatibility

Every 5000i system includes Image ScanTools<sup>™</sup> software. The system outputs industry-standard CCITT G3/G4 TIFF images that are compatible with most major forms processing and Electronic Document Management Systems. Image ScanTools software can also automatically generate Electronic Document Management System index values.

### Data Collection Options

The 5000i system allows you to choose the methods of data collection and image capture that meet your needs:

- Bi-tone or grayscale, full-page or image clips
- Conversion of electronic images of hand- and machine-print fields into ASCII data
- Optical Mark Read (OMR)
- Mark sense (bubbles, check marks, tick marks)
- Bar code
- Graybox search (there/not there)
- Key-from-image (open-ended questions)
- Dropout ink colors enabling either pencil or ink read capabilities.

The on-sheet normalization feature of the 5000i system preserves variable data while achieving maximum image compression. “Dynamic Threshold” automatically increases or decreases

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the bi-tone threshold level depending on character density (e.g., uses a lower threshold to interpret lighter data).

### Real-time OCR/ICR Option for the 5000i Image Scanning System

Did you ever want to read a hand printed character or need to print machine-readable identification information on your scan sheets before they are distributed?

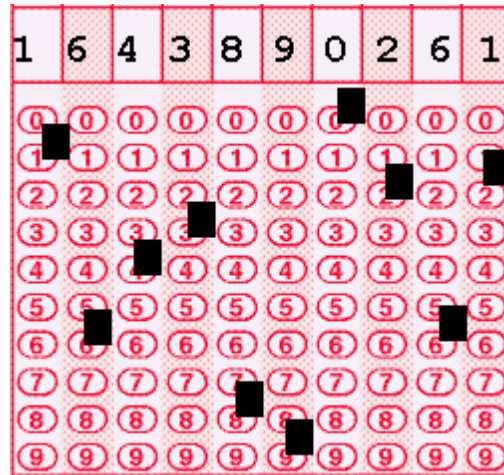
Real-time OCR/ICR is an add-on option to process hand print and machine print characters. Optical character recognition (OCR) and Intelligent character recognition (ICR) is the process of converting computer-printed and hand printed characters into ASCII data. With the real-time OCR/ICR option, the 5000i system can read pre-printed characters, hand printed characters and OMR bubbles while scanning. This allows each document to be processed uniquely based on data read from that document. The contents of an OCR/ICR field could cause the scanner's transport printer to print specified information on the document, or it could cause the document to be sent to the scanner's alternate output stacker.

### Add Real-time OCR/ICR to any Application

Real-time OCR/ICR can be added to any application without programming. Developed as an Image ScanTools™ user exit program, the real-time OCR option incorporates the award-winning NestorReader™ character recognition engine. This powerful software combination helps ensure data integrity and integration with your existing Image ScanTools applications.

### Easier to Print

Real-time OCR has a larger tolerance for printer "float," making tight alignment less critical. Perfect alignment of pre-slug marks with OMR bubbles is no longer an issue. As a result, you will spend less time and money correcting data errors caused by improper printer alignment.



### Misaligned pre-slug marks

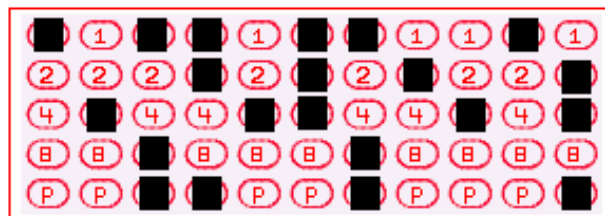
The Real-time OCR option allows you to use your laser printer to pre-print information on cut-sheet forms. Expensive pre-slug ribbons are eliminated.

Since the pre-identification information is simply printed on a form rather than translated to an OMR grid, programming is much easier. In fact, the mail-merge capabilities of most word processing and database management software can be used to pre-print identification information on the scan sheets.

### Easier to Read

Both the scanner and scanner operators can easily read data pre-printed on the forms. Difficult-to-read binary pre-slug grids can be replaced with easy-to-read printed characters.

The real-time OCR option changes your binary pre-slug from this typical pre-slugged sample:



... to printed characters.

**14934792416**

OCR and ICR characters require less space on the document than OMR pre-slug grids, so there is more space available on the form for recording data.

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### Requirements and Recommendations

The real-time OCR option is designed to work with the 5000i system and the Image ScanTools software, version 2.0 or later.

For optimum machine print recognition, NCS Pearson recommends a standard 12 to 16 point, non-proportional spaced, sans serif font. Because fonts can vary from printer to printer, we strongly recommend that various fonts and print sizes be tested prior to printing production documents. Although the 5000i system's high-speed scanning mode works well with the real-time OCR option, the 5000i system's high-resolution scanning mode will generally yield the best results.

NCS Pearson also recommends that the image-based "heads-up" editing capability of the Image ScanTools software be used to correct any questionable characters. If a large number of forms with OCR/ICR information will be processed, we recommend that you use one or more edit workstations on the same network as the 5000i system.

### 5000i Image Scanning System Specifications

#### Scanner

**Read Heads:** 240 dots per inch (dpi) resolution, up to 256 levels of grayscale per pixel; pencil and ink read options

**Document Transport:** Open bed design, automatic document feed

**Error Detection Systems:** Multiple sheet detection

**Input Hopper Capacity:** 750 sheets

**Output Hopper Capacity:** Main: 750 sheets; alternate: 250 sheets

**Printer:** Up to 60 characters printed along guide edge

**Document Size:** 3.25" x 7.0" to 9" x 12"

**Image Compression & Format:** CCITT G3 or G4 compression, TIF format

**Selectable Mark Resolution Grids:** 0.166" and 0.200"

**Compatibility:** Supports existing ScanTools<sup>®</sup> and ScanTools II software for Microsoft<sup>®</sup> Windows<sup>®</sup> or MS-DOS<sup>®</sup> /PC DOS based application definitions without re-definition. (User Exit programs may need to be re-written or recompiled.)

**Dimensions:** 55" H x 48" W x 29"D

### Scanning Station

**Operating Environment:** Microsoft<sup>®</sup> Windows NT<sup>®</sup> and Windows 2000

#### Hardware Requirements:

- IBM PC or compatible
  - \* If running Windows NT SP6a, 180 Mhz Pentium<sup>®</sup> processor, minimum
  - \* If running Windows 2000 Professional SP2, 866 Mhz Pentium processor, minimum
- System memory
  - \* If running Windows NT SP6a, 96MB minimum (128 MB recommended)
  - \* If running Windows 2000 Professional SP2, 128 MB minimum (256 MB recommended)
- Hard drive space
  - \* If running Windows NT SP6a, 2GB hard disk with a minimum of 200 MB (1 GB recommended) of free space. The required space may increase depending on the application's data storage requirements.
  - \* If running Windows 2000 Professional SP2, 2GB hard disk (3 GB recommended) with a minimum of 650 MB (1GB recommended) of free space. The required space may increase depending on the application's data storage requirements.
- Video Adapter w/24-bit color (recommended), 65K colors minimum
- Monitor at 1024 x 768 resolution, minimum 65K colors.
- Ethernet Adapter, 10/100 recommended
- 5000iscanner and 5000i software utilities v05.00000
- An available CD-ROM drive for installation
- An internet connection and a Web browser for accessing the NCS Pearson Customer Support Web site.

#### Operating Conditions

**Temperature:** 68°F - 80°F (16°C - 26°C)

**Humidity:** 40% – 60%, non-condensing

**BTU:** 950 W (standby); 2,400 W (scanning)

**Standard Power:** 100 – 240 volts AC (-10%, +6%), 47 – 63 Hz, 15 amp dedicated circuit

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## Edit Station – For Application Definition and/or Post-Scan Edit Tasks Only

**Operating System:** One of the following:

- Windows 95 Service Pack b
- Windows 98 SE
- Windows NT 4.0 SP6a
- Windows 2000 Professional SP2
- Windows Millennium

### Hardware Requirements:

- IBM PC or compatible with at least a Pentium class processor (233 MHz or better)
- System memory minimum of 128 MB (256 MB recommended)
- Hard Drive Space:
  - \* If running Windows 95 Service Pack b, Windows 98SE, Windows Millennium or Windows NT SP6a, 2GB hard disk with a minimum of 200 MB of free space. The required space may increase depending on the application's data storage requirements.
  - \* If running Windows 2000 Professional SP2, 2GB hard disk (3GB recommended) with a minimum of 650 MB (1GB recommended) of free space. The required space may increase depending on the application's data storage requirements.
- Video adapter with 24-bit color (recommended) 65K colors minimum
- Monitor at 1024 x 768 resolution, minimum 65K colors
- An Internet connection and a Web browser for accessing the NCS Pearson Customer Support Web site
- Ethernet adapter, 10/100 recommended
- An available CD-ROM drive for installation.

### User Exits:

For any user exit work, you must use a C/C++ compiler, such as Microsoft Visual C++ Developer Studio v6.0 SP5 or higher than can create Windows Dynamic Link Libraries (DLLs).

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