

# DiagnosticPRO™ *plus* Film Digitizer



Combining Unmatched  
- Image Quality  
- Exceptional Reliability  
- Low Total Cost of  
Ownership

## PACS and Remote Primary Diagnosis

The DiagnosticPRO™ *plus* Film Digitizer from VIDAR Systems Corporation was developed in response to clinical demands for a high quality, productive, reliable, and affordable x-ray film digitizer for PACS and remote primary diagnosis. The DiagnosticPRO *plus* features the company's next-generation, proprietary *High Definition CCD (HD-CCD™)* technology. It incorporates a substantially more sophisticated HD-CCD array and digital electronics design that expand the optical density range and deliver unmatched image quality. Its unique new feature, ADC™ (Automatic Digitizer Calibration), results in virtually no variation in image quality and ensures excellent grayscale reproduction in every image. Priced at about half the cost of comparable laser digitizers and offering a significantly lower total cost of ownership, due to its 35,000 hour MTBF, the DiagnosticPRO has quickly become the digitizer of choice for demanding PACS and remote primary diagnosis applications.

The DiagnosticPRO *plus* with its high-resolution capabilities (44.5 microns) provides the ability to digitize mammography films, as well as providing larger spot size options for digitizing general radiographic, CT, MR, ultrasound, and nuclear medicine films. The DiagnosticPRO *plus* also is ideal for use in the new computer assisted diagnosis systems being developed to enhance the diagnostic accuracy and sensitivity of mammography.

## Clinically Proven Image Quality

Laser digitizers were often used for PACS and teleradiology due to their image quality. The DiagnosticPRO changed that dynamic. A recent Johns Hopkins clinical study compared the diagnostic accuracy, sensitivity, specificity, and receiver operator characteristics of the DiagnosticPRO and the Lumisys Lumiscan 75™ laser digitizer. The study demonstrated that there is no difference in image quality and radiologists' ability to make correct diagnoses between radiographs digitized on the two systems. In addition, the Radiologist Preference Study, conducted during the 1999 RSNA, concluded that in nearly 60 percent of the image pairs viewed, radiologists either preferred images scanned on the DiagnosticPRO or had no preference between DiagnosticPRO and laser-scanned images.

## Low Total Cost of Ownership

The affordable price of the DiagnosticPRO *plus* is combined with exceptional reliability resulting in a significantly lower total cost of ownership as well as reduced downtime and lost billings for radiology practices. Unlike other digitizers, which require biannual calibration or cleaning,



VIDAR systems need no maintenance or calibration, saving nearly \$2,000 annually. The straight-line film path reduces the need for costly service calls (\$500 or more each) due to film jams. Parts replacement, on-site service, and shipping and service costs for factory repairs can reach \$4,500 annually for laser digitizers. By comparison, VIDAR's digitizers average \$0 per year for routine service. These substantial cost differences are illustrated by a comparative analysis created by PACS expert Michael Cannavo (Telemedicine Today, April 1999). An analysis of a three-year total cost of ownership demonstrates that the cost of owning a laser digitizer is more than twice that of the DiagnosticPRO *plus* -- \$71,000 versus \$32,900.

## Exceptional Image Quality, Reliability & Productivity

The DiagnosticPRO *plus* exceeds the American College of Radiology (ACR) teleradiology practice guidelines. VIDAR offers the only 16-bit A to D converter in the industry to maximize grayscale accuracy.

VIDAR's digitizers have been field-proven for reliable performance in more than 300 mobile radiology vans, and have a mean time between failure of 35,000 hours or four years. They also have successfully completed extensive shock and vibration evaluation, undergoing 40 hours of testing -- the equivalent of 40,000 miles -- in accordance with the MIL Standard. A built-in, 25-sheet film feeder increases productivity by reducing time involved with digitizing radiological studies.

Straight-line  
Film Path  
Reduces Need for  
Costly Service Calls  
Due to Film Jams

**VIDAR**  
systems corporation  
Medical Imaging

# DiagnosticPRO™ plus Film Digitizer



| Nominal Resolution | Pixels<br>(14" x 17" film) | Spot Size<br>(um) | DPI | Line pairs<br>per mm | Digitizing<br>Speed |
|--------------------|----------------------------|-------------------|-----|----------------------|---------------------|
| 1K x 1.25 K        | 1008 x 1124                | 340               | 75  | 1                    | 9 Seconds           |
| 2K x 2.5K*         | 2002 x 2431                | 170               | 150 | 3                    | 19.5 Seconds        |
| 4K x 5K            | 3990 x 4845                | 85                | 300 | 6                    | 39 Seconds          |

## Mammography film: 18cm x 24cm

|         |             |    |     |    |            |
|---------|-------------|----|-----|----|------------|
| 4K x 5K | 4104 x 5472 | 44 | 570 | 11 | 44 Seconds |
|---------|-------------|----|-----|----|------------|

\*ACR Standard for Teleradiology Guidelines [Revision 35 (1998)] recommends 2.5 line pairs/mm minimum

|                                       |                                                                                                                                                                                 |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Clinical Optical Density Range</b> | 0 to 3.85                                                                                                                                                                       |
| <b>Signal to Noise</b>                | > 10 RMS @ 3.85 OD                                                                                                                                                              |
| <b>Scan Modes</b>                     | 16-bit mapped to 12-bit and 8-bit grayscale outputs:<br>8K x 10K mapped to 4K x 5K, 2K x 2.5K, 1K x 1.25K resolution output                                                     |
| <b>MTBF</b>                           | 35,000 Hours                                                                                                                                                                    |
| <b>Film Sizes</b>                     | Width: 5" to 14" (12.7 cm to 35.6 cm)<br>Length: 5" to 51" (12.7 cm to 129.5 cm)<br>Thickness: 0.006" to 0.010" (0.15 mm to 0.51 mm)                                            |
| <b>Auto Film Feeder</b>               | Standard 25-film capacity (mixed sized – no pre-sorting necessary)<br>"Light Box" loading: head-up, normal reading, left justified                                              |
| <b>Translation Table</b>              | Linear OD                                                                                                                                                                       |
| <b>Geometric Accuracy</b>             | Better than 1% or 2 pixels, whichever is greater, in both axes                                                                                                                  |
| <b>Scan Rate</b>                      | 125 lines/second                                                                                                                                                                |
| <b>Hardware Interface</b>             | Conforms to the SCSI-2 specification<br>SCSI termination and ID selection switch is accessible at the back of the unit                                                          |
| <b>Power Requirements</b>             | Voltage: 95~130 Vac or 190~260 Vac<br>Frequency: 47~63 Hz<br>Power: < 75 Watts                                                                                                  |
| <b>Operating Environment</b>          | 60° to 85° F (15° to 30° C), 20% to 85% relative humidity, non-condensing                                                                                                       |
| <b>Storage Environment</b>            | 0° to 140° F (-15° to 60° C), 20% to 85% relative humidity, non-condensing                                                                                                      |
| <b>Illuminator</b>                    | Broad Band UV light; >40,000 hours expected life                                                                                                                                |
| <b>Detector</b>                       | Solid-state, Next-Generation High Definition CCD (HD-CCD™)                                                                                                                      |
| <b>Dimensions</b>                     | Footprint: 16" W x 24" D (40.6 cm x 61 cm)<br>Overall: 25.5" W x 24" D x 29" H (64.8 cm x 61 cm x 73.7 cm)<br>Shipping: 26.5" W x 22.5" D x 29" H (67.3 cm x 57.2 cm x 73.7 cm) |
| <b>Weight</b>                         | 41 lbs. (18.6 kg); Shipping weight: 60 lbs. (27.3 kg)                                                                                                                           |
| <b>Certifications</b>                 | FCC class A; CE mark; UL 1950; IEC-950; CSA; ISO 9002;<br>FDA 510(k) 993599; USA Mil Spec Standard 810E, Method 514.4; Procedure I                                              |

Specifications are subject to change without notice.

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