XANTÉ
Prepress Innovations

XD-1

XD-1-v1
7-8-99
100-100440

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Colophon

This manual was written using Adobe PageMaker and illustrations were drawn using FreeHand. The typefaces for the main body of the manual are Times, Helvetica, and Courier.

Credits

Edited by Lesa Moore; Written by Lane Crume and Kathy Rogers; Designed and illustrated by Gene Everette and Susie Simmons; Special thanks to XANTÉ Engineering, XANTÉ Technical Support, Dwight Spivey, Wayne Dean, and all of our reviewers.

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XD-1

XANTÉ's XD-1 (XANTÉ Densitometer), combined with XANTÉ Command Center software, measures grayscale output for calibration and proofing. XANTÉ provides Command Center software with PlateMaker 3, ScreenWriter 3, and Accel-a-Writer 3G printers, allowing you to calibrate printer grayscale accuracy using the XD-1 (fig. 1).

This manual covers the XD-1 features and specifications as well as calibrating the XD-1 and then using the XD-1 to calibrate your printer. The last part covers the warranty and technical support for the XD-1.

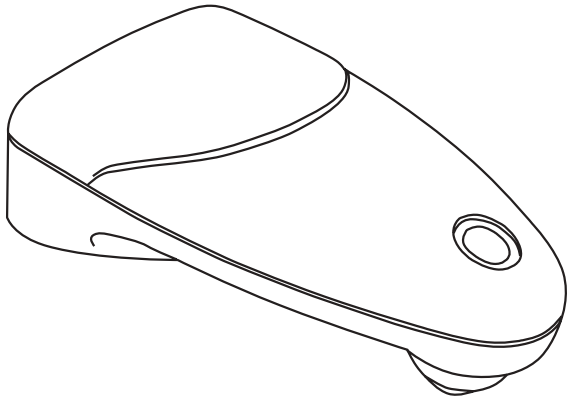

Fig. 1 XD-1

Features

Durability:	No moving parts
Quality:	1-year limited warranty
Design:	Compact
Flexibility:	Macintosh and Windows 95, 98, NT 4.0, or greater drivers

Specifications

Measuring geometry:	45/0 degrees
Measuring area:	4 mm diameter
Measurement time:	1.5 seconds
Short term repeatability:	<± 0.01D
Accuracy:	<± 0.02D or 3%
Inter-instrument agreement:	<± 0.02D or 2%
Output function*:	Density status E,T, A, I

*Supplied by driver

What's in the Package

Your XD-1 package includes the following:

- 1 XD-1
- 1 Power Supply
- 1 Macintosh Interface Cable
- 1 Serial Mac to PC Adapter
- 1 Reflection Reference Card

If you do not receive your full package, or if anything is damaged, call XANTÉ Customer Support at 800-926-8393 (US and Canada) or your XANTÉ vendor.

Connecting the XD-1

To connect the XD-1 to your system

1. Turn off your host computer. Then, unwrap the XD-1's cable and the power supply's cord.

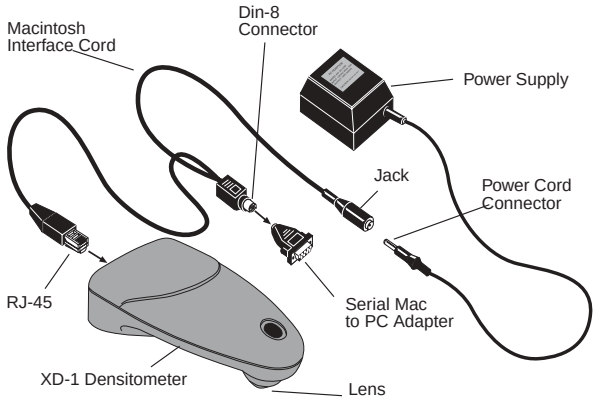

Fig. 2 Connecting the XD-1

2. Plug the XD-1 cable's RJ-45 end (it looks like an oversized telephone jack) into the connection on the bottom of the XD-1 toward the back.

3. Use one of the following procedures to connect the XD-1's serial cable to your computer.

    a. Macintosh: Plug the XD-1's Din-8 connector into either the printer or the modem port on the back of your computer.

        Note: New iMac and blue and white G3 towers do not have a serial port. For these systems, you must purchase a USB to serial converter. This converter must be plugged directly into the iMac or G3 USB port, *not* through a USB hub.

    b. PC: Plug the XD-1 cord's Din-8 connector into the Din-8 receptacle on the serial Mac to PC adapter. Then plug the adapter's serial connector into the serial port on your PC.

4. Plug the XD-1 power cord connector into the XD-1 cable's jack; then, plug the power supply end into a standard electrical outlet, and turn on your computer.

Warning! Always use a dedicated, properly grounded, surge protected AC outlet for your computer and the XD-1 power supply. Do not use an extension cord.

Note: To verify that the XD-1 is connected correctly, hold down the button on the top and look into the lens opening (fig. 2). You should see the colored LEDs (Light Emitting Diodes) flash as the XD-1 cycles.

Calibrating the XD-1

Your XD-1 uses a standard light source to measure the amount of light reflected from printer output. This measurement is compared to a standard and expressed as a percentage of gray. The XD-1, like any other precision instrument, must be calibrated to the standard before each use.

To calibrate the XD-1

1. Open XANTÉ Command Center and select Graphics: Linearization (Macintosh) or Controller: Linearize PC). The Linearization window opens (figs. 3 Macintosh and 4 PC).

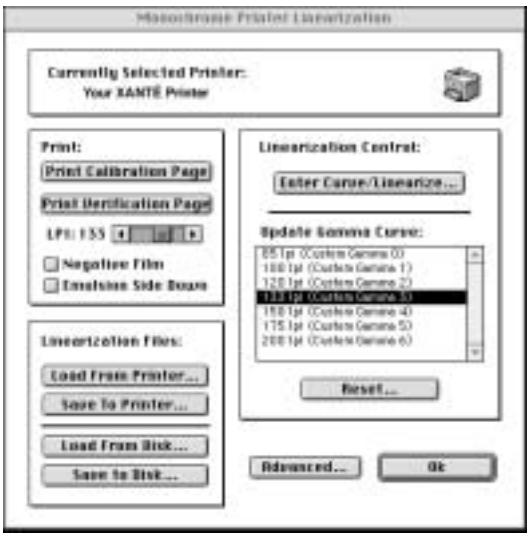

Fig. 3 Linearization Window (Macintosh)

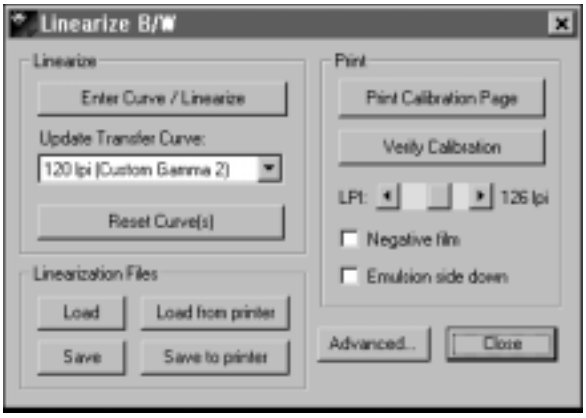

Fig. 4 Linearization Window (PC)

2. Change the Linearization window LPI setting in the Print box (fig. 3 Macintosh or 4 PC) to achieve 256 levels of gray for the resolution at which you are printing.

   Note: For 600 dpi, select 85 lpi; for 1200 dpi, select 106 lpi; for 2400 dpi, select 133 to 150 lpi. Any lpi may be used; measure the lpi that is to be used for final output.

3. Print a Calibration Page to measure the printer's current performance as a basis for the calibration. To do this use the following procedure:

   Note: *Always* print the calibration page using the same media and toner or press ink as used for the final copy. When calibrating plate or film media, you *must* select Man Feed using the Tray Select key and select the media size through the front panel MISC: MAN FEED menu. Universal is the largest size available in the front panel. If you have larger media, you need to cut it down to 13" x 18.5" (330 mm x 470 mm).

   Also, when possible, calibrate from the final output. For example when calibrating for plates, take the plate to press and print. Then, measure the output from the press.

   a. Select Negative Film to calibrate the printer if you are calibrating for negative output from your printer.

   b. Select Emulsion Side Down if you want to print a mirror image.

      Note: The printed calibration page will still look like a positive, but the patch (box) values will be reversed.

   c. Select the custom Gamma Curve you want to update from the Update Gamma Curve list (Macintosh) or from the Update Transfer Curve list (PC). This curve selection automatically updates the LPI option to match the lpi listed for the selected curve. To select a different lpi setting, use the LPI option and scroll to the desired setting.

Note: If you select a custom lpi for a listed curve, the lpi listed in front of the curve's name in the Update Gamma Curve box *does not* change to match the new lpi. In this case, you need to keep a record of the new lpi setting for that gamma curve.

d. Select the resolution which you will use to print the final output in the printer front panel MISC:DPI menu.

e. Click Print Calibration Page (fig. 3 Macintosh or 4 PC). The calibration page shows the printer's performance using no gamma curve correction (fig. 5).

Note: Print only one calibration page (using the Print Calibration Page button) at the beginning of the calibration process. Printing this page again later in the process resets the calibration, cancelling any linearization you have already done.

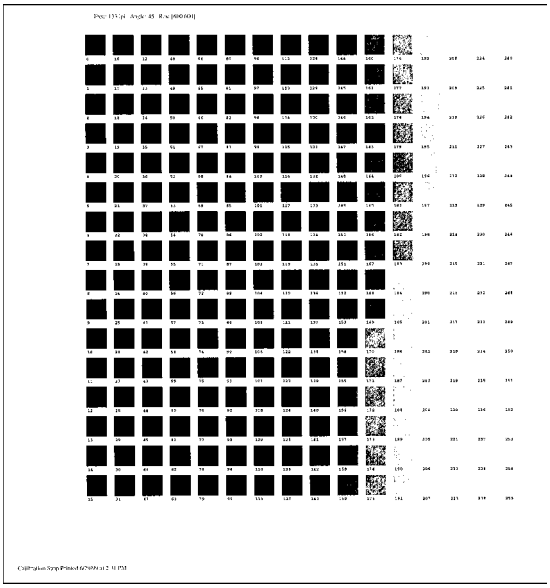

Fig. 5 A Sample Calibration Page

4. Click Enter Curve/Linearize. The XD-1 Data Entry window appears (fig. 6 Macintosh or fig. 7 PC).

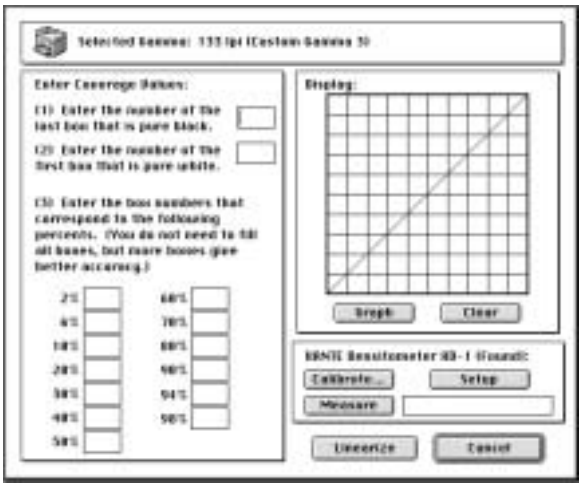

Fig. 6 The XD-1 Data Entry Window (Macintosh)

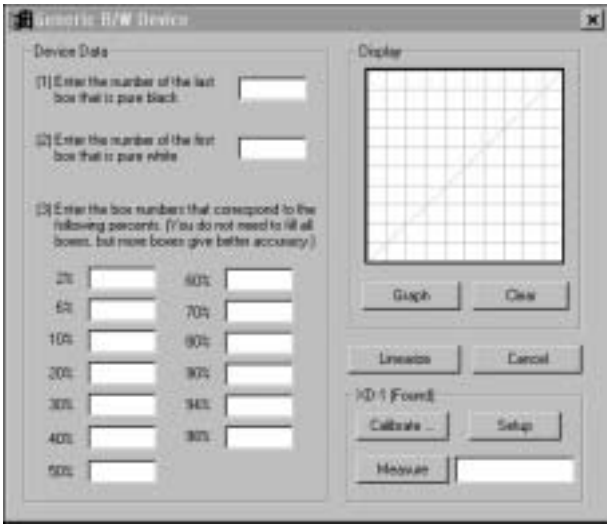

Fig. 7 The XD-1 Data Entry Window (PC)

5. Click Calibrate in either the XANTÉ Densitometer XD-1 (Found) box (fig. 6 Macintosh) or in the XD-1 (Found) box (fig. 7 PC). The XD-1 Calibration window appears (fig. 8 Macintosh or 9 PC)

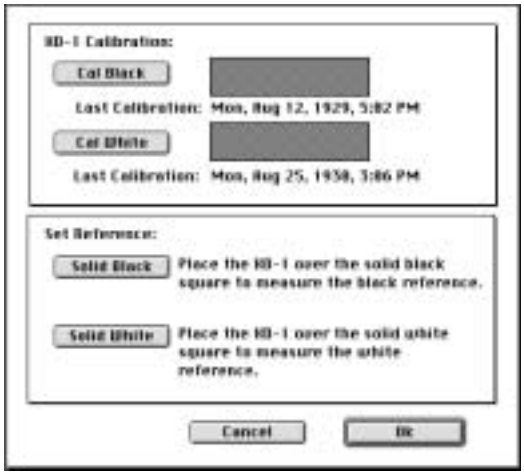

Fig. 8 The XD-1 Calibration Window (Macintosh)

Fig. 9 The XD-1 Calibration Window (PC)

6. Center the XD-1's lens (fig. 2) over the black dot (#2) on the Reflection Reference card. Then, using your mouse, click Cal Black in the Calibration window (fig. 8 Macintosh or 9 PC).

7. Center the XD-1's lens over the white dot (#1) on the Reflection Reference card. Then, click Cal White in the Calibration window (fig. 8 Macintosh or 9 PC).

8. Center the XD-1's lens over the solid black square (this should be box 0) on the calibration page which you printed in step 3e. Then, click Solid Black in the Calibration window (fig. 8 Macintosh or 9 PC).

   Note: The process of reading a calibration page measurement takes longer than reading the Reflection Reference card.

9. Center the XD-1's lens over the solid white square (this should be box 255) on the calibration page which you printed in step 2. Then, click Solid White in the Calibration window (fig. 8 Macintosh or 9 PC).

10. Then click either OK (Macintosh) or Close (PC) to return to the Linearization window (fig. 8 Macintosh or 9 PC).

After the XD-1 is calibrated, use the procedure in the next section to calibrate your printer.

Calibrating Output with the XD-1

For optimum printer performance, you should calibrate your printer with the XD-1 periodically, using gamma curves to create consistent output. The following list gives some of the variables which call for calibration.

- Temperature changes
- Humidity changes
- General equipment usage
- Toner cartridge changes
- Resolution changes
- Media changes
- Screen value changes

Seven standard curves are supplied with XANTÉ's Halftone Calibration Technology, and you can create up to seven custom gamma curves. You can select custom or standard gamma curves using the front panel Gamma menu or the Gamma PPD option in the Print dialog box. Custom curves are created using XANTÉ Command Center and the XD-1.

The XD-1 along with Command Center allows you to linearize the gray scale data; it also features advanced gamma curve control as well as ways to manage custom gamma control and reset custom curve defaults.

Linearizing the XD-1 Data

Enter the patch numbers from the XD-1 measurements to calculate the adjustments necessary to correct printer performance to a linear standard.

1. Click Enter Curve/Linearize in the Linearization window (fig. 3 Macintosh or 4 PC). The XD-1 Data Entry window appears (fig. 10 Macintosh or 11 PC).

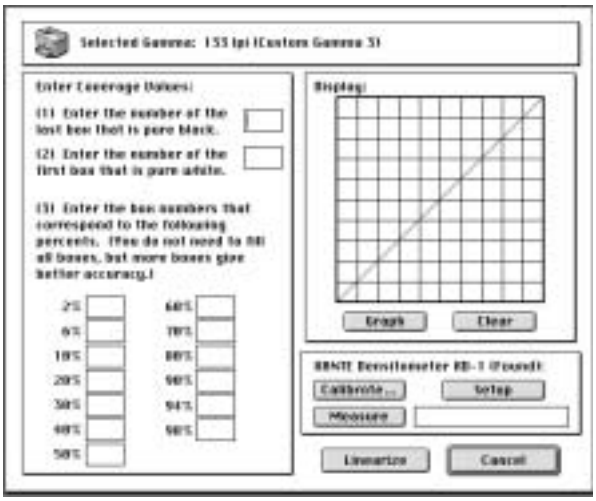

Fig. 10 XD-1 Data Entry Window (Macintosh)

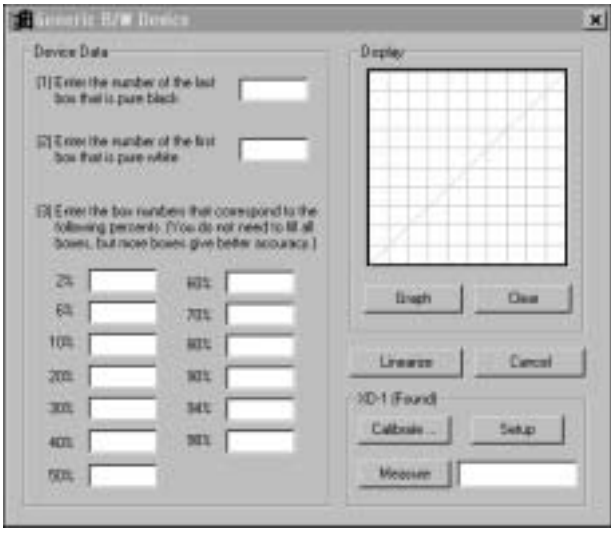

Fig. 11 XD-1 Data Entry Window (PC)

2. Measure individual patches on the calibration page by placing the page on a white background; then, center the XD-1's lens over the patch and either click the black button on top of the XD-1 or click the measure button on the XD-1 Data Entry window (fig. 10 Macintosh or 11 PC). The measurement appears in the box to the right of the Measure button.

3. Make sure to enter the solid black (1) and solid white (2) measurements first. Enter the number of the patch whose XD-1 measurement most closely matches (within ± 2%) the corresponding percentage in the Enter Coverage Values section (Macintosh) or the Device Data section (PC).

   For example, when you are reading for 2%, if the box labeled 7 measures 2%, enter the number 7 in the corresponding box.

   Note: The calibration page blocks are numbered from 0 to 255. You may have to check several blocks to find the one that most closely matches the percentage in the XD-1 Data Entry window.

   Also, it is not necessary to measure for each coverage value, but it is recommended to achieve more accurate results.

4. Click Graph to display your printer's linear curve.

5. Click Linearize to continue. The Linearization window reappears.

   Note: If you need to stop linearization (for example to change the media type) you can click Cancel to stop.)

6. Click Save to Disk (fig. 3 Macintosh) or Save (fig. 4 PC) if you want to save the data file for future use; then, specify a new file name and select a folder for saving the file and click Save. Otherwise, skip to step 7.

7. Click OK to close the Linearization window.

Note: If you would like to verify linearization, click the Print Verification Page button before you close the Linearization window. When this page prints, compare it to the original calibration page to verify the gamma correction; you should see an improvement in the gray scale progression.

Advanced Gamma Curve Control

If you are an expert user, you may want to adjust image lowlights, midtones, highlights and details in a gamma curve using the Advanced option in the Linearization window.

Note: You cannot see advanced window adjustments on screen. Unless you are an expert user, you should make these adjustments through an application.

1. Select the gamma curve you wish to update from Update Gamma Curve (fig. 3 Macintosh) or Update Transfer Curve (fig. 4 PC) in the Linearization window.

2. Click Advanced. Use the appropriate scroll bars to make the necessary adjustments and click OK to return to the Linearization window.

3. Click Enter Curve/Linearize to create a new curve and download it to your printer; the XD-1 Data Entry window appears (fig. 10 Macintosh or 11 PC).

4. Click Linearize. The new curve replaces the existing curve on your printer.

5. Click OK (fig. 3 Macintosh) or click Close (fig. 4 PC) to close the Linearization window. Choose File: Quit to close Command Center.

Managing Custom Gamma Curves

You can retrieve custom gamma curves (that you created or downloaded using the XD-1 and Command Center) from your printer and save them on your system. These files can be downloaded to the printer again as needed.

To manage custom gamma curves, open XANTÉ Command Center and select Graphics: Linearization. The Linearization window appears (fig. 3 Macintosh or 4 PC). Then use one of the following procedures to manage your custom gamma curve.

- To retrieve a custom gamma curve from the printer, click Load from printer.
- To retrieve a custom gamma curve saved to your Macintosh or PC, click Load From Disk and select the file.
- To save a custom gamma curve to your Macintosh or PC, retrieve it from the printer and click Save to Disk.
- To save a custom gamma curve to your printer, retrieve it from your system. Select the curve to be updated from Update Gamma Curve (Macintosh) or Update Transfer Curve (PC) and click Save to Printer.

Resetting Custom Curve Defaults

You can reset one or all custom curves to the factory setting.

To reset a custom gamma curve to the factory default (a copy of the standard Gamma 0 curve)

1. Highlight the curve you wish to change from Update Gamma Curve (Macintosh) or Update Transfer Curve (PC) and click Reset. The Reset Curves window (fig. 12 Macintosh or 13 PC) appears.

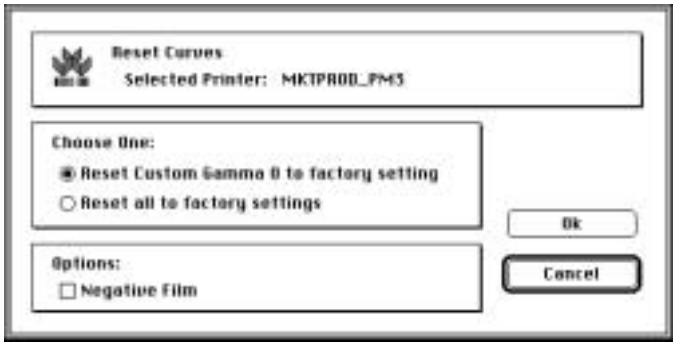

Fig. 12 Reset Curves Window (Macintosh)

Fig. 13 Reset Curves Window (PC)

2. Choose Reset Custom Gamma *X* to factory setting or Reset all to factory settings (the *X* will be replaced by the number of the curve you highlighted in step 1). Select Negative Film if the final printed output will be a negative print.

3. Click OK. After the curve is reset, the Linearization window reappears.

4. Click OK to close the Linearization window. Select File: Quit to close Command Center.

Limited Warranty

XANTÉ CORPORATION warrants this product against defects in material and workmanship for a period of ONE (1) YEAR from the date of original purchase.

In case of defect, XANTÉ CORPORATION will, at its option, repair or replace this product at no charge to you provided you return the product, freight prepaid, to us during the warranty period. Please attach your name, address, telephone number, a description of the problem, and proof of date of original purchase. This warranty does not apply if the product has been damaged by accident, abuse, misuse, misapplication, or if the product has been modified without the written permission of XANTÉ CORPORATION.

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THE WARRANTY SET FORTH ABOVE IS EXCLUSIVE AND IN LIEU OF ALL OTHERS, ORAL OR WRITTEN, EXPRESSED OR IMPLIED.

Technical Support

If you encounter problems that cannot be resolved by following the procedures in this manual, you may call XANTÉ's Technical Support at 800-926-8393 (US and Canada) from 7 a.m. until 7 p.m. Central Standard Time (CST) Monday through Thursday and 7 a.m. until 6 p.m. CST on Friday. From other areas, call your XANTÉ vendor.

Note: Depending on your service agreement, there may be a charge for Technical Support.

Before you contact XANTÉ for technical support, gather the following troubleshooting information.

- The model of your printer
- The printer ROM version (Press the On Line key for 5 seconds; the version appears in the window.)
- The type of computer and the operating system (version number) you are using
- The version of XANTÉ Command Center you are using
- The configuration menu settings for the printer interface you are using
- A full description of the problem
- A list of error or status messages if they appear

Also, you can fax questions to XANTÉ's Technical Support at 334-342-4635. Include your name and your company's name and the troubleshooting information listed earlier in this section.

If you have access to the internet, you can access XANTÉ's web page at www.xante.com. From this site, you can download printer drivers, software, PPDs, and access other technical information.

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