Scanner Specifications

Scanner

General
Scanner type Flatbed, color
Maximum document size 12.2 x 17.2 inches (310 x 437 mm)
A3 or Letter (The reading area can be specified from your software)
Photoelectric device Color MatrixCCD line sensor
Effective pixels 19520 x 27520 pixels at 1600 dpi, 100% scaling

Maximum hardware resolution* 1600 dpi (main scan)
3200 dpi with Micro Step Drive (sub scan)

*The maximum hardware resolution of 1600 x 3200 dpi is achieved using EPSON’s Micro Step Drive technology

Output resolution 50 dpi - 12800 dpi
50 to 6400 in 1 dpi increments
Zoom 50 to 200% in 1% increments

Maximum interpolated resolution 12800 x 12800 dpi
Line art 1 bit per pixel
Speed (1600 dpi, draft mode) Color: 13.2 msec/line (approx.)
Grayscale: 4.5 msec/line (approx.)
Line Art: 4.5 msec/line (approx.)

Color separation RGB color filters on CCD
Reading sequence Monochrome: One-pass scanning
Color byte sequence: One-pass scanning (R, G, B)
Color line sequence: One-pass scanning (R, G, B)

Command level ESC/I-B8
Optical density 3.6 Dmax
Color depth 42-bit internal/42-bit external
Grayscale depth 14-bit internal/14-bit external
Pixel depth 14 bits per pixel (14 bits per pixel input, 1 to 14 bits per pixel output)
Brightness 7 levels
Line art settings Fixed threshold
TET (Text Enhancement Technology, enable/disable selectable)

Area separation AAS (Auto Area Segmentation, enable/disable selectable)

Digital halftoning 3 halftoning modes (A, B, and C)
4 dither patterns (A, B, C, and D) for bi-level and quad-level data
(2 downloadable dither patterns)

Gamma correction 2 types for CRT display
3 types for printer
1 type user-defined

Color correction 1 type for CRT display
3 types for printer (available in color byte sequence mode and color line sequence mode)
1 type user-defined
Interfaces
- SCSI-2 (micro DB 50-pin connectors)
- USB (Type B receptacle connector)
- Optional IEEE 1394 (FireWire)

Light source
Xenon gas cold cathode fluorescent lamp

Reliability
100,000 cycles of carriage movement (main unit MCBF)

Dimensions
- Width: 25.8 inches (656 mm)
- Depth: 18 inches (458 mm)
- Height: 6.9 inches (176 mm)

Weight
Approximately 46.2 lb (21 kg)

Electrical
Input voltage range
- 100 to 120 VAC, ± 10%
- 220 to 240 VAC, ± 10%

Rated frequency
50 to 60 Hz

Rated current
- 100 to 120 VAC: 1.2 A
- 220 to 240 VAC: 0.7 A

Power consumption
Operating: Approximately 45 W
Approximately 55 W with TPU or ADF unit
Standby: Approximately 12 W

Environmental
Temperature
- Operating: 41 to 95 °F (5 to 35 °C)
- 50 to 89 °F using ADF (10 to 32 °C)
- Storage: −13 to 140 °F (−25 to 60 °C)

Humidity (without condensation)
- Operating: 10 to 80%
- Storage: 10 to 85%

Operating conditions
Ordinary office or home conditions.
Avoid dust, direct sunlight, and proximity to strong light sources.

Safety Approvals
120 V model
- Safety: UL 1950 CSA C22.2 No. 950
- EMC: FCC part 15 subpart B class B
- CSA C108.8 class B

230 V model
- Safety: EN 60950
- EMC: EN 550022 (CISPR Pub 22) class B
- AS/NZS 3548 class B

SCSI Interface
- Interface type: ANSI X3T9.2/375R Revision 10L (SCSI-2)
- Logic level: TTL-compatible
- ID setting: Selectable from 0 to 7
- Terminator: Internal active terminator (enable/disable selectable)
- Connector type: Two micro DB 50-pin connectors

USB Interface
- Interface type: Universal Serial Bus Specification Revision 1.0
- Electrical standard: Full speed mode (12Mb) of Universal Serial Bus Specification Revision 1.0
- Connector type: One receptacle (Type B)

Option (ADF/TPU) Interface Connector
- Interface type: For use with the optional automatic document feeder (B813212) and transparency unit (B813202)
- Output voltage: 21.6 to 26.4 VDC
- 4.75 to 5.25 VDC
- Output current: 1.3 A (24 V)
- 0.3 A (5 V)

Initialization Methods
SCSI interface
- Hardware: Initialized when the scanner is turned on or the scanner receives a SCSI Reset signal from the SCSI interface
- Software: Initialized when the software sends the Esc @ (initialize the scanner command), or the scanner receives a SCSI Bus Device message

USB interface
- Hardware: Initialized when the scanner is turned on or the USB cable is unplugged from the USB port on the scanner
- Software: Initialized when the software sends the Esc @ command or the scanner receives a Bus Reset from the USB interface
**Transparency Unit (B813202)**

**General**
- Reliability: MCBF 100,000 cycles
- Readable area: \(11.4 \times 16.5\) inches (290 \(\times\) 420 mm)
- Dimensions:
  - Width: 12.8 inches (324 mm)
  - Depth: 21.3 inches (540 mm)
  - Height: 3.6 inches (92 mm)
- Weight: Approximately 11 lb (6 kg)
- Electrical:
  - Input voltage: 21.6 to 26.4 VDC
  - 4.7 to 5.25 VDC
  - Rated current: 1.3A
  - 0.3 A

**Environmental**
- Temperature:
  - Operating: 41 to 95 °F (5 to 35 °C)
  - Storage: −14 to 140 °F (−20 to 60 °C)
- Humidity (without condensation):
  - Operating: 10 to 80%
  - Storage: 10 to 85%

**Automatic Document Feeder (B813212)**

**General**
- Paper input/output: Load face-up; eject face-down
- Paper quantity: 100 pages (55 g/m² paper, maximum total thickness under 0.48 inches [12 mm])
- Reliability: 100,000 sheets (load/eject MCBF)
- Dimensions:
  - Width: 23.8 inches (606 mm)
  - Depth: 19.2 inches (488 mm)
  - Height: 5.3 inches (134 mm)
- Weight: Approximately 28.7 lb (13 kg)

**Electrical**
- Input voltage: 22.8 to 25.2 VDC
- 4.75 to 5.25 VDC
- Input current:
  - 24 V: 1.3 A
  - 5 V: 0.3 A

**Environmental**
- Temperature:
  - Operating: 50 to 89 °F (10 to 32 °C)
  - Storage: −4 to 140 °F (−20 to 60 °C)
- Humidity (without condensation):
  - Operating: 20 to 80%
  - Storage: 95% or less

**IEEE 1394 FireWire Scanner Interface Card (B808342)**

**General**
- Interface type: IEEE 1394-1995 compatible
- Data transfer method: Half-duplex Data/Strobe differential serial
- Synchronization method: Clock synchronization with DS-Link
- Encoding/decoding: DS-Link
- Logic level: 3.3 V
- Compatible connectors: IEEE 1394-1995 compatible
- Power class: Power class code 100
  - No power supply from external sources
  - Fitted with a repeat function with bus power

**Environmental**
- Temperature:
  - Operating: 41 to 95 °F (5 to 35 °C)
  - Storage: −13 to 140 °F (−25 to 60 °C)
- Humidity (without condensation):
  - Operating: 10 to 80%
  - Storage: 10 to 85%

**Lights and Buttons**

The scanner has three indicator lights and two buttons on its control panel. A \(\text{Start button}\) is located beside the document table. Light status and button functions are described in the tables that follow.
**Scanner indicator lights**

<table>
<thead>
<tr>
<th>Light</th>
<th>Light status</th>
<th>Color</th>
<th>Scanner status</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPERATE</td>
<td>●</td>
<td>Green</td>
<td>Scanner is on</td>
</tr>
<tr>
<td>READY</td>
<td>●</td>
<td>Green</td>
<td>Ready to scan images</td>
</tr>
<tr>
<td>ERROR</td>
<td>○ (rapidly flashing)</td>
<td>Red</td>
<td>An error occurred; see the following table for more information</td>
</tr>
</tbody>
</table>

○ = on, ● = off, ○ = flashing

**Error conditions**

<table>
<thead>
<tr>
<th>ERROR light</th>
<th>READY light</th>
<th>Error type</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ ○</td>
<td></td>
<td>Command error: The scanner has received incorrect commands from your scanning software. Try rescanning the document.</td>
</tr>
<tr>
<td>○ ●</td>
<td></td>
<td>Interface error: Check that your scanner is securely connected to your computer, and then turn the scanner off and back on again.</td>
</tr>
<tr>
<td>○ ○</td>
<td></td>
<td>Fatal error: Check that the transportation lock is released, and then turn the scanner off and on again. If this doesn’t solve the problem, call your EPSON dealer.</td>
</tr>
<tr>
<td>● ●</td>
<td></td>
<td>Option error: There’s a problem with an installed option. Check to make sure the transparency unit or automatic document feeder is flat against the document table. Check that your option is securely connected to the option (ADF/TPU) connector at the back of the scanner. Finally, check that the automatic document feeder isn’t out of paper and doesn’t have a paper jam. If these suggestions don’t solve the problem, call your EPSON dealer.</td>
</tr>
</tbody>
</table>

○ = on, ● = off, ○ = flashing

**Scanner buttons**

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Operate</td>
<td>Turns the scanner on and off.</td>
</tr>
<tr>
<td>Reset</td>
<td>Resets the scanner to its default settings after an error. Pressing this button while scanning a document stops the scanner and may cause an error.</td>
</tr>
<tr>
<td>● Start</td>
<td>Automatically launches a ● Start button-compatible application. You must set up your scanner software and a compatible application to use this button. If you installed Presto! PageManager, it’s automatically assigned to the ● Start button. You can set up Presto! PageManager to scan your image automatically and send it directly to another application or a peripheral device, such as a printer.</td>
</tr>
</tbody>
</table>

---

**Transporting the Scanner**

When you transport the scanner a long distance or store it for an extended time, follow the steps below to secure the carriage.

1. Make sure the transportation lock on the back of the scanner is in the position.

![home position](image)

2. If you’re using a transparency unit or automatic document feeder, remove it and replace the scanner cover.

3. Turn on the scanner and wait until the carriage moves to the home position as shown. Then turn off the scanner.

4. Slide the transportation lock at the back of the scanner to the position.

![locked position](image)

If the carriage does not automatically return to the home position, slowly raise the front of the scanner and hold it up until the carriage comes to rest in the home position. Then turn the transportation lock counterclockwise to the position.

If you are using a transparency unit and it is switched on, the scanner carriage will not move to the home position. Remove the transparency unit first, then perform the steps above.
Scanning with EPSON TWAIN Pro

1. Start your host application (for example, Adobe Photoshop LE).

2. Select your scanner driver. (Unless you change your source, you only need to do this step once.)
   For example, if you’re running Windows and using Adobe Photoshop LE as your host application, click File, Import, Select TWAIN_32 Source. In the Select Source dialog box, select EPSON TWAIN Pro (32-bit). Then click Select.
   If you have a Macintosh, click File, Import, Twain Select. In the Select a source dialog box, choose EPSON TWAIN Pro and click OK.

   The command you choose from the File menu differs from one host application to another. With other host applications, you might choose Acquire or Select Source instead of Import.

3. Open the scanner software.

   For example, choose Import from Photoshop’s File menu.
   In Windows, select TWAIN_32.
   On a Macintosh, select TWAIN_Acquire.
   The EPSON TWAIN Pro main window appears.

4. Choose the Document Source, Image Type, and Destination.
   For example, if you’re scanning a photograph, select Flatbed as your Document Source, 24-bit Color (Std) as your Image Type, and EPSON Stylus Printer (Photo) as the Destination, if you’re sending the scanned image to an EPSON inkjet printer. If you’re using the optional transparency unit, select TPU for Neg. Film or TPU for Pos. Film as your Document Source. If you’re using the optional automatic document feeder, select Auto Document Feeder as your Document Source.

5. Click the Preview button.

   You see a preview of your scan in the window that opens.

6. Click the Auto Locate button to automatically define the scan area around the edges of your image. Or adjust the scan area by positioning the mouse pointer over any of the eight boxes around the marquee’s edge and dragging the box to resize the marquee.

   Click the Auto Exposure button to automatically set the highlight, midtones, and shadow exposure.

   Generally it’s a good idea to use the Auto Exposure button to obtain the best settings for your scan. If you’re not satisfied with the results, see your electronic EPSON TWAIN User’s Guide for information about adjusting settings.

   If you need to remove color cast from your image, use the Gray Balance Intensity feature.

7. When you’ve finished making adjustments, click the Scan button.

   The READY light on the front of the scanner flashes while it’s scanning. In a few moments, a scanned image is imported into your host application’s window.

   (If the READY light continues to blink, it may indicate an error condition. See page 3 for more information.)

8. Click Close to close the EPSON TWAIN Pro window and return to your application.

9. If you want, save your image using the Save or Save As options from the File menu of your host application.
Scanning Color Images

If the colors in your scanned image don’t match those in your original document, try experimenting with the Unsharp Mask setting. Click the Destination button in the EPSON TWAIN Pro main window to display the Destination window, and then select or deselect Unsharp Mask.

Selecting Resolution

Resolution refers to how many dots per inch (dpi) or dots per centimeter (dpcm) your image contains. The best resolution for a scanned image depends on the type of image you’re scanning and your final output device.

As a rule of thumb for most images except line art, use a scanning resolution that is approximately one third of your output resolution. For example, use a scanning resolution up to 100 dpi with a 300 dpi laser printer, and up to 200 dpi with a 600 dpi laser printer. For 1440 dpi ink jet printers, such as the EPSON Stylus® COLOR series, use a scanning resolution of up to 300 dpi. Try a scanning resolution of 240 dpi for 720 dpi printing.

Keep the following in mind when you choose a resolution:

- The higher the resolution you select, the larger the resulting image file will be. For example, an 8.5 × 11-inch original scanned at 300 dpi can produce a 24MB file. The same original scanned at 72 dpi creates only a 1.3MB file. Large files take longer to process and print, so consider the practical limitations of your computer system and hard disk drive when selecting a resolution. To keep your file size manageable, select the lowest possible resolution that gives acceptable quality. (If your final output is for on-screen viewing, you can scan at 72 dpi and reduce your file size.)

- If you need to scan at a higher resolution, you can reduce the size of the resulting image file by scanning only part of the image. For information about selecting part of an image, see “Making and modifying marquees” in your electronic EPSON TWAIN User’s Guide.

Using a Network Scanner

Network scanning involves the following steps:

- The scanner server must be turned on and running EPSON Scan Server.
- From the client computer, start EPSON TWAIN Pro Network to establish a connection to the scanner server. Only one client computer at a time can connect to the scanner server. (See “Starting EPSON TWAIN Pro Network” on page 7 for instructions.)
- Choose the Image Type, Resolution, and other settings you want for your scan.
- Place your first image on the document table (or in the optional automatic document feeder or one of the optional transparency unit’s film guides).
- Start the scan. Although this can be done from EPSON TWAIN Pro Network on the client computer, it may be more convenient to press the scanner’s Start button or to start the scan from the scanner server. Then you can scan several images with a single trip to the scanner.
- If you want to scan more than one image, place your second image on the document table and press the scanner’s Start button again. Repeat this step for every image you want to scan. (The settings you chose for the first image apply to these images too.)
- When you return to the client computer, your scanned images appear in the host application’s window. Close EPSON TWAIN Pro Network to end your connection to the scanner server and allow other client computers to use the scanner.

Some applications, such as Adobe Photoshop LE, automatically close the client computer’s connection to the scanner server when you press the Start button. You can’t use the Start button to scan multiple images if you’re using these applications.

Starting EPSON Scan Server

EPSON Scan Server starts automatically whenever the scanner server is turned on. When EPSON Scan Server is running, you’ll see either the EPSON Scan Server dialog box, or the EPSON Scan Server icon on the Windows taskbar. If you need to start EPSON Scan Server manually, click Start, Programs, EPSON Scan Server, and then select EPSON Scan Server.
You can quit EPSON Scan Server at any time. Just click the Exit button on the EPSON Scan Server dialog box.

If you installed EPSON TWAIN Pro on the scanner server so that you could make a direct connection to the scanner, remember that you must exit EPSON Scan Server to use EPSON TWAIN Pro. EPSON Scan Server disables EPSON TWAIN Pro.

**Starting EPSON TWAIN Pro Network**

You connect to the scanner server by starting EPSON TWAIN Pro Network from the client computer. Follow these steps:

1. Start your host application.
2. Select EPSON TWAIN Pro Network as your source, or scanner driver. (You only need to do this step once.)

   For example, if you’re running Windows and using Presto! PageManager for EPSON as your host application, choose Select Source from the File menu. In the Select Source window, choose EPSON TWAIN Pro Network and click Select.

   If you have a Macintosh and are using Presto! PageManager for EPSON, click File, Select Source, then Select TWAIN Source. In the Select a source window, select the EPSON TWAIN Pro Network icon and click OK.


Starting a Scan

You can start a scan on your network scanner in several ways:

- You can start EPSON TWAIN Pro Network on the client computer, make your scan settings, and click the Scan button on the EPSON TWAIN Pro Network main window. The scanned image is imported into your host application’s window.

- You can press the Start button on the scanner to send the scanned image to the client computer that is currently connected to the scanner server.

- You can click the Start button on the EPSON Scan Server dialog box to send the scanned image to the client computer currently connected to the scanner server.

No matter how you start the scan, the client computer must be running EPSON TWAIN Pro Network to connect to the scanner server.

Stopping a Scan in Progress

You can stop a scan in progress from either the client computer or the scanner server.

- To cancel a scan from the client computer, click the Cancel button on the Progress bar.

- To cancel from the scanner server, click the Cancel button at the bottom of the EPSON Scan Server dialog box.
To break the connection between the client computer and the scanner server, click the Stop button on the EPSON Scan Server dialog box. This closes EPSON TWAIN Pro Network on the client computer and allows other client computers to connect to the scanner server.

**Related Documentation**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPD-10855</td>
<td>EPSON Expression 1640XL User’s Guide</td>
</tr>
<tr>
<td></td>
<td>EPSON Expression 1640XL Software Reference Guide (html)</td>
</tr>
<tr>
<td>TM-EXPR1640</td>
<td>EPSON Expression 1640XL Service Manual</td>
</tr>
<tr>
<td>PL-EXPR1640</td>
<td>EPSON Expression 1640XL Parts Price List</td>
</tr>
</tbody>
</table>