Scanner Parts

document cover

carriage (at home position)

document table

control panel

◊ Start button

transportation lock

SCSI ID dial

terminator switch

optional interface slot

USB interface

SCSI interfaces

AC inlet

option connector (ADF/TPU)

transportation lock

Scanner Specifications

Scanner

General

Scanner type	Flatbed, color
Maximum document size	12.2 × 17.2 inches (310 × 437 mm) A3 or Letter (The reading area can be specified from your software)
Photoelectric device	Color MatrixCCD line sensor
Effective pixels	19520 × 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 × 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 × 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 × 16.5 inches (290 × 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/m^2 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 (13kg)

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 ✧ Start button is located beside the document table. Light status and button functions are described in the tables that follow.
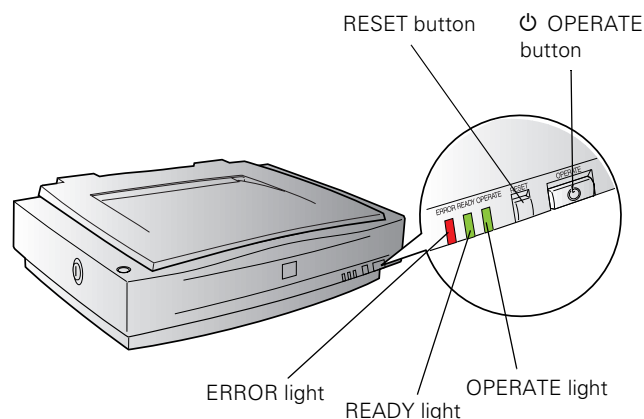
Scanner indicator lights

| Light	Light status	Color	Scanner status
OPERATE	○	Green	Scanner is on
READY	○	Green	Ready to scan images
	Ö (flashing)	Green	Scanning is in progress
ERROR	○ Ö (rapidly flashing) ●	Red	An error occurred; see the following table for more information

○ = on, ● = off, Ö = flashing

Error conditions

| ERROR light	READY light	Error type
○	○	Command error: The scanner has received incorrect commands from your scanning software. Try rescanning the document.
Ö	●	Interface error: Check that your scanner is securely connected to your computer, and then turn the scanner off and back on again.
Ö	Ö	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.
●	●	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.

○ = on, ● = off, Ö = flashing

Scanner buttons

| Button	Function
⏻ Operate	Turns the scanner on and off.
Reset	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.
◇ Start	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.

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.
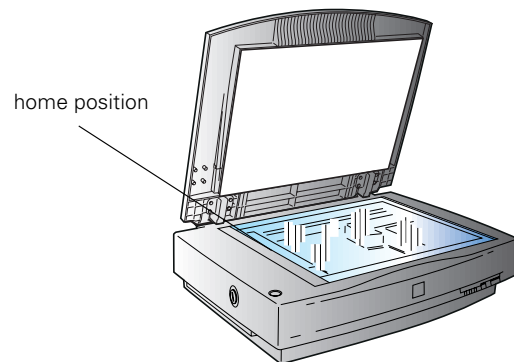
home position

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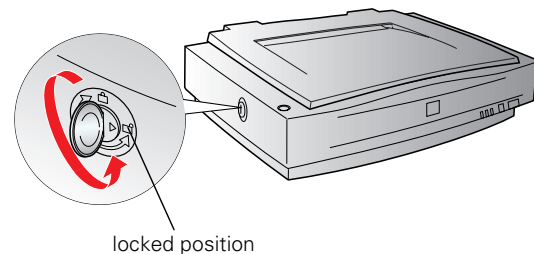
If the carriage does not automatically return to the home position, slowly raise the front of the scanner and hold it up until the carriage comes to rest in the home position. Then turn the transportation lock counterclockwise to the ⬚ position.

NOTE
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.

    > **NOTE** 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.

    Click to start scanning
    Click to display a preview of the image
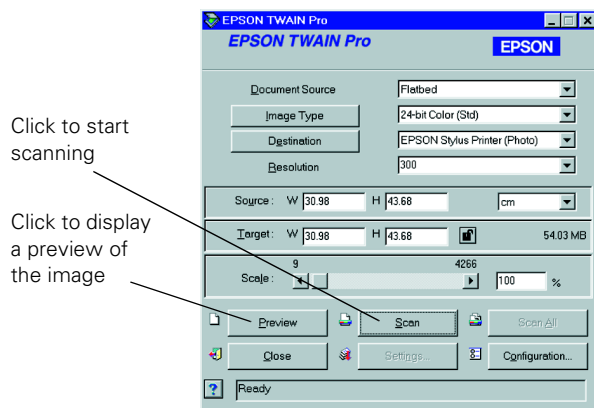
    For example, choose Import from Photoshop's File menu.

    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.
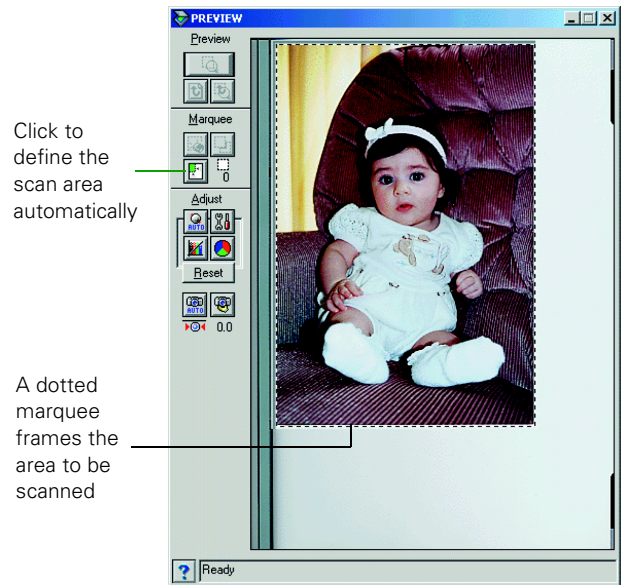
    Click to define the scan area automatically

    A dotted marquee frames the area to be scanned

    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.

    > **NOTE** 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.

> **NOTE** 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.

Wait for this
message
before you exit.

Click to exit
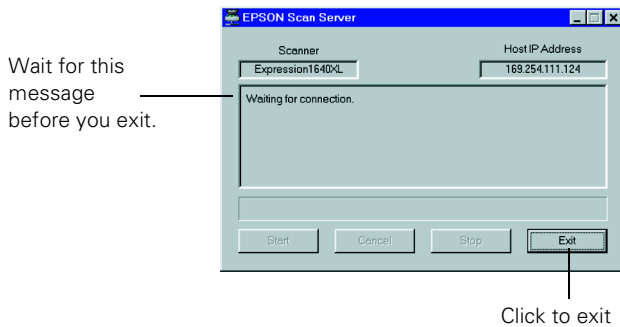
NOTE: Before you quit, make sure no client computers are trying to use the scanner. Don't exit if the status area of the EPSON Scan Server dialog box indicates that you are connecting to a client. Wait until you see the message Waiting for connection.

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.

   NOTE: The command you choose from the File menu differs from one host application to another. With other host applications, you might choose Import or Select TWAIN_32 Source, for example.

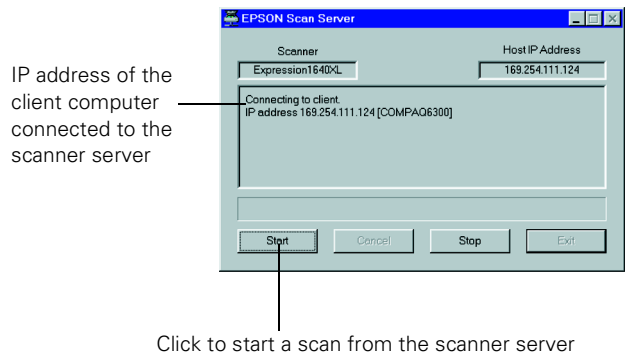3. Start EPSON TWAIN Pro Network.

If your host application is Presto! PageManager for EPSON, choose Acquire from the File menu. When EPSON TWAIN Pro Network starts, the EPSON TWAIN Pro Network main menu appears and you connect to the scanner server.

Since the settings and controls for EPSON TWAIN Pro Network are the same as those for EPSON TWAIN Pro, see "Scanning with EPSON TWAIN Pro" on page 5 for general scanning instructions. For more detailed information about settings, see the *EPSON Expression 1640XL Online Reference Guide* on your EPSON Expression 1640XL Scanning Tools CD-ROM.

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.

IP address of the client computer connected to the scanner server

Click to start a scan from 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

CPD-10855	EPSON Expression 1640XL User's Guide
	EPSON Expression 1640XL Software Reference Guide (html)
TM-EXPR1640	EPSON Expression 1640XL Service Manual
PL-EXPR1640	EPSON Expression 1640XL Parts Price List