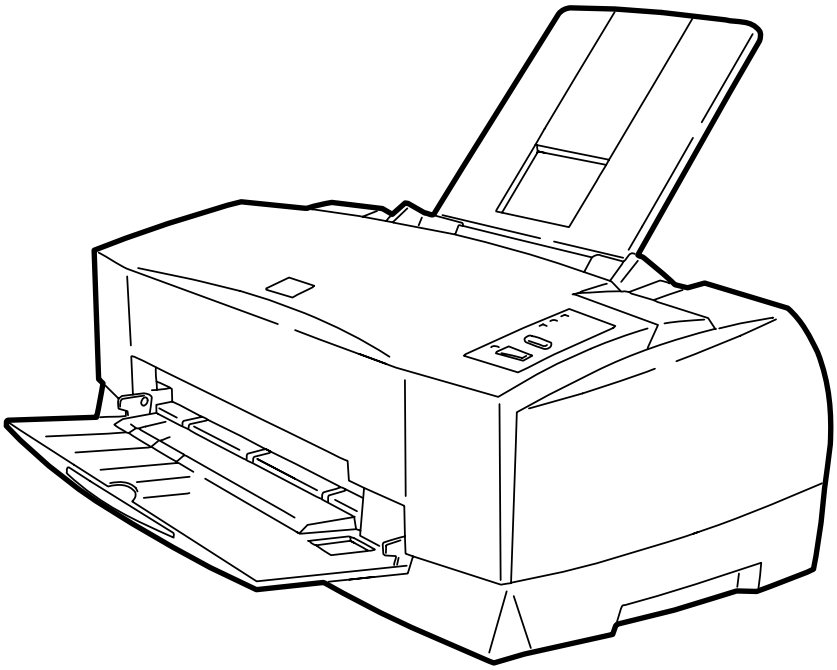
EPSON

*COLOR INK JET PRINTER*

# EPSON Stylus COLOR 800

# SERVICE MANUAL



**SEIKO EPSON CORPORATION**

4007371

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# PRECAUTIONS

Precautionary notations throughout the text are categorized relative to 1) personal injury and 2) damage to equipment.

***WARNING*** Signals a precaution which, if ignored, could result in serious or fatal personal injury. Great caution should be exercised in performing procedures preceded by WARNING Headings.

***CAUTION*** Signals a precaution which, if ignored, could result in damage to equipment.

The precautionary measures itemized below should always be observed when performing repair/maintenance procedures.

## *WARNING*

1. ALWAYS DISCONNECT THE PRODUCT FROM BOTH THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL. DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.

## *CAUTION*

1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY EPSON CERTIFIED REPAIR TECHNICIAN.
2. MAKE CERTAIN THAT THE SOURCE VOLTAGE IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.
5. REPLACE MALFUNCTIONING COMPONENTS ONLY WITH THOSE COMPONENTS BY THE MANUFACTURE; INTRODUCTION OF SECOND-SOURCE ICs OR OTHER NONAPPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.

# PREFACE

This manual describes functions, theory of electrical and mechanical operations, maintenance, and repair of EPSON Stylus COLOR 800.

The instructions and procedures included herein are intended for the experience repair technician, and attention should be given to die precautions on the preceding page. The Chapters are organized as follows:

## CHAPTER 1. GENERAL DESCRIPTION

Provides a general product overview, lists specifications, and illustrates the main components of the printer.

## CHAPTER 2. OPERATING PRINCIPLES

Describes the theory of printer operation.

## CHAPTER 3. DISASSEMBLY AND ASSEMBLY

Includes a step-by-step guide for product disassembly and assembly.

## CHAPTER 4. ADJUSTMENT

Includes a step-by-step guide for adjustment.

## CHAPTER 5. TROUBLESHOOTING

Provides EPSON-approved techniques for troubleshooting.

## CHAPTER 6. MAINTENANCE

Describes preventive maintenance techniques and lists lubricants and adhesives required to service the equipment.

## APPENDIX

Describes connector pin assignments, circuit diagrams, circuit board component layout and exploded diagram.

*The contents of this manual are subject to change without notice.*

# REVISION SHEET

| Revision | Issued Data | Contents |
|---|---|---|
| **Rev. A** | FEBRUARY 17 1997 | First issue |
| Rev. B | MARCH 13 1997 | The following chapters have been revised:<br>Chapter 1 (Pages l-l, 1-2, l-6)<br>Chapter 2 (Pages 2-l 4, 2-20, 2-23)<br>Chapter 3 (Page 3-l 0)<br>Chapter 4 (Pages 4-2 through to 4-25) |
| Rev. B | MAY 22 1997 | The following chapters have been revised:<br>Chapter 2 (Pages 2-8, 2-l 6)<br>Chapter 5 (Pages 5-8 through to 5-l 2. 5-l 8) |
| Rev. C | MAY 22 1997 | The following chapter has been revised:<br>Chapter 2 (Pages 2-20) |
| | | |

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# Chapter 1
# Product Description

# 1.1 Features

The EPSON Stylus COLOR 800 is a high-performance color ink jet printer designed for the small office/home office (SOHO) market. The main features of this printer are:

High print quality for color graphics

- ❑ High resolution — 1440 (H) x 720 (V) dpi printing
- ❑ Colors — Cyan, Magenta, Yellow, Black
- ❑ Printing method — Traditional and new Microweave printing
- ❑ Smaller dot diameter for image improvement

High-speed printing

- ❑ 400 cps in LQ mode
- ❑ 533 cps in Draft mode

Built-in auto sheet feeder with a wide page capability and high capacity

This printer holds:
- 100 cut-sheets (55 g/$m^2$)
- 10 envelopes
- 20 sheets of glossy paper
- 30 index cards
- 50 transparency film sheets
- 70 sheets of special paper

2 interfaces built-in and 1 optional interface card

- ❑ Mac serial interface (up to approximately 900K bps)
- ❑ Bidirectional parallel interface (IEEE-1284 level 1 device)
- ❑ Optional Type-B interface card

4 scalable fonts and 5 LQ fonts:

- ❑ Scalable fonts — Roman T, Sans Serif H, Roman, Sans Serif
- ❑ LQ fonts — Roman, Sans Serif, Courier, Prestige, Script

9 usable character tables (NLSP version)

Italic, PC437, PC850, PC437 Greek, PC852, PC853, PC855, PC857, PC866, PC869, MAZOWIA, Code MJK, ISO 8559-7, Latin 1T, Bulgaria, PC774, Estonia, ISO 8859-2, PC866 LAT

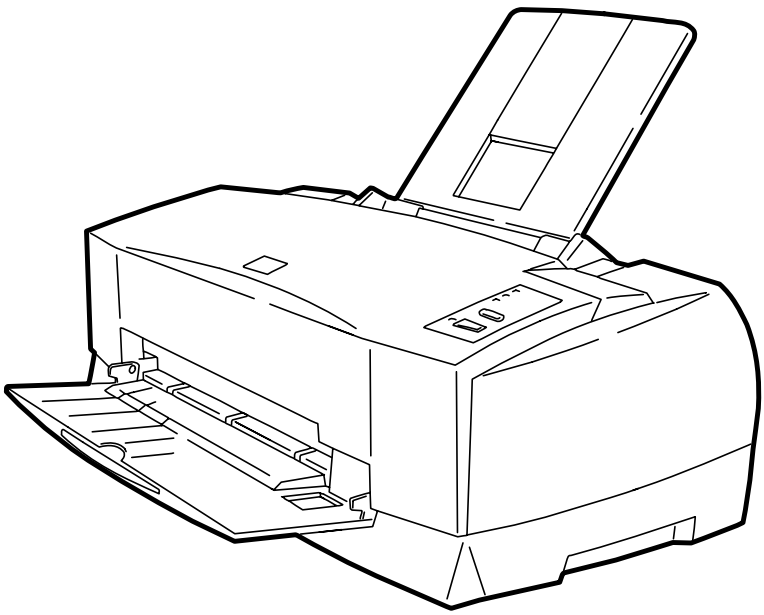

**Figure 1- 1. Exterior View of Stylus COLOR 800**

# 1.2 Accessories and Options

**Table 1-1. Accessories**

| Part Number | Description | Quantity |
|---|---|---|
| 4006678 | User's Guide | 1 |
| 5020108 | Ink Cartridge (Black) | 1 |
| 5020089 | Ink Cartridge (Color) | 1 |
| | CD ROM (Printer Driver, Utility) | 1 |

**Table 1-2. Options and Consumables**

| Part Number | Description | Quantity |
|---|---|---|
| C82305/C82306 | Serial interface card | |
| C82307/C82308 | 32KB serial interface | |
| C82310* | 32KB parallel interface card | |
| C82313* | 32KB EEE-488 interface card | |
| C82315* | TWAIN interface card | |
| C82314* | Coax interface card | |
| C82312* | LocalTalk™ interface card | |
| C82331* | Ethernet interface card | |
| C82345* | Type B bidirectional parallel interface card | |
| C836021* | Parallel interface cable (shielded) from D-SUB 25-pin to Amphenol 57 | |
| C83603*<br>C83604* | Serial interface cable from D-SUB 25-pin to D-SUB 25-pin | |
| C83605*<br>C83606* | Serial interface cable from D-SUB 9-pin to D-SUB 25-pin | |
| S020108 | Black ink cartridge | |
| S020089 | Color ink cartridge | |
| S041059 | EPSON 360 dpi ink jet paper (A4) | 100 sheets |
| S041025 | | 200 sheets |
| S041060 | EPSON 360 dpi ink jet paper (Letter) | 100 sheets |
| S041061 | EPSON photo-quality Ink jet paper (A4) | 100 sheets |
| S041026 | | 200 sheets |
| S041062 | EPSON photo-quality ink jet paper (Letter) | 100 sheets |
| S041067 | EPSON photo-quality ink jet paper (Legal) | 100 sheets |
| S041054 | EPSON photo-quality ink jet card (A6) | 50 sheets |
| S041121 | EPSON photo-quality ink jet card (5.8 inches) | |
| S041122 | EPSON photo-quality ink jet card (10.8 inches) | |
| S041071 | EPSON photo-quality glossy film (A4) | 15 sheets |
| S041072 | EPSON photo-quality glossy film (Letter) | 15 sheets |
| S041107 | EPSON photo-quality glossy film (A6) | 10 sheets |
| S041126 | EPSON photo-quality glossy paper (A4) | |
| S041124 | EPSON photo-quality glossy paper (Letter) | |
| S041063 | EPSON ink jet transparencies (A4) | 30 sheets |
| S041064 | EPSON ink jet transparencies (Letter) | 30 sheets |
| S041106 | EPSON photo-quality self-adhesive sheets (A4) | 10 sheets |

***Note:*** *Asterisk in a part number replaces the last digit of the part number, which varies by country.*

# 1.3 Hardware Specifications

## 1.3.1 Printing Specifications

**Print method** On-demand ink jet

**Nozzle configuration**

| | |
|---|---|
| Monochrome | 128 nozzles (32 x 4 staggered) |
| Color (magenta, cyan, yellow) | 64 nozzles (32 X 2 staggered, each color) |

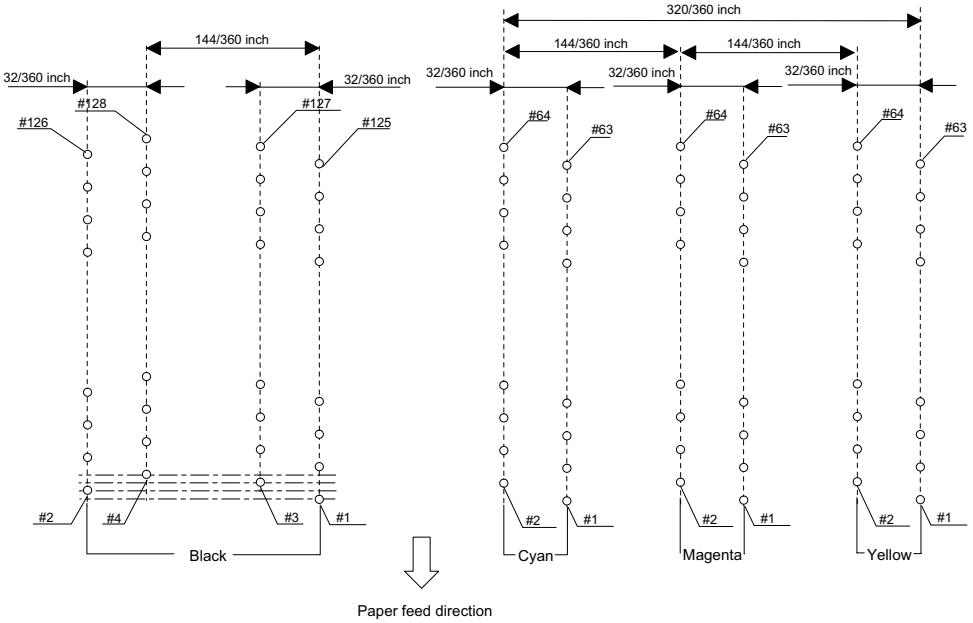


**Figure 1- 2. Nozzle Configuration**

**Print direction** Bidirectional with logic-seeking

## 1.3.2 Print Speed and Printable Columns

**Table 1-3. Print Speed and Printable Columns in Character Mode**

| Character Pitch | Printable Columns | LQ Speed | Draft Speed |
|---|---|---|---|
| 10 cpi (Pica) | 80 | 400 cps | 533 cps |
| 12 cpi (Elite) | 96 | 480 cps | 640 cps |
| 15 cpi | 120 | 600 cps | 800 cps |
| 17 cpi (Pica condensed) | 137 | 684 cps | 912 cps |
| 20 cpi (Elite condensed) | 160 | 800 cps | 1067 cps |

**Table 1-4. Print Speed and Printable Area for Raster Graphics Mode**

| Print Mode | Printable Area | Available Dots | CR Speed |
|---|---|---|---|
| 180 dpi x 180 dpi | 8.27 inch | 1488 | 26.7 ips |
| 360 dpi x 360 dpi | 8.27 inch | 2976 | 20 ips |
| 720 dpi x 720 dpi | 8.27 inch | 5952 | 20 ips |
| 1440 dpi x 720 dpi *1 | 8.27 inch | 5952 *2 | 10 ips |

*1: Printing at 1440 x 720 dpi is available only using the Microweave driver.

*2: Can be printed by sending following command sequence:

1. Set print speed to 10 ips.
2. Print a 180 x 720 raster image.
3. Advance the paper using an increment of 31/720 inch.
4. Move the print position horizontally using an increment of 1/1440 inch.
5. Print a 180 x 720 raster image.
6. Advance the paper using an increment of 31/720 inch.
7. Repeat steps 2 to 6.

## 1.3.3 Paper Feeding

- ❑ **Paper Transport Method** Friction feed with built-in auto sheet feeder (ASF)
- ❑ **Line Spacing** 1/6, 1/8, or programmable at 1/360 inch
- ❑ **Paper Path** Top entry (ASF) with semi straight paper path
- ❑ **Feeding Speed** 1/3 inch 100 ms
  Continuous 5.0 inches per second

## 1.3.4 Paper Specifications

### 1.3.4.1 Cut Sheets

**Table 1-4. Cut Sheet Specifications**

| Size | Width | | Length | |
|---|---|---|---|---|
| A4 | 210 mm | (8.3”) | 297 mm | (11.7”) |
| Letter | 216 mm | (8.5”) | 279 mm | (11.0”) |
| B5 | 182 mm | (7.2”) | 257 mm | (10.1”) |
| Legal | 216 mm | (8.5”) | 356 mm | (14.0”) |
| Half Letter | 139.7 mm | (5.5”) | 215.9 mm | (8.5”) |
| Exclusive | 185.2 mm | (7.25”) | 266.7 mm | (10.5”) |
| A5 | 148.5 mm | (5.8”) | 210 mm | (8.3”) |

- ❑ **Thickness** 0.08 mm (0.003”) to 0.11 mm (0.004”)
- ❑ **Paper Weight** 64 g/m$^2$ (17 lb.) to 90 g/m$^2$ (24 lb.)
- ❑ **Quality** Exclusive paper, bond paper, PPC

### 1.3.4.2 Transparencies, Glossy Paper

**Table 1-5. Transparency Size**

| Size | Width | Length |
|---|---|---|
| A4 | 210 mm (8.3”) | 297 mm (11.7”) |
| Letter | 216 mm (8.5”) | 279 mm (11.0”) |

- ❑ **Thickness** 0.075 mm (0.003”) to 0.085 mm (0.0033”)

***Note:*** *Printing on transparencies is available only at normal temperatures.*

### 1.3.4.3 Envelopes

**Table 1-6. Envelope Size**

| Size | Width | Length |
|---|---|---|
| No.10 | 241 mm (9 1/2”) | 104 mm (4 1/8”) |
| DL | 220 mm (8.7”) | 110 mm (4.3”) |
| C6 | 114 mm(4.5”) | 162 mm (6.4”) |

- ❑ **Thickness** 0.16 mm (0.006”) to 0.43 mm (0.02”)
- ❑ **Paper Weight** 45 g/m$^2$ (12 lb.) to 90 g/m$^2$ (24 lb.)
- ❑ **Quality** Bond paper, Plain paper, Airmail

***Note:*** *1. Printing on envelopes is only available at normal temperatures.*
*2. Insert the longer side of the envelope horizontally.*

### 1.3.4.4 Index Cards

**Table 1-7. Index Card Size**

| Size | Width | Length |
|---|---|---|
| A6 index card | 105 mm (4.1”) | 148 mm (5.8) |
| 5” X 8” | 127 mm (52) | 203 mm (8”) |
| 8” X 10” | 203 mm (8”) | 254 mm(10”) |

- ❑ **Thickness** Less than 0.23 mm (0.0091”)

## 1.3.5 Printable Area

**Cut Sheets**

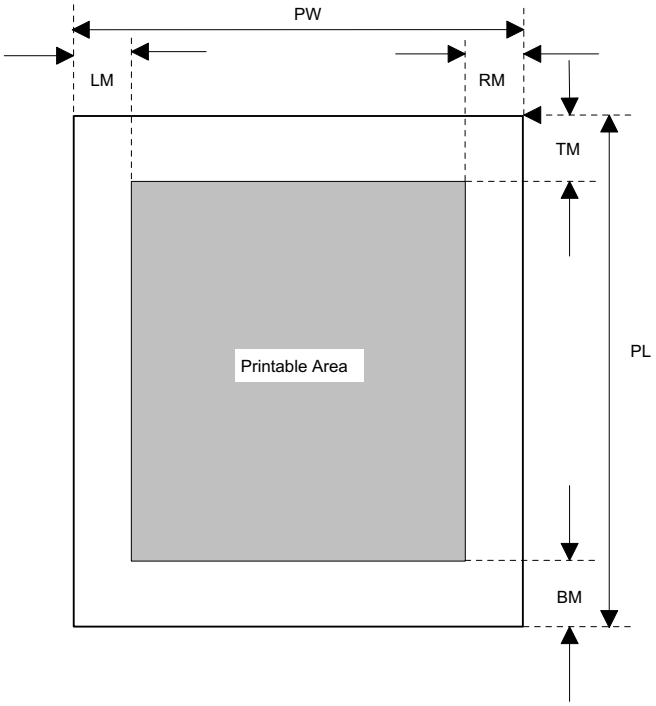


**Table 1-8. Margins for Different Cut Sheet Sizes**

**Figure 1- 3. Printable Area for Cut Sheets**

| Paper Size | PW (Paper Width) (typical) | PL (Paper Length) (typical) | LM (Left Margin) (Minimum) | RM (Right Margin) (Minimum) | TM (Top Margin) (Minimum) | BM (Bottom Margin) (Minimum) |
|---|---|---|---|---|---|---|
| A4 | 210 mm (8.3”) | 297 mm (11.7”) | 3 mm (0.12”) | 3 mm (0.12”) | 3 mm (0.12”) | 14 mm (0.54”) |
| Letter | 216 mm (8.5“) | 279 mm (11.7“) | 3 mm (0.12”) | 9 mm *1 (0.35”) | 3 mm (0.12”) | 14 mm (0.54”) |
| B5 | 182 mm (7.2“) | 257 mm (10.1“) | 3 mm (0.12”) | 3 mm (0.12”) | 3 mm (0.12”) | 14 mm (0.54”) |
| Legal (L) | 216 mm (8.5“) | 536 mm (14.0“) | 3 mm (0.12”) | 9 mm *1 (0.35”) | 3 mm (0.12”) | 14 mm (0.54”) |
| Statement | 139.7 mm (5.5“) | 215.9 mm (8.5“) | 3 mm (0.12”) | 3 mm (0.12”) | 3 mm (0.12”) | 14 mm (0.54”) |
| Executive | 190.5 mm (7.5“) | 254 mm (10“) | 3 mm (0.12”) | 3 mm (0.12”) | 3 mm (0.12”) | 14 mm (0.54”) |

*1: 3 mm (0.35”) in raster graphics mode.

❑ **Envelopes**

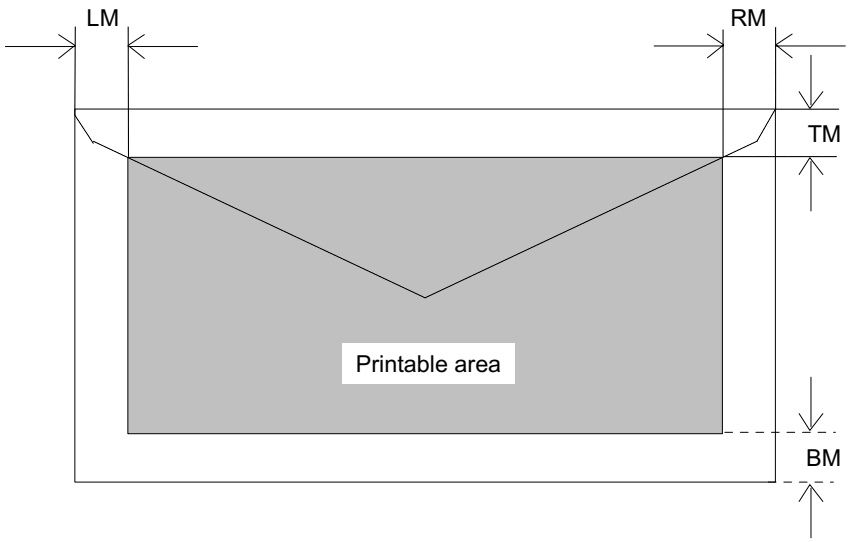


**Figure 1- 4. Printable Area for Envelopes**

**Table 1-9. Minimum Margins for Envelopes**

| LM (Left Margin) | RM (Right Margin) | TM (Top Margin) | BM (Bottom Margin) |
|---|---|---|---|
| 3 mm (0.12”) | 3 mm (0.12”) | 3 mm (0.12”) | 14 mm (0.55”) |

## 1.3.6 ASF Paper Capacity

The following table shows the maximum capacity for each paper type you can load in the ASF.

**Table 1-10. ASF Paper Capacity**

| Paper | Capacity |
|---|---|
| Plain paper (64 g/m$^2$) | 100 sheets |
| EPSON photo-quality paper | 65 sheets |
| EPSON 360 dpi paper | 65 sheets |
| EPSON photo-quality glossy paper | 20 sheets |
| EPSON photo-quality glossy film | 30 sheets *1 *2 |
| EPSON ink jet transparencies | 30 sheets *1 |
| EPSON photo-quality cards | 30 sheets *2 |
| EPSON photo-quality self-adhesive sheets | 1 sheet |

*1. When 30 sheets are loaded in the ASF, you must set the TOP margin to more than 30 mm. Otherwise you must load the paper sheet by sheet.

*2. Depending on the paper, you must set the paper feed guide sheet for the last sheet in the ASF.

## 1.3.7 Ink Specifications

❑ **Black Ink Cartridge**

**Table 1-11. Black Ink Cartridge Specifications**

| Black Ink Cartridge | |
|---|---|
| Type | Exclusive cartridge |
| Color | Black (Quick Penetration) |
| Print Capacity | 900 pages / A4 (ISO/IEC 10561 Letter Pattern at 360 dpi) |
| Ink life | 2 years from indicated production date |
| Storage Temperatures | Storage –20 to 40° C (–4 to 104° F) *1<br>Storage (packed) –30 to 40° C (–22 to 104° F) *1<br>In transit (packed) –30 to 60° C (–22 to 140° F) *1 *2 |
| Dimensions | 30 mm (W) x 58 mm (D) x 38.5 mm (H)<br>(1.18” x 2.28” x 1.51”) |

*1 The cartridge must not be kept at 40° C (104° F)for more than a month.
*2 The cartridge must not be kept at 60° C (140° F) for more than 120 hours.

***Note:***
1. *Do not refill the cartridge. The ink cartridge is a consumable item.*
2. *Do not use a cartridge whose ink life has expired.*
3. *Ink freezes below –4° C (23° F); however it will be usable again after keeping it for more than 3 hours at room temperature.*

❑ **Color Ink Cartridge**

**Table 1-12. Color Ink Cartridge Specifications**

| Color Ink Cartridge | |
|---|---|
| Type | Exclusive cartridge |
| Color | Magenta, Cyan, Yellow (Quick Penetration) |
| Print Capacity | 300 pages A4 (at 360 dpi, 5% duty each color) |
| Ink life | 2 years from indicated production date |
| Storage Temperatures | Storage –20 to 40° C (–4 to 104° F) *1<br>Storage (packed) –30 to 40° C (–22 to 104° F) *1<br>In transit (packed) –30 to 60° C (–22 to 140° F) *1 *2 |
| Dimensions | 42.9 mm (W) X 52.7 mm (D) X 38.5 mm (H)<br>(1.68”X 2.07” X 1.51”) |

*1 Do not keep the cartridge at 40° C (104° F) for more than a month.
*2 Do not keep the cartridge at 60° C (140° F) for more than 120 hours.

***Note:***
1. *Do not refill the cartridge. The ink cartridge is a consumable item.*
2. *Do not use a cartridge whose ink life has expired.*
3. *Ink freezes below –4° C (23° F); however it will be usable again after keeping it for more than 3 hours at room temperature.*

## 1.3.8 Electric Specifications

**120 V Version**

- Rated voltage: 120 VAC
- Input voltage range: 103.5 to 132 VAC
- Rated frequency range: 50 to 60 Hz
- Input frequency range: 49.5 to 60.5 Hz
- Rated current: 0.4 A (Maximum 0.5A)
- Power consumption: Approximately 18 W (ISO/IEC 10561 Letter pattern)<br>Energy star compliant
- Insulation resistance: 10M ohms, min. (between AC line and chassis, 500 VDC)
- Dielectric strength: 1,000 VAC rms. for 1 minute or<br>1,200 VAC rms. for 1 second (between AC line and chassis)

**220-240 V Version**

- Rated voltage: 220 to 240 VAC
- Input voltage range: 198 to 264 VAC
- Rated frequency range: 50 to 60 Hz
- Input frequency range: 49.5 to 60.5 Hz
- Rated current: 0.2 A (Maximum 0.3A)
- Power consumption: Approximately 18 W (ISO/IEC 10561 Letter pattern)
- Insulation resistance: 10M ohms, min. (between AC line and chassis, 500 VDC)<br>Energy star complinat
- Dielectric strength: 1,500 VAC rms. for 1 minute (between AC line and chassis)

## 1.3.9 Reliability

- **Total Print Volume**: 75,000 pages (A4/Letter)
- **Printhead Life**: 2,000 million dots /nozzle

## 1.3.10 Safety Approvals

- **120 V Version**
  - Safety standards: UL1950 with D3<br>CSA C22.2 No.950 with D3
  - EMI: FCC part15 subpart B class B<br>CSA C108.8 class B
- **220 - 240 V Version**
  - Safety standards: EN 60950 (VDE, NEMKO)
  - EMI: EN 55022 (CISPR Pub.22) class B<br>AS/NZS 3548 class B

## 1.3.11 CE Marking

- **220 - 240 V Version**
  - Low Voltage Detection 73/23/EEC: EN 60950
  - EMC Detection 89/336/EEC: EN 55022 class B<br>EN 61000-3-2<br>EN 61000-3-3<br>EN 50082-1<br>IEC801-2<br>IEC801-3<br>IEC801-4

## 1.3.12 Acoustic Noise

- **Noise level**: Approximately 51 dB (A) (According to ISO 7779)

## 1.3.13 Environmental Conditions

**Temperature**

- ❑ Operating 10 to 35 *[1]
- ❑ Storage –20 to 40° C (–4 to 104° F) (for less than 1 month at 40°) *[2]
- ❑ Transit –20 to 60° C (–4 to 140° F) (for less than 120 hours at 60°)

**Humidity**

- ❑ Operating 20% to 80% (without condensation) *[1]
- ❑ Non operating 5% to 85% (without condensation) *[2]

**Resistance to Vibration**

- ❑ Operating 0.15 G *[2]
- ❑ Non-operating 0.50 G

**Resistance to Shock**

- ❑ Operating 1 G within 1 ms*[2]
- ❑ Non-operating 2 G within 2 ms

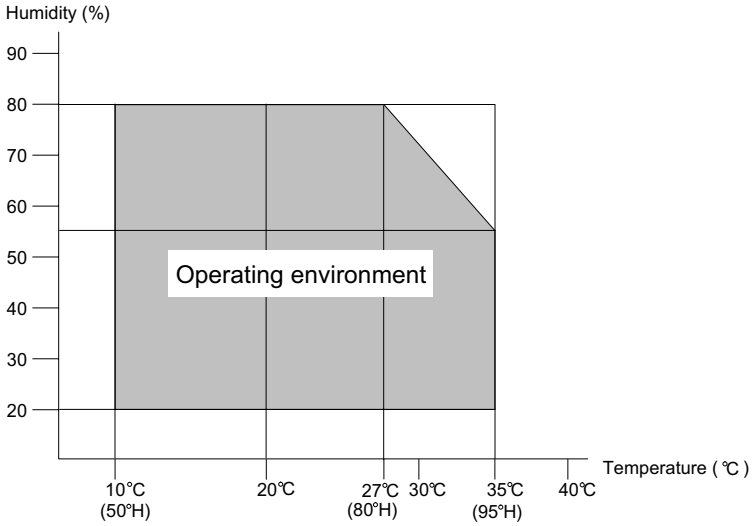


**Figure 1- 5. Environmental Conditions**

*1 :Refer to the table above.
*2 :In shipment container.

## 1.3.14 Physical Specifications

- ❑ **Weight** 6.5 kg
- ❑ **Dimensions** 475 mm (W) x 274 mm (D) x 177 mm (H) (18.7” x 10.78” x 6.96”)

# 1.4 Firmware Specifications

## 1.4.1 Control Codes and Character Specifications

- **Control Codes** — ESC P/2
  EPSON remote command
  IBM X 24E emulation
- **Character Tables** — Legal and 14 international character sets

  - Standard version (11 character tables)

    | | |
    |---|---|
    | Italic table | PC 437 (US, Standard Europe) |
    | PC 850 (Multilingual) | PC 860 (Portuguese) |
    | PC 861 (Icelandic) | PC 863 (Canadian-French) |
    | PC 865 (Nordic) | Abicomp |
    | BRASCII | Roman 8 |
    | ISO Latin 1 | |

  - NLSP version (19 character tables)

    | | |
    |---|---|
    | Italic table | PC850 (Multilingual) |
    | PC 437 (US, Standard Europe) | PC 437 (Greek) |
    | PC 852 (East Europe) | PC 853 (Turkish) |
    | PC 855 (Cyrillic) | PC 857 (Turkish) |
    | PC 866 (Russian) | PC 869 (Greek) |
    | MAZOWIA (Poland) | Code MJK (CSFR) |
    | ISO 8559-7 (Latin, Greek) | ISO Latin 1T (Turkish) |
    | Bulgaria (Bulgaria) | PC 774 |
    | Estonia | ISO8859-2 (ISOLatin2) |
    | PC 866 LAT | |

**Typefaces**

- ❑ Bitmap LQ fonts

| | |
|---|---|
| EPSON Roman | 10 cpi, 12 cpi, 15 cpi, Proportional |
| EPSON Sans Serif | 10 cpi, 12 cpi, 15 cpi, Proportional |
| EPSON Courier | 10 cpi, 12 cpi, 15 cpi |
| EPSON Prestige | 10 cpi, 12 cpi, 15 cpi |
| EPSON Script | 10 cpi, 12 cpi, 15 cpi |

- ❑ Scalable fonts

| | |
|---|---|
| EPSON Roman | 10.5 pt.; 8 pt. to 32 pt. (2 pt. increments) |
| EPSON Sans Serif | 10.5 pt.; 8 pt. to 32 pt. (2 pt. increments) |
| EPSON Roman T | 10.5 pt.; 8 pt. to 32 pt. (2 pt. increments) |
| EPSON Sans Serif H | 10.5 pt.; 8 pt. to 32 pt. (2 pt. increments) |

***Note:*** *Each typeface has 4 variations: Normal, Bold, Italic, and Bold Italic*
*An example of variations for EPSON Roman is as follows:*

*EPSON Roman normal*
*EPSON Roman bold*
*EPSON Roman italic*
*EPSON Roman bold italic*

**Combinations of Character Tables and Typefaces**

**Table 1-13. Character Tables and Fonts**

| | Character Tables | Bitmap Fonts | Scalable Fonts | Scalable Fonts |
|---|---|---|---|---|
| | | EPSON Roman<br>EPSON Sans Serif<br>EPSON Courier<br>EPSON Prestige<br>EPSON Script | EPSON Roman<br>EPSON Sans Serif | EPSON Roman T<br>EPSON Sans Serif H |
| Standard Version | Italic table<br>PC 437 (US Standard Europe)<br>PC 850 (Multilingual)<br>PC 860 (Portuguese)<br>PC 861 (Icelandic)<br>PC 863 (Canadian-French)<br>PC 865 (Nordic)<br>BRASCII<br>Abicomp<br>Roman 8<br>ISO Latin 1 | Supported | Supported | Supported |
| NLSP Version | Italic table<br>PC 437 (US Standard Europe)<br>PC 850 (Multilingual) | Supported | Supported | Supported |
| | PC 437 (Greek)<br>PC 852 (East Europe)<br>PC 853 (Turkish)<br>PC 855 (Cyrillic)<br>PC 857 (Turkish)<br>PC 866 (Russian)<br>PC 869 (Greek)<br>MAZOWIA (Poland)<br>Code MJK (CSFR)<br>ISO 8859-7 (Latin/Greek)<br>ISO Latin 1T (Turkish)<br>Bulgaria (Bulgaria)<br>PC 774<br>Estonia<br>ISO 8859-2 (ISO Latin 2)<br>PC 866 LAT | | | Not Supported |

## 1.4.2 Input Data Buffer

- **Capacity** 32KB

## 1.5 Interfaces

The EPSON Stylus COLOR 800 is equipped with two interfaces: parallel and Mac serial interface, and a card slot for an optional Type-B interface. This section provides information on each interface.

### 1.5.1 Parallel Interface (Forward Channel)

**Transmission Mode** 8-bit parallel, IEEE-P1284 compatibility mode

- **Synchronization** /STROBE pulse
- **Handshaking** BUSY and /ACKNLG signal
- **Signal Level** TTL compatible level (IEEE-P1284 Level 1 device)
  Refer to Table 1-15.

**Table 1-14. Signal Level for TTL-Compatible IEEE-1284 Level 1 Device**

| Parameter | Minimum | Maximum | Condition |
|---|---|---|---|
| VOH* | — | 5.5 V | |
| VOL* | –0.5 V | — | |
| IOH* | — | 0.32 mA | VOH = 2.4 V |
| IOL* | — | 12 mA | VOL = 0.4 V |
| CO | — | 50 pF | |
| VIH | — | 2.0 V | |
| VIL | 0.8 V | — | |
| IIH | — | 0.32 mA | VIH = 2.0 V |
| IIL | — | 12 mA | VIL = 0.8 V |
| CI | — | 60 pF | |

***Notes:*** ** A LOW logic level on the Logic H signal line is as follows:*
*2.0 V or less when the printer is powered off.*
*3.0 V or more when the printer is powered on.*
*The receiver provides an impedance equivalent to 7.5K ohms to ground.*

**Adaptable Connector** 57-30360 (Amphenol) or equivalent

The BUSY signal is set HIGH before setting either /ERROR LOW or PE HIGH, and held HIGH until all these signals return to an inactive state. The BUSY signal is HIGH in the following cases:

- During data entry.
- When the input data buffer is full.
- While /INIT signal is at a LOW level or during hardware initialization.
- During a printer error condition (See the /ERROR signal).
- During test printing.
- When the printer is in default setting mode.
- When the parallel interface is not selected.

The ERROR signal is at a LOW level when one of the following errors has occurred:

- ❑ Printer hardware error (fatal error)
- ❑ Paper-out error
- ❑ Paper-jam error
- ❑ Ink-out error

The PE signal is HIGH during a paper-out error.

### ❑ Data Transmission Timing (Forward Channel)

**Table 1-15. Data Transmission Timing**

| Parameter | Minimum | Maximum |
|---|---|---|
| tsetup | 500 ns | — |
| thold | 500 ns | — |
| tstb | 500 ns | — |
| tready | 0 | — |
| tbusy | — | 500 ns |
| tt-out | — | 120 ns |
| tt-in | — | 200 ns |
| treply | — | — |
| tack | 500 ns | 10 µs |
| tnbusy | 0 | — |
| tnext | 0 | — |

***Note:*** *tt-out shows the rise and fall time of every output signal.*
*tt-in shows the rise and fall time of every input signal.*

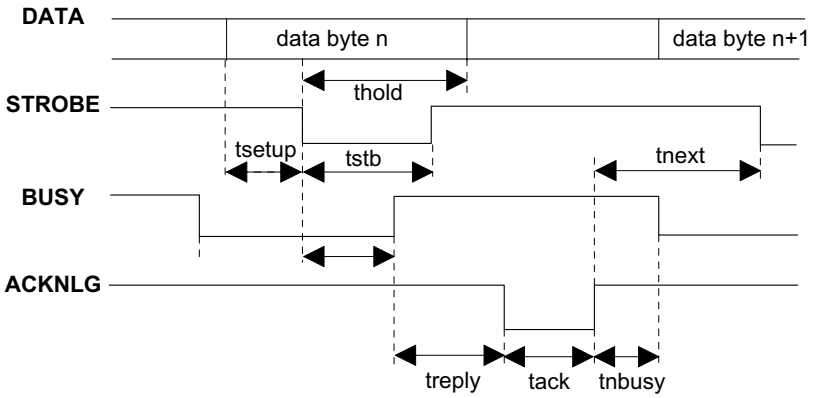


**Figure 1- 6. Data Transmission Timing**

**Connector Pin Assignments and Signals**

**Table 1-16. Connector Pin Assignments and Signals (Forward Channel)**

| Pin No. | Signal Name | Return GND Pin | I/O | Description |
|---|---|---|---|---|
| 1 | 1. /STROBE | 19 | I | The STROBE pulse. Reading in of data is performed at the falling edge of this pulse. |
| 2-9 | 2. DATA 0-7 | 20-27 | I | The DATA 0 to DATA 7 signals represent data bits 0 to 7, respectively. Each signal is at a HIGH level when data is logical 1 and a LOW level when data is logical 0. |
| 10 | 3. /ACKNLG | 28 | O | This signal is a negative pulse indicating that the printer can again accept data. |
| 11 | 4. BUSY | 29 | O | When this signal is at a HIGH level, the printer is not ready to accept data. |
| 12 | 5. PE | 28 | O | When this sign is at a HIGH level, the paper empty status is detected. |
| 13 | 6. SLCT | 28 | O | Always at HIGH level when the printer is powered on. |
| 14 | 7. /AFXT | 30 | I | Not used. |
| 31 | 8. /INIT | 30 | I | The falling edge of a negative pulse or a LOW signal on this line causes the printer to initialize. Minimum 50 µs pulse is necessary. |
| 32 | 9. /ERROR | 29 | O | When the printer detects an error, this signal goes LOW. |
| 36 | 10. /SLIN | 30 | I | Not used. |
| 18 | 11. Logic H | — | O | Pulled up to +5 V via 3.9K-ohm resistor. |
| 35 | 12. +5V | — | O | Pulled up to +5 V via 3.3K-ohm resistor. |
| 17 | 13. Chassis GND | — | — | Chassis ground. |
| 16,33,19-30 | 14. GND | — | — | Signal ground. |
| 15,34 | 15. NC | — | — | Not connected. |

***Note:*** *1. / at the beginning of a signal means active LOW.*
*2. The I/O column indicates the direction of the signal as viewed from the printer.*

## 1.5.2 Parallel Interface (Reverse Channel)

- ❑ **Transmission Mode** IEEE-1284 nibble mode
- ❑ **Adaptable Connector** Same as the forward channel
- ❑ **Synchronization** Refer to the IEEE-1284 specification
- ❑ **Handshaking** Refer to the IEEE-1284 specification
- ❑ **Data Transmission Timing** Refer to the IEEE-1284 specification
- ❑ **Signal Level** IEEE-1284 level 1 device (See forward channel.)
- ❑ **Extensibility Request**
  The printer accepts a request when the extensibility request value is 00H or 04H. The description of each value is as follows:
  - 00H Request nibble mode reverse channel transfer
  - 04H Request to return Device ID using nibble mode reverse channel transfer.

  **Device ID**
  The printer sends following device ID string upon request:
  [00H] [43H]
  MFG EPSON
  CMD ESCPL2E, PRPXL, BDC
  MDL STYLUS[SP]COLOR[SP]800
  CLS PRINTER

***Note:*** *[00H] denotes a hexadecimal value of zero.*

Table 1-18 shows pin assignments and signals for the parallel interface reverse channel.

**Table 1-17. Connector Pin Assignments and Signals (Reverse Channel)**

| Pin No. | Signal Name | Return GND Pin | I/O | Description |
|---|---|---|---|---|
| 1 | HostClk | 19 | I | Clock signal from the host computer. |
| 2-9 | DATA 0-7 | 20-27 | I | These signals represent parallel data on bits 2 to 9. Each signal is HIGH when the data is logical 1 and LOW when the data is logical 0. |
| 10 | PtrClk | 28 | O | Clock signal from the printer |
| 11 | PtrBusy/ Data bits 3,7 | 29 | O | Busy signal from the printer. Data bits 3 or 7 in reverse channel. |
| 12 | AckDataReq/ Data Bits 2,6 | 28 | O | Acknowledge request signal. Data bits 2 or 6 in reverse channel. |
| 13 | Xflag/Data bits 1, 5 | 28 | O | X flag signal. Data bits 1 or 5 in reverse channel. |
| 14 | Host Busy | 30 | I | Busy signal from the host computer |
| 31 | /INIT | 30 | I | Not used |
| 32 | /Data Avail/ Data Bit 0,4 | 29 | O | Data available signal. Data bits 0 or 4 in reverse channel. |
| 36 | 1284-Active | 30 | I | 1284 active signal. |
| 18 | Logic-H | — | O | Pulled up to +5 V via 3.9K-ohm resistor. |
| 35 | +5V | — | O | Pulled up to +5 V via 3.3K-ohm resistor. |
| 17 | Chassis GND | — | — | Chassis ground for the printer. |
| 16, 33, 19-30 | GND | — | — | Signal ground. |
| 15, 34 | NC | — | — | Not connected. |

***Note:*** *1. The symbol / at the beginning of a signal means active LOW.*
*2. The I/O column indicates the direction of the signal as viewed from the printer.*

### 1.5.3 Mac Serial Interface

- ❑ **Standard** — RS-423 compliant
- ❑ **Synchronization** — Synchronous
- ❑ **Bit Rate** — Approximately 900Kbps/1.8 Mbps
- ❑ **Word Format**

| | |
|---|---|
| Start bit | 1 bit |
| Data bits | 8 bit |
| Parity bit | No parity bit |
| Stop bit | 1 bit |

- ❑ **Handshaking** — X-ON/X-OFF, DTR protocol
- ❑ **Adaptable Connector** — 8-pin mini circular connector
- ❑ **Recommended I/F Cable** — Apple System Peripheral-8 cables

**Table 1-18. Connector Pin Assignments for Serial Interface**

| Pin No. | Signal Name | I/O | Functional Description |
|---|---|---|---|
| 1 | SCLK | O | Synchronous clock |
| 2 | CTS | I | Clear to send |
| 3 | TxD- | O | Transmit data - |
| 4 | S.G. | I | Signal ground |
| 5 | RxD- | I | Receive data - |
| 6 | TxD+ | O | Balanced transmit + |
| 7 | DTR | O | Data terminal ready |
| 8 | RxD+ | I | Balanced receive + |

***Note:*** *Refer to the figure below for the connector pin arrangement.*

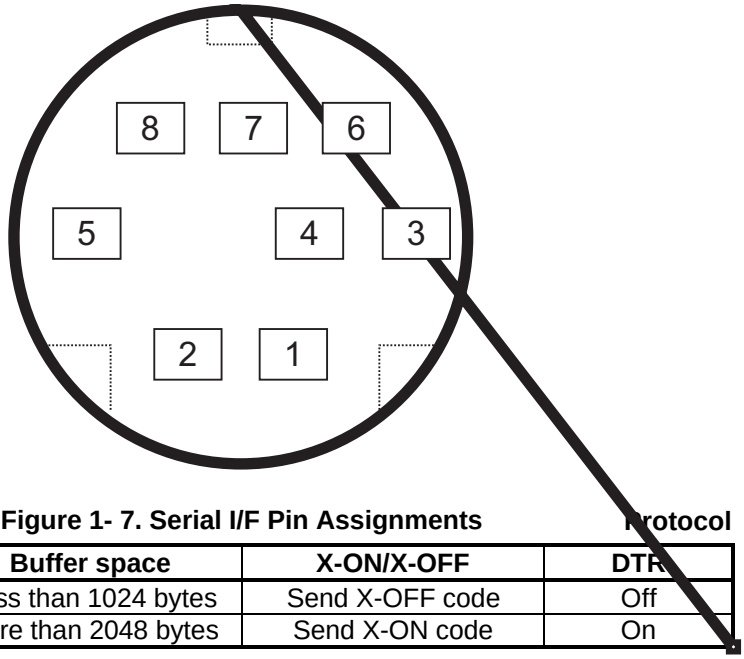


**Table 1-19. X-ON/X-OFF, DTR Protocol** **Figure 1- 7. Serial I/F Pin Assignments**

| State | Buffer space | X-ON/X-OFF | DTR |
|---|---|---|---|
| Busy | Less than 1024 bytes | Send X-OFF code | Off |
| Ready | More than 2048 bytes | Send X-ON code | On |

### 1.5.4 Optional Interface

The Stylus COLOR 800 supports an optional Type-B interface (Level 2) with the following characteristics.

**Reply Message**

- When ESC/P 2 mode is selected:

  | | |
  |---|---|
  | Main type | MTP48p, PW136cl10cpi, PRG(W0xxxx)rev, SPD0fast |
  | Product name | Stylus COLOR 800 |
  | Emulation type | ESCPL2-00 |
  | Entity type | EPSONLQ2 |

- When IBM X24E is selected:

  | | |
  |---|---|
  | Main type | MTP48p, PW136cl10cpi, PRG(W0xxxx)rev, SPD0fast |
  | Product name | Stylus COLOR 800 |
  | Emulation type | PRPXL24-00 |
  | Entity type | EPSONPRPXL24 |

### 1.5.5 Preventing Hosts from Data Transfer Timeout

Generally, hosts abandon data transfer to peripherals when a peripheral is BUSY continuously for dozens of seconds. To prevent this kind of timeout, the printer receives data very slowly, several bytes per minute, even the printer is in a busy state. This slowdown starts when the remainder of the input buffer drops under several hundred bytes. Finally, the printer is BUSY continuously when the input buffer is full.

## 1.5.6 Interface Selection

The Stylus COLOR 800 can have three types of interfaces: parallel, serial, and optional Type-B. Each interface can be selected manually or automatically. Both modes are selected through default setting mode.

**Manual Selection**

One of 3 interfaces selected through the default setting mode. The selected interface is fixed.

**Automatic Selection**

Automatic interface selection is enabled in default setting mode. In automatic interface selection mode, the printer is initialized to the idle state when it is powered on (*1) scanning which interface is to receive data. Then the interface that receives data first is selected. When the host stops data transfer and the printer is in the standby state for a number of seconds, the printer returns to the idle state. As long as the host sends data or the printer interface is busy state, the selected interface is left as it is.

*1: No interface is selected in this state.

**Interface Selection and Interface State**

- When an interface other than the parallel interface is selected, the parallel interface goes into the BUSY state.
- When the interface other than serial interface is selected, the serial interface sets the DTR signal MARK.
- When the printer is initialized and returned to idle state, the parallel interface goes into ready state and the serial interface sets the DTR signal SPACE.

***Note:*** *An interrupt signal such as the INIT on the parallel interface is ignored while that interface is not selected.*

# 1.6 Operations

This section describes the functions of each button on the control panel and LED printer status indicators.

## 1.6.1 Control Panel

The control panel for this printer consists of 3 non-lock pushbuttons, 1 lock type pushbutton, and 4 LED indicators. Refer to Figure 1-8.

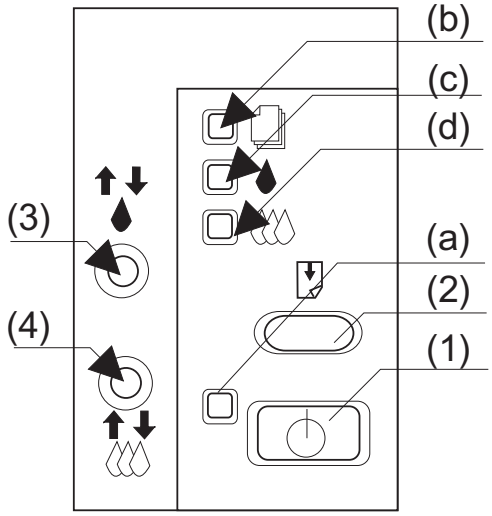


**Figure 1- 8. Control Panel**

❑ **Panel Description**
See Table 1-21 for the panel buttons and LED descriptions.

**Table 1-20. Panel Buttons and LED Descriptions**

| | Buttons | | | | LEDs | | | |
|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **a** | **b** | **c** | **d** |
| **Description** | Power | Load/Eject | Cleaning (Black) | Cleaning (Color) | Power | Paper Out | Ink Out (Black) | Ink Out (Color) |
| **Color** | — | — | — | — | Green | Red | Red | Red |

❑ **Panel Functions (Normal Usage)**

**Table 1-21. Panel Functions**

| Buttons | Functions |
|---|---|
| **Load/Eject** | ☐ Loads or ejects paper.<br>☐ Exits ink cartridge change mode.*1 |
| **Cleaning (Black)**<br>**(Press for 2 seconds)** | ☐ Performs black ink cartridge cleaning.<br>☐ Enters ink cartridge change mode. *2 |
| **Cleaning (Color)**<br>**(Press for 2 seconds)** | ☐ Performs color ink cartridge cleaning.<br>☐ Enters ink cartridge change mode. *2 |
| **Cleaning (Black)**<br>**+**<br>**Cleaning (Color)**<br>**(Press for 2 seconds)** | ☐ Enters ink cartridge change mode.<br>☐ In the ink cartridge change mode, the carriage moves to the black cartridge change position by pressing "Cleaning (Black)" button.<br>☐ In the ink cartridge change mode, the carriage moves to the color cartridge change position by pressing "Cleaning (Color)" button. |

*1: Only effective when the printer is in the ink cartridge change mode.
*2: Only effective when the printer is in the *Ink Low* or *Ink Out* condition.

### ❑ Panel Functions at Power On

This printer also enters various functions by holding down a specific button and turning on the printer. Each combination and its function are described in Table 1-23.

**Table 1-22. Panel Function with Power On**

| Button Pressed *[1] (while turning on the printer) | Function |
|---|---|
| **Load /Eject** | ☐ Starts LQ self-test printing. |
| **Cleaning (Black)** | ☐ Starts Draft self-test printing. |
| **Cleaning (Color)** | ☐ Enters default setting mode. |
| **Load /Eject + Cleaning (Color)** | ☐ Enters Hex-dump mode. |
| **Load /Eject + Cleaning (Black)** | ☐ Enters the printhead alignment mode. |
| **Cleaning (Black) + Cleaning (Color)** | ☐ Enters ink smudge prevention mode. |
| **Load /Eject + Cleaning (Black) + Cleaning (Color)**<br><br>**Then press Cleaning (Color) button once again within 3 seconds.** | ☐ Resets a specific area of EEPROM and Timer IC.*[2] |

**1*: "+" means to press one button while holding down the other button(s).
**2:* Refer to Table 1-28 or the EEPROM map described in the Appendix.

### ❑ LED Indicators

Several printer conditions can be identified by LEDs on the control panel. Which LED (or LEDs) lights varies, depending on the condition. See Table 1-24 for printer conditions and LED status.

**Table 1-23. Printer Conditions and LED Status**

| Printer Condition | Indicators | | | |
|---|---|---|---|---|
| | **Power** | **Ink out (Black)** | **Ink out (Color)** | **Paper Out** |
| Power on condition | On | ---*[1] | --- | --- |
| Ink sequence | Blinks | --- | --- | --- |
| Ink cartridge change mode | Blinks | --- | --- | --- |
| Data processing | Blinks | --- | --- | --- |
| Paper out | --- | --- | --- | On |
| Paper jam | --- | --- | --- | Blinks |
| No ink cartridge or ink end (black) | --- | On | --- | --- |
| Ink level low (black) | --- | Blinks | --- | --- |
| No ink cartridge or ink end (color) | --- | --- | On | --- |
| Ink level low (color) | --- | --- | Blinks | --- |
| Enter EEPROM and Timer IC reset | | On<br>1 second | On<br>1 second | On<br>1 second |
| Maintenance request | Blinks | Blinks | Blinks | Blinks |
| Fatal error | Blinks | Blinks | On | On |

*1: "---" means no effect.

## 1.6.2 Default Settings

The printer enters default setting mode when you press the **Cleaning (Color)** button while turning on the printer. The menus available for this printer are shown in Table 1-25.

**Table 1-24. Default Setting Menus**

| Menu | Setting *[1] |
|---|---|
| Print direction*[2] | **Auto** / Bi-d / Uni-D |
| Font | Roman / Sans Serif / **Courier** / Prestige / Script/<br>Roman T / Sans Serif H / Draft |
| Pitch | **10 cpi** / 12 cpi / 15 cpi / 17.1 cpi / 20 cpi / Proportional |
| I/F mode | **Auto** / Parallel / Mac Serial / Option |
| Auto I/F wait mode | **10 seconds** / 30 seconds |
| Software | **ESC/P2** / IBM X24E |
| Auto CR (IBM mode only) | On / **Off** |
| AGM (IBM mode only) | On / **Off** |
| Character tables<br>Standard version | Italic USA, Italic France<br>Italic Germany, Italic U.K.<br>Italic Denmark, Italic Sweden<br>Italic Italy, Italic Spain 1<br>**PC 437**, PC 850<br>PC 860, PC 863<br>PC 865, PC 861<br>BRASCII, Abicomp<br>Roman 8, ISO Latin 1 |
| Character tables<br>NLSP version | Italic USA, Italic France<br>Italic Germany, Italic U.K.<br>Italic Denmark, Italic Sweden<br>Italic Italy, Italic Spain 1<br>**PC 437**, PC 437 (Greek)<br>PC 850, PC 853<br>PC 855, PC 852<br>PC 857, PC 866<br>PC 869, MOZOAWIA<br>Code MJK, ISO 8559-7<br>ISO Latin 1T, Bulgaria<br>PC 774, Estonia<br>ISO 8859-2, PC 866 LAT |
| Auto line feed | On / **Off** |
| Network I/F mode | This mode is for network environment.<br>**Off**: Used in usual environment<br>On: Used in network environment |
| Loading position | 3 mm / **8.5 mm** / Others *[3] |
| Economy mode | On / **Off** |
| Parallel I/F transfer rate | **Fast** / Normal |

*1: Underlined parameters in bold letters are factory default settings.
*2: Refer to the following tables 1-26, 1-27.
*3: This is selected when a value other than 3 mm / 8.5 mm is set into EEPROM with the ***ESC l*** command.

**Table 1-25. Print Direction Mode Characteristics**

| | Black and White Printing | CMYK Printing (Color) |
|---|---|---|
| Auto | ☐ Throughput and quality is better. | ☐ Throughput is better.<br>☐ Color quality with special paper is worse. (Color correction depends on the print direction. |
| Bi-D | ☐ Throughput is the best.<br>☐ Print quality may be down. | ☐ Throughput is the best.<br>☐ Color quality with special paper is worse. (Color correction depends on the print direction.) |
| Uni-D | ☐ Throughput is worse.<br>☐ Print quality is the best. | ☐ Throughput is worse.<br>☐ Color quality is the best. |

**Table 1-26. Printing Direction and ESC U Command**

| | | | Character Mode (for DOS) | Raster Graphics Mode (for Windows / Mac)*1 |
|---|---|---|---|---|
| **Default Setting Mode** | Auto | ESC U 0 | Auto | Bi-D |
| | | ESC U 1 | Auto | Uni-D |
| | | ESC U 2 | Auto | Auto |
| | | — | Auto | Auto |
| | Bi-D | ESC U 0 | Bi-D | Bi-D |
| | | ESC U 1 | Uni-D | Uni-D |
| | | ESC U 2 | Auto | Auto |
| | | — | Bi-D | Bi-D |
| | Uni-D | ESC U 0 | Uni-D | Bi-D |
| | | ESC U 1 | Uni-D | Uni-D |
| | | ESC U 2 | Uni-D | Auto |
| | | — | Uni-D | Uni-D |

*1 Printing direction is controlled by a driver in the Windows / Mac environment.

**Setting Method**

1. See the flowchart below for the default setting method.

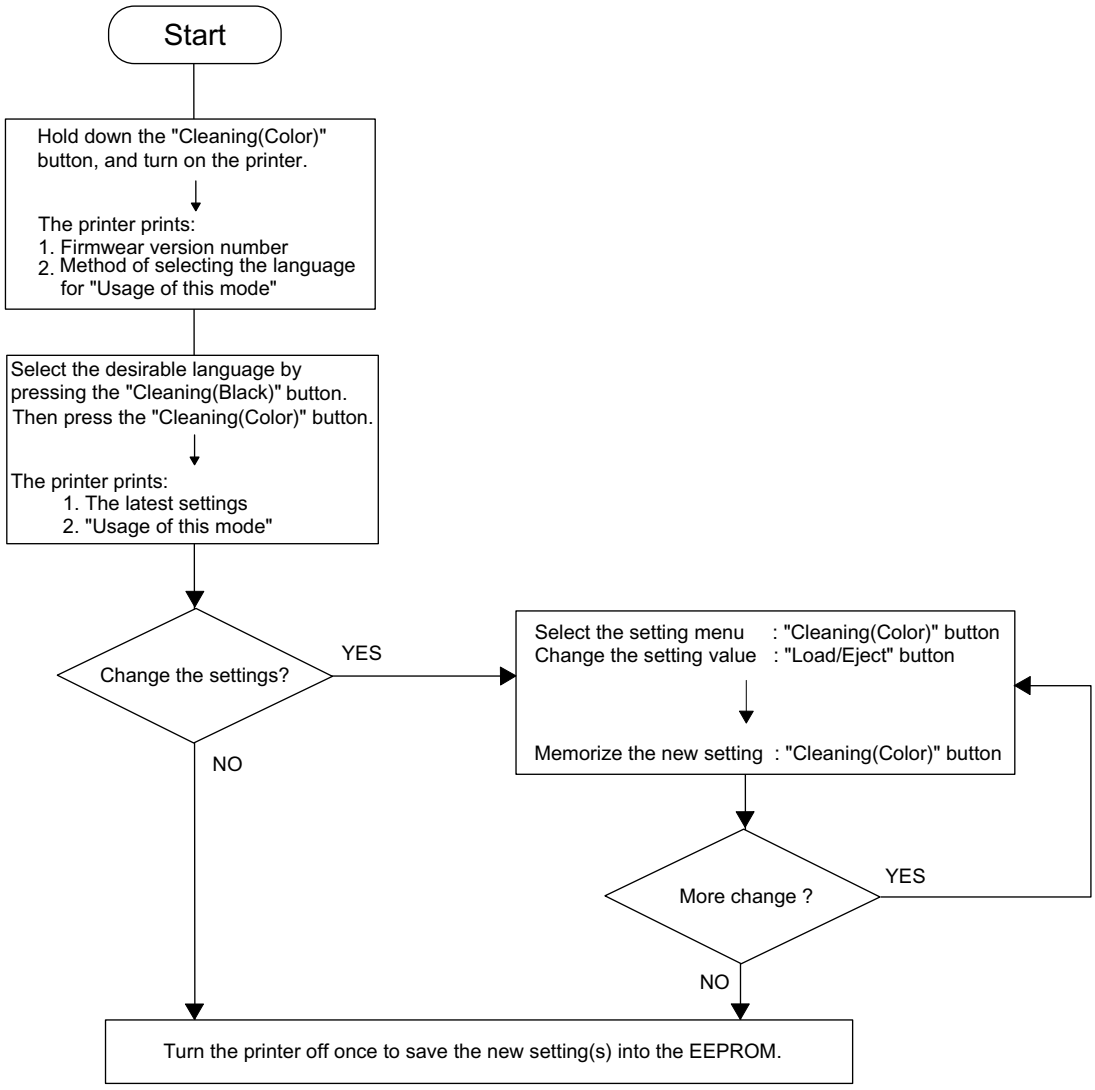


**Figure 1-9. Default Setting Flowchart**