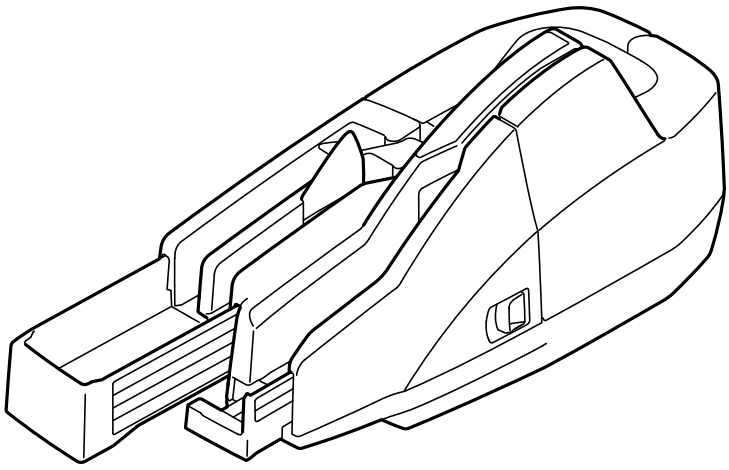
EPSON

TM-S1000II

Technical Reference Guide



Product Overview

Describes features and general specifications for the product.

Setup

Describes setup and installation of the product.

Application Development Information

Describes how to control the scanner and necessary information when you develop applications.

Handling

Describes how to handle the product.

Troubleshooting

Describes what to do when problems occur.

Product Specifications

Provides product specifications and interface specifications.

M00157401
Rev. B

Cautions

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For Safety

Key to Symbols

The symbols in this manual are identified by their level of importance, as defined below. Read the following carefully before handling the product.

WARNING	You must follow warnings carefully to avoid serious bodily injury.
CAUTION	Provides information that must be observed to prevent damage to the equipment or loss of data. • Possibility of sustaining physical injuries. • Possibility of causing physical damage. • Possibility of causing information loss.
CAUTION	Provides information that must be observed to avoid damage to your equipment or a malfunction.
NOTE	Provides important information and useful tips.

Warnings

WARNING

- ❏ **Do not set up this product or handle cables during a thunderstorm. There is a risk of electric shock.**
- ❏ **Never insert or disconnect the power plug with wet hands. Doing so may result in severe shock.**
- ❏ **Handle the power cable with care. Improper handling may lead to fire or electric shock.**
  - ∗ Do not modify or attempt to repair the cable.
  - ∗ Do not place any heavy object on top of the cable.
  - ∗ Avoid excessive bending, twisting, and pulling.
  - ∗ Do not place the cable near heating equipment.
  - ∗ Check that the plug is clean before plugging it in.
  - ∗ Be sure to push the plug all the way in.
- ❏ **Be sure to use the specified power source. Connection to an improper power source may cause fire or shock.**
- ❏ **Do not place multiple loads on the power outlet. Overloading the outlet may lead to fire.**
- ❏ **Shut down this product immediately if it produces smoke, a strange odor, or unusual noise. Continued use may lead to fire. Immediately unplug the product and contact qualified service personnel.**
- ❏ **Never attempt to repair this product yourself. Improper repair work can be dangerous.**
- ❏ **Never disassemble or modify this product. Tampering with this product may result in injury or fire.**
- ❏ **Do not allow foreign matter to fall into the product. Penetration by foreign objects may lead to fire.**
- ❏ **If water or other liquid spills into this product, do not continue to use it. Continued use may lead to fire. Unplug the power cord immediately and contact qualified service personnel.**

Cautions

CAUTION

- ❑ Do not connect cables in any other way than described in this manual. Improper connection may result in damage to the product or cause fire.
- ❑ Be sure to set this product on a firm, stable, horizontal surface. The product may break or cause injury if it falls.
- ❑ Do not use the product in a humid or dusty place. Excessive moisture or dust may damage the product or cause fire.
- ❑ Do not sit or lean on the product. Do not place heavy objects on the product. Doing so may break the product or cause injury.
- ❑ To ensure safety, unplug this product before leaving it unused for an extended period.
- ❑ Do not use aerosol sprayers containing flammable gas inside or around this product. Doing so may cause fire.

Restriction of Use

If this product is used for applications which require a high level of reliability or safety in terms of functionality or precision for equipment directly related to the operation of aircraft, trains, ships, automobiles etc., disaster or crime prevention equipment, various safety equipment, etc., we ask that you use this product only after including fail-safe and redundancy designs in order to maintain the reliability and safety of said overall systems, ensuring that it is designed in consideration of safety.

This product is not designed for use in applications that require an extremely high level of reliability or safety, such as aerospace equipment, trunk communications equipment, nuclear power control equipment, medical equipment, etc., so we ask that you carefully consider whether or not this product is appropriate for such applications.

Manuals for This Product

The following manuals are available for this product.

Paper manual 	**Manuals, such as Setup Guide, included in the product package** Explains how to install and set up this product, from checking the bundled items. Precautions for handling this product are also provided. To ensure safe and correct use and to prevent harm to you or others, or damage to property, please read the paper manuals before using the product.
Manuals viewed on computers and smart devices 	**User's Manual** Describes the functions of this product, how to operate it, information on maintenance, and how to solve various problems. In addition to the URL below, you can also access it from the QR Code attached to the product itself. ☞ https://support.epson.net/publist/bsredirect.php?code=M001572
Manuals viewed on computers 	**TM-S1000II Technical Reference Guide (this manual)** Describes information necessary to set up this product, perform daily tasks, and develop your own system. You can access the manual from the URL below. For customers in North America: https://www.epson.com/support/ For customers in other countries or regions: https://epson.sn
Manuals viewed on computers and smart devices 	**Web video manual** The videos clearly explain how to set up the product and connect it to the host computer. You can access the manual from the URL below. ☞ https://support.epson.net/p_doc/976/ The contents of the videos are subject to change without notice.

About This Manual

Aim of the Manual

This manual is intended to provide developers with the information they need to develop and design scanner application software.

Manual Content

This manual consists of the following sections.

Contents

Product Overview

This chapter describes features and specifications of the product.

Features

The TM-S1000II series is a compact check scanner that integrates functions for processing business documents such as checks.

The TM-S1000II series can perform four operations in a single pass: scanning front and back sides of a document, reading a magnetic ink character recognition (MICR) line, and franking.

What the Scanner Does while a Document Pass Through

- ❏ Read magnetic ink character recognition (MICR) line (E13B, CMC7) on checks
- ❏ Obtain image data scanned from both sides of a document
- ❏ Scan and recognize OCR A/B fonts in document images
- ❏ Add digital endorsement to the images of the front and back of checks
- ❏ Analyze image quality with IQA* function
- ❏ Frank (stamp a mark in red ink) a processed document

*: IQA (Image Quality Assurance): Complies with FSTC (Financial Services Technology Consortium) recommendations.

Functions for Accuracy and Efficiency

- ❏ Double-feed detection
- ❏ Detection of documents improperly loaded
- ❏ Function for sorting documents into two pockets
- ❏ Maintenance counter
- ❏ A connector cover is included as standard to protect the optional OT-WL06 from theft.

Easy Operation

- ❏ Easy drop-in paper loading
- ❏ Universal design
- ❏ Equipped with built-in buzzer
- ❏ TM-S1000II series API is provided for easy application development.

Franking Cartridge

- ❏ Stamp on electronically settled documents
- ❏ Franking or not can be selected according to the data scanned from a document

Product Configuration

Model

- ❑ 30 dpm model
- ❑ 60 dpm model

* dpm: the number of documents that can be processed in 1 minute (Documents Per Minute)

NOTE

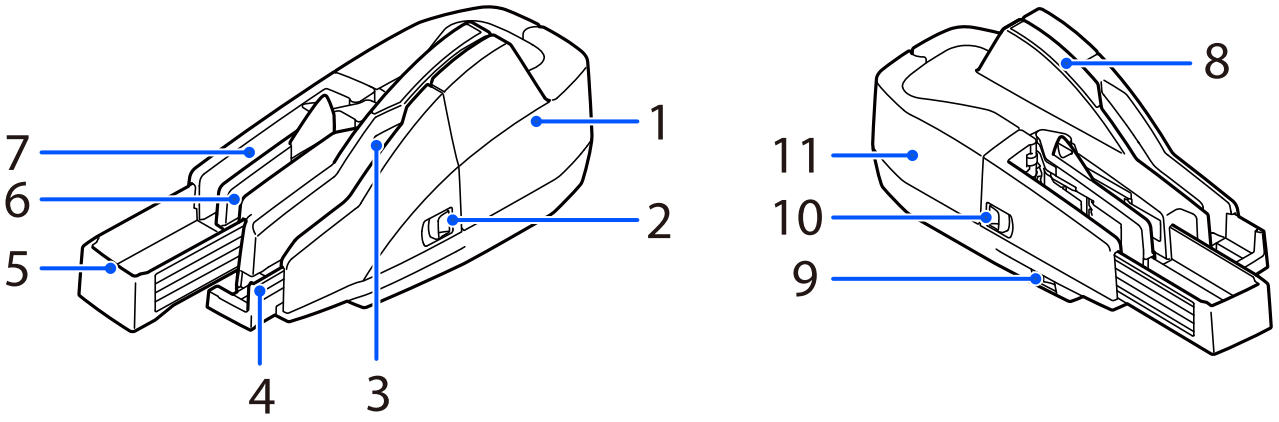
For detailed information about processing speed, see "Processing Speed" on page 19.

Included

- ❑ AC adapter
- ❑ AC cable
- ❑ Power switch cover
- ❑ USB cable (length: 180 cm {70.9 in.})
- ❑ Dedicated franking cartridge (Model: EFC-01)
- ❑ Manuals

Part Names and Functions

Body

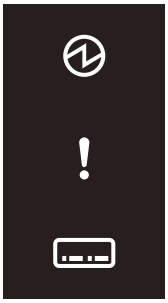


1	Scanner cover	Open this cover to remove jammed paper or to clean the scanner unit.
2	Scanner cover open lever	Move this lever to open the scanner cover.
3	ASF (Auto-Sheet-Feeder)	Load documents here to scan them. Up to 100 sheets can be loaded at a time.
4	ASF guide	Extend this ASF guide to match the length of the documents.
5	Pocket guide	Extend this pocket guide to match the length of the documents.
6	Sub pocket	Processed documents are ejected into these pockets.
7	Main pocket	
8	LED indicators	These LEDs indicate the operating status of the scanner. "LED Indicators" on page 13
9	Power switch	Flip this switch to turn the scanner on or off.
10	Franker cover open lever	Move this lever to open the franker cover.
11	Franker cover	Open this cover to replace the franking cartridge.

LED Indicators

This section describes the function of each LED.

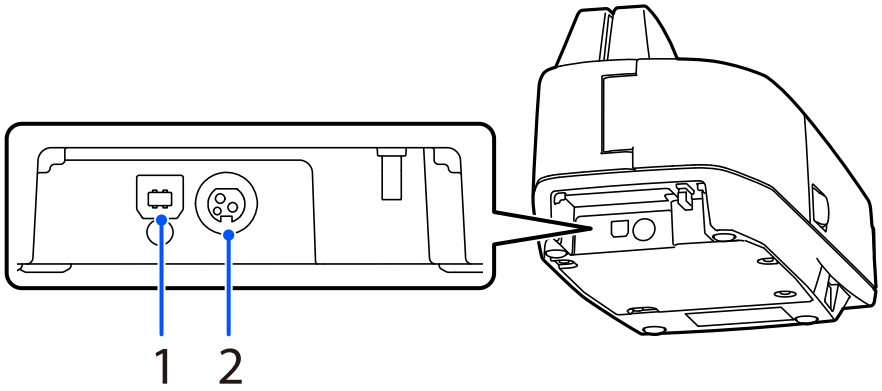
For more information on the scanner statuses indicated by the LEDs, see "Status and Errors" on page 15.



	Power LED	Stays on while the scanner is powered on.
!	Error LED	• On The scanner is offline, such as when the scanner cover or franker cover is open. • Flashing An error has occurred or the scanner is waiting for documents to be removed.
	Document LED	• On The scanner is ready to process documents in the ASF or the scanner is processing documents. • Flashing The scanner is waiting for documents to be loaded.

Connectors

The connectors are located on the back side of the scanner.



1	⇐	USB connector (Type B)	Connect a USB cable (Type B).
2	24V ⎓	Power supply connector	Connect a DC cable for the AC adapter.

Online and Offline

Offline

The scanner automatically goes offline under the following conditions:

- During power on (including resetting with the interface) until the scanner is ready
- When the scanner cover is opened
- When the franker cover is opened
- When an error has occurred

Online

The scanner is online and ready for normal processing unless there is a reason to go offline.

Status and Errors

The LEDs on the scanner light up or flash to indicate status of the scanner.

CAUTION	If an error occurs, all scanner operations are stopped.

NOTE	The flashing LED alone does not indicate what the error is. Develop an application that allows the scanner user to identify the error and know the solution.

Status Display

●: ON ●: Flashing ○: OFF -: Ignore the LED light

Power LED	Error LED	Document LED	Scanner Status
●	●	○	The scanner has just been turned on and is performing an initialization operation.
●*1	●	○	The scanner is performing a turn-off process.
●	○	○	The scanner is online.
●	●	○	The scanner cover or the franker cover is open.
●	○	●*1	The scanner has received a command and is waiting for document(s) to be loaded.
●	○	●	The scanner is ready to process documents or is processing documents.
●	●*1	○	The scanner is waiting for processed documents to be removed from the pocket.
●	●	○	A recoverable or unrecoverable error has occurred. See "Error Status" on page 16 for more information.
●	○	-	The scanner is updating firmware. The power LED flashes irregularly during the firmware update.

∗1: The LED flashing pattern is: lighting for 320 ms followed by a pause for 320 ms.
∗2: The LED flashing pattern is: lighting for 4960 ms followed by a pause for 160 ms.

Error Status

There are two possible error types: recoverable errors and unrecoverable errors.

Recoverable Errors

Processing is no longer possible when recoverable errors occur. They can be recovered easily by turning the power off and then on again or sending an error recovery command from the driver after eliminating the cause of the error.

Error	Error LED flashing interval Approx. 320 ms Approx. 5120 ms	Error description	Recovery measure
Mechanical positioning error		One of the following errors during initialization and operation. • Error in hopper position detection • Error in franker position detection • Error in pocket switch plate position detection	Remove the cause (foreign matter or papers) and call BiCancelError of the driver or turn off/on the power.
		The paper length sensor, middle sensor, franking sensor, or ejection sensor has detected paper during initialization.	
Paper jam error		After initialization, paper was detected on the path before the CIS.	Remove the paper and call BiCancelError of the driver or turn off/on the power.
		• Paper jam. (Paper length sensor, middle sensor, franking sensor, or ejection sensors detected paper feed error.) • ASF failed in feeding paper.	Remove the jammed paper and call BiCancelError of the driver or turn off/on the power.
		Too short/long paper detected.	Remove the paper left in the paper path and call BiCancelError of the driver or turn off/on the power.
		Cover opened during paper feeding.	If the paper is left in the paper path, remove it and call BiCancelError of the driver with covers closed or turn off/on the power.

Error	Error LED flashing interval Approx. 320 ms Approx. 5120 ms	Error description	Recovery measure
Reading error*		One of the following errors in the high-speed mode. • Multi-feed error • Status other than "Check was correctly inserted" • External noise detected	Open the franker cover, remove the paper, and call BiCancelError of the driver or turn off/on the power.
		When an application judges an error in the confirmation mode.	

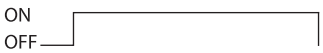
* This error occurs only if the scanner is set to stop the document at the franking position instead of ejecting it into the pocket when a reading error occurs.

CAUTION The error recovery command is valid only if a recoverable error (excluding automatically recoverable errors) occurs.

Unrecoverable Errors

When an unrecoverable error occurs, the product stops operating. If turning the product off and then back on again does not clear the error, servicing is required. Contact qualified service personnel.

CAUTION If an unrecoverable error occurs, immediately turn off the scanner by operating the power switch or unplugging the DC cable or the power plug.

Error	Error LED flashing interval Approx. 320 ms Approx. 5120 ms	Error description
CPU execution error		The CPU is executing an incorrect address.
Memory Read/Write error		After Read/Write checking, the scanner does not work correctly.
Drive circuit error		There is an abnormality in the drive circuit.
Motor current error		There is an abnormality in the paper feed motor.

Processing Modes

The TM-S1000II series has multiple processing modes that are selectable in accordance with how you want to use the scanner.

For detailed information about processing modes, see the TM-S1000II API Reference Guide.

Processing mode	Description	30 dpm model	60 dpm model
High-speed mode	The scanner processes a document without stopping from feeding a document until ejecting it.	✓	✓
Confirmation mode without overlap*1	After reading a document, the scanner stops processing before ejecting it and waits for a command from a PC to restart processing.	✓	✓
Confirmation mode with overlap*2			✓

∗1: The next document is fed after a document is ejected into the pocket.
∗2: The next document is fed while processing the previous document is still in progress.

Processing Speed

The processing speed (dpm: the number of documents that can be processed in 1 minute) when using the driver differ depending on the following conditions.

NOTE

The processing speed may slow down while saving data in the HDD.

For 30 dpm model

Processing mode	Paper size	Driver/Application settings*1	Franking/Eject process setting	Processing speed
High-speed mode	Personal check	All disabled	Regardless	30 dpm
		One or more enabled	Both disabled	30 dpm
			Either or both enabled	28 dpm
	Business check	All disabled	Regardless	30 dpm
		One or more enabled	Both disabled	30 dpm
			Either or both enabled	28 dpm
Confirmation mode without overlap	Any check	All disabled	Regardless	28 dpm*2
		One or more enabled	Regardless	28 dpm*2

∗1: Judgements of the following items can be enabled with the driver.
- Magnetic waveform detection result
- MICR "?" detection result
- IQA result

Settings with an application are available only for the confirmation mode.

∗2: The processing speed is a maximum. It may slow down depending on the environment (including the application) and conditions of documents.

For 60 dpm model

Processing mode	Paper size	Driver/Application settings*1	Franking/Eject process setting	Processing speed
High-speed mode	Personal check	All disabled	Regardless	60 dpm
		One or more enabled	Both disabled	60 dpm
			Either or both enabled	32 dpm
	Business check	All disabled	Regardless	60 dpm
		One or more enabled	Both disabled	60 dpm
			Either or both enabled	32 dpm
Confirmation mode with overlap	Any check	All disabled	Regardless	40 dpm*2
		One or more enabled	Regardless	32 dpm*2
Confirmation mode without overlap	Any check	All disabled	Regardless	28 dpm*2
		One or more enabled	Regardless	28 dpm*2

∗1: Judgements of the following items can be enabled with the driver.
- Magnetic waveform detection result
- MICR "?" detection result
- IQA result

Settings with an application are available only for the confirmation mode.

∗2: The processing speed is a maximum. It may slow down depending on the environment (including the application) and conditions of documents.

Selectable Processes

The following process settings can be configured from your application software.

❏ Franking process
- With franking
- Without franking

❏ Ejection process
- Ejects documents to the Main pocket
- Ejects documents to the Sub pocket
- Does not eject documents
- Waterfall (When the first pocket becomes nearly full with ejected documents, automatically switches to the other pocket)

❏ Electric endorse
- With electric endorsing
- Without electric endorsing

Each process is performed based on the parameters shown below.

	High-speed mode	Confirmation mode
Franking process	• Double-feed detection result • Incorrect insertion detection result • External noise detection result	• Double-feed detection result • Incorrect insertion detection result • External noise detection result • Magnetic waveform detection result • MICR "?" detection result • IQA result • Select the check items with the application software*
Ejection process	• Double-feed detection result • Incorrect insertion detection result • External noise detection result	• Double-feed detection result • Incorrect insertion detection result • External noise detection result • Magnetic waveform detection result • MICR "?" detection result • IQA result • Select the check items with the application software*
Electric endorse	• Double-feed detection result • Incorrect insertion detection result • External noise detection result • Magnetic waveform detection result • MICR "?" detection result • IQA result	• Double-feed detection result • Incorrect insertion detection result • External noise detection result • Magnetic waveform detection result • MICR "?" detection result • IQA result • Select the check items with the application software

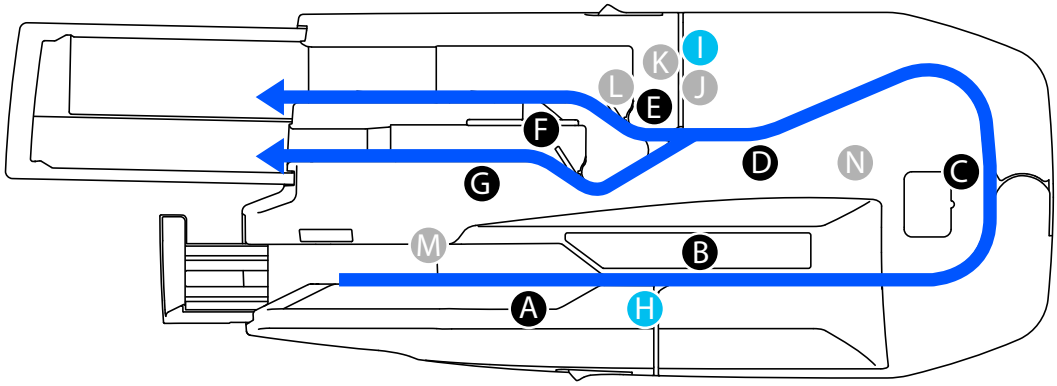
* You can use your application software to select what to check with the scanner driver.

NOTE

If the waterfall function is enabled, the setting of the ejection process is ignored.
The waterfall function automatically switches to the other pocket when the first pocket becomes nearly full with ejected documents.

Sensors

There are 7 paper sensors, 2 cover open sensors, and 5 other sensors.



Paper Sensors

ASF sensor (A)

This sensor is located in the feeder paper path. It detects when a document is in the ASF. When the sensor detects a document, the document LED lights if scanning is possible.

Paper length sensor (B)

This sensor is located in the feeder paper path. It is mainly used for internal processing, but also includes a function for detecting a piece of paper remaining in the feeder path in the event of a paper jam or the like.

Middle sensor (C)

This sensor is located in the feeder paper path. It is mainly used for internal processing, but also includes a function for detecting a piece of paper remaining in the feeder path in the event of a paper jam or the like.

Franking sensor (D)

This sensor is located in the feeder paper path. It detects when a document has reached the franking printing section.

Eject sensor (E)

This sensor is located in the feeder paper path. It detects whether a document is properly ejected and stored in a pocket.

Main pocket nearly full sensor (F)

This sensor is located in the Main pocket. It detects whether documents stored in the pocket need to be removed.

NOTE

- The sensor detects the nearly full status when the thickness of the documents in the Main pocket exceeds the specified value (80 or more of documents whose thickness is 0.13 mm without folds, wrinkles, or roughness).
- To prevent paper jams, use the scanner with the setting to stop continuous processing when it detects that the pocket is almost full. For more information on settings, see the TM-S1000II API Reference Guide.

Sub pocket nearly full sensor (G)

This sensor is located in the Sub pocket. It detects whether documents stored in the pocket need to be removed.

NOTE

- The sensor detects the nearly full status when the thickness of the documents in the Sub pocket exceeds the specified value (40 or more of documents whose thickness is 0.13 mm without folds, wrinkles, or roughness).
- To prevent paper jams, use the scanner with the setting to stop continuous processing when it detects that the pocket is almost full. For more information on settings, see the TM-S1000II API Reference Guide.

Cover Open Sensors

Scanner cover open sensor (H)

This sensor detects the opening/closing of the scanner cover. The scanner automatically goes offline when the cover is opened. It goes back online when the scanner cover is closed.

Franker cover open sensor (I)

This sensor detects the opening/closing of the franker cover. The scanner automatically goes offline when the cover is opened. It goes back online when the franker cover is closed.

Other Sensors

Franking cartridge sensor (J)

This sensor detects whether the franking cartridge is installed or not.

Franking cartridge position sensor (K)

The franking cartridge is installed in the franking cartridge holder, and the franking operation is achieved by a motor driving the cartridge holder. The scanner has a franking cartridge sensor for detecting the position of the cartridge holder.

Pocket switch plate sensor (L)

Since the scanner can eject processed documents into either of two pockets, it is equipped with a switch plate that switches which pocket the documents are ejected into. This sensor detects the position of the switch plate.

Hopper position sensor (M)

This sensor is located in the ASF. It detects the position of the hopper, which holds documents in place.

Paper thickness sensor (N)

When more than one document is fed into the scanner at a time, this sensor detects the thickness and unevenness of the fed documents. Thus, the scanner can detect a double-feed error.

> **NOTE** Even if a double feed is detected, it is still possible to obtain MICR and image data that has been read, and to carry out print electronic endorsements and franking.

Maintenance Counter

The TM-S1000II series has the maintenance counter to get the following counts.

- Documents fed from the ASF: Counts the number of times a document is fed from the ASF.
- Scanned documents: Counts the number of times a document is scanned by the image scanner.
- MICR line scanning: Counts the number of times a MICR line is scanned.
- Hopper open/close: Counts the number of times that the hopper in the ASF switches from the closed state to the open state.
- Franking: Counts the number of times that the franker is driven.
- Pocket switching: Counts the number of times the pocket from which documents are ejected switches from the Main pocket to the Sub pocket.
- Total operation hours: Counts the number of hours that the power has been on.

Counter	Counter type	Number of times or Hour
Documents fed from the ASF	Resettable	1 to 4,294,967,295 times
	Cumulative	1 to 4,294,967,295 times
Scanned documents	Resettable	1 to 4,294,967,295 times
	Cumulative	1 to 4,294,967,295 times
MICR line scanning	Resettable	1 to 4,294,967,295 times
	Cumulative	1 to 4,294,967,295 times
Hopper open/close	Resettable	1 to 4,294,967,295 times
	Cumulative	1 to 4,294,967,295 times
Franking	Resettable	1 to 4,294,967,295 times
	Cumulative	1 to 4,294,967,295 times
Pocket switching	Resettable	1 to 4,294,967,295 times
	Cumulative	1 to 4,294,967,295 times
Total operation hours	Resettable	1 to 71,582,788 hours
	Cumulative	1 to 71,582,788 hours

Setup

This chapter describes setup and installation of the product.

Flow of Setup

This chapter consists of the following sections along with the setup flow of the product.

1. Installing the Scanner (page 27)

2. Connecting the Scanner to the Host Computer (page 29)

3. Connecting the AC Adapter (page 30)

4. Installing the Franking Cartridge (page 32)

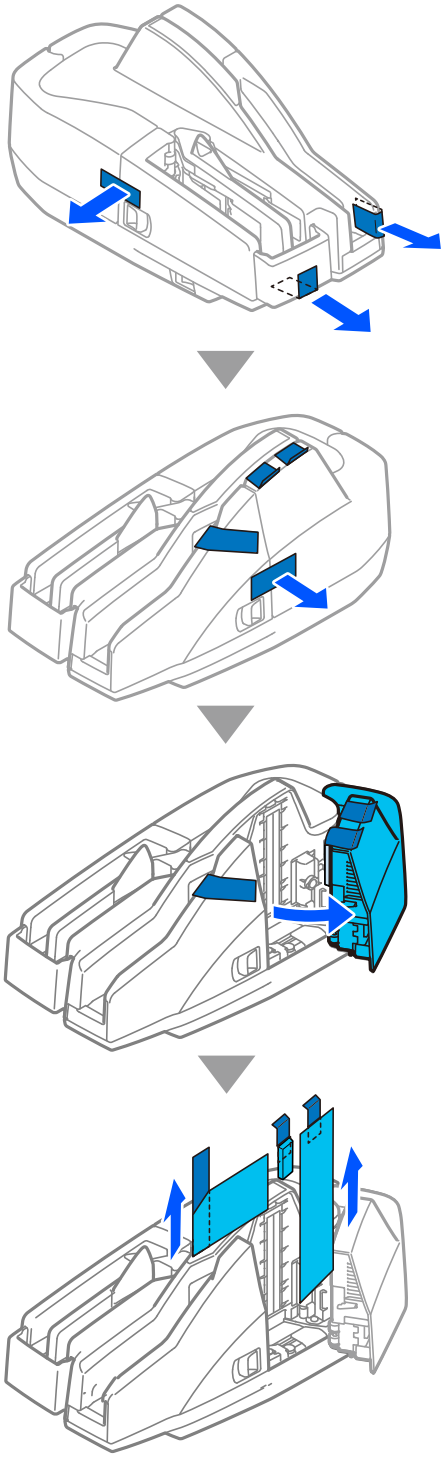
5. Extending the Guides (page 32)

Installing the Scanner

You can install this scanner only horizontally.

Removing the Packing Materials

Packing materials are attached to the scanner to protect it from shocks during transportation. Before installing the scanner, remove the packing materials shown below.



Important Notes on Installation

- Install the product horizontally (within ±5°).
  However, when installed with the left side of the pocket raised, the number of sheets stored may not meet the specifications even if the inclination is less than 5° depending on the condition of the document.
- Do not place the scanner in dusty locations.
- Do not catch cables or allow foreign matter under the scanner.
- Do not subject the scanner to abnormal impact while it is operating. This may cause defective readings.
- Do not install the scanner near electronic devices that generate strong magnetic fields. Otherwise, the scanner may stop reading an MICR line and generate an error in order to avoid reading it incorrectly. If the error occurs, take the following measures to reduce the effects of electromagnetic radiation.
  * Install the scanner away from the electronic device that generates strong magnetic fields.
  * Install a shield plate (steel plate or shield material, etc.) that can prevent electromagnetic waves between the electronic device that generates strong magnetic fields and the scanner.

Connecting the Scanner to the Host Computer

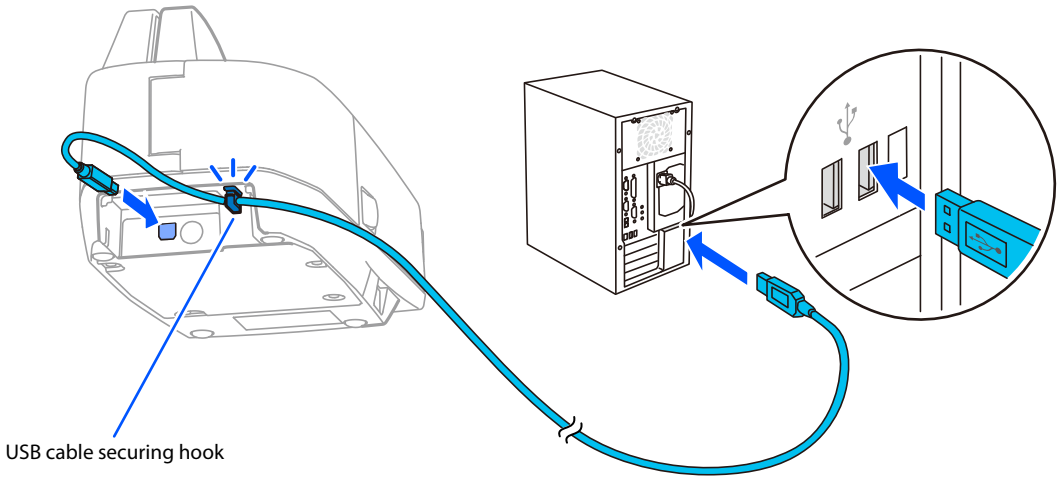
Connecting via USB

1 **Confirm that the scanner is not connected to the host computer.**

2 **Install the scanner driver on the host computer.**

3 **Connect the host computer to the scanner with the included USB cable.**

> **CAUTION**
> - Be sure to use the USB cable that is included with the scanner.
> - Pass the USB cable through the USB cable securing hook as shown below to prevent the cable from falling off.



Connecting the AC Adapter

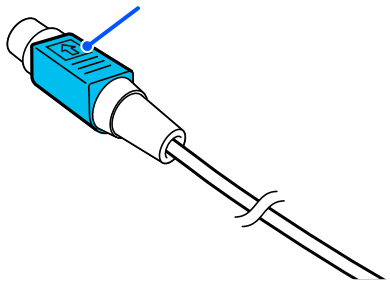
WARNING

- **Be sure to use only the specified AC Adapter [AC adapter, C1] or [PS-190]. Using a nonstandard power supply can result in electric shock and fire.**
- **Never insert the AC cable plug into a wall outlet that does not meet the input voltage of the AC adapter. Doing so may result in damage to the scanner.**
- **If a malfunction occurs with the AC adapter or scanner, immediately turn off the scanner and unplug the AC cable from the wall outlet.**

CAUTION

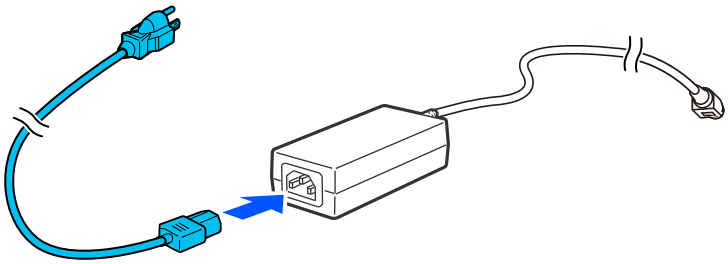
When disconnecting the DC cable of the AC adapter from the scanner, make sure that the AC cable is not connected, and then hold the arrow-printed portion of the connector to pull it straight out.

Arrow-printed portion of the connector

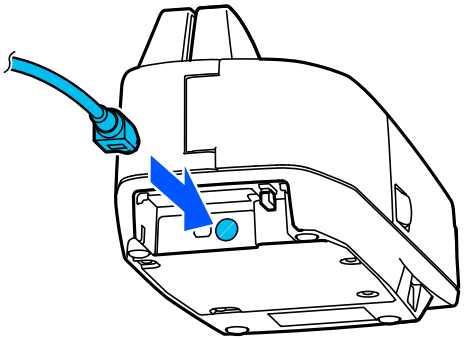


1 **Make sure the power switch is in the off position and the scanner is turned off. Be sure the AC cable is not plugged into a wall outlet.**

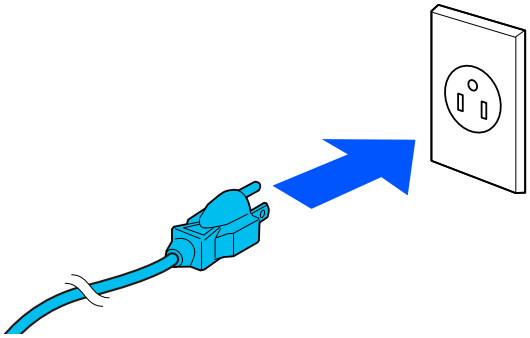
2 **Connect the AC cable to the AC adapter.**



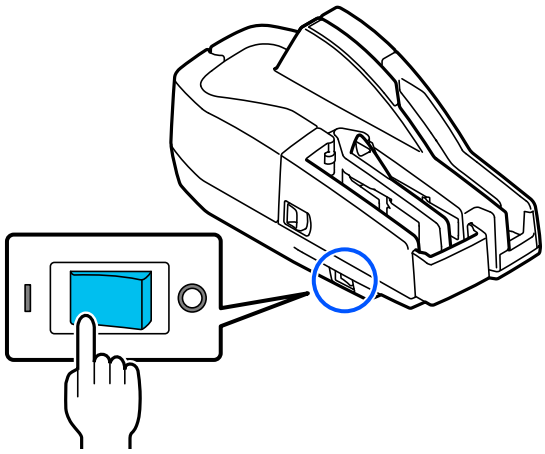
3 **Connect the AC adapter to the scanner with the DC cable of the AC adapter.**



4 **Plug the AC cable into a wall outlet.**



5 **Flip the power switch to the | ON position to turn on the scanner.**



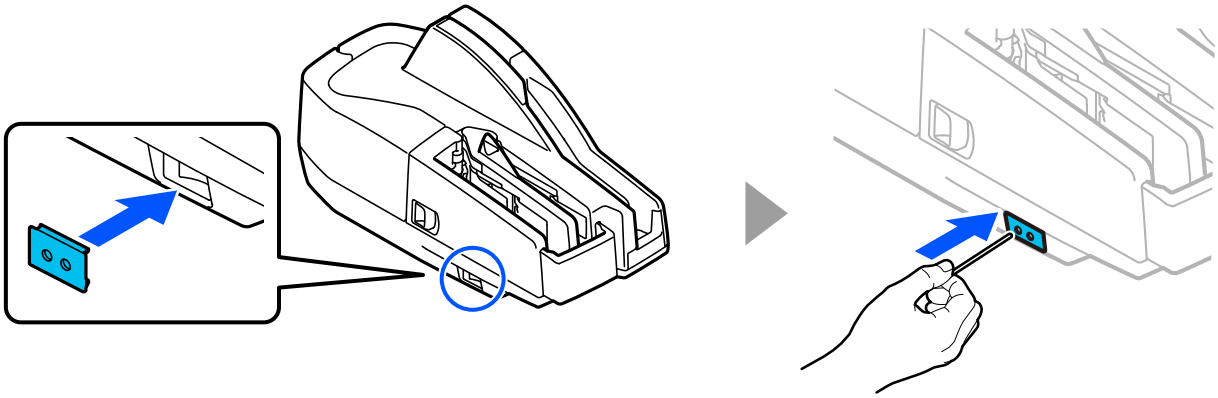
Power Switch Cover

The power switch cover is intended to prevent the power switch from being pressed accidentally. To use the cover, attach it over the power switch. To turn the power on or off after the cover is attached, press the switch through the hole in the cover with a thin stick or similar object.

When storing the scanner or not using it for a long period of time, turn it off with the power switch and unplug the power cable.

WARNING

If a problem occurs with the scanner with the power switch cover attached, unplug the power cable immediately. Continued use may result in a fire hazard.



Installing the Franking Cartridge

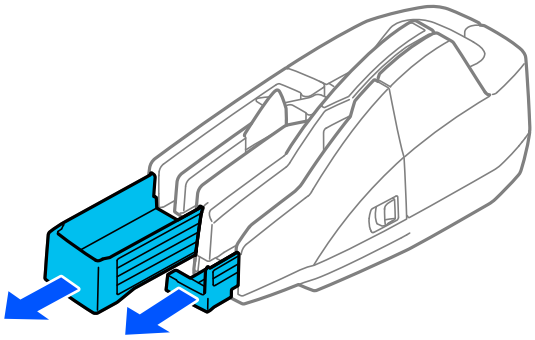
For instructions on how to install the flanking cartridge, see "Installing and Replacing the Franking Cartridge" on page 38.

Extending the Guides

Extend both the pocket guide and the ASF guide.

> **CAUTION** Before using the scanner, be sure to pull the pocket guide out far enough to allow the processed documents to fit inside the pocket. Otherwise, a paper jam may occur.

The ASF guide supports loaded documents so that each of the documents is fed straight into the scanner. Extend the ASF guide according to the length of the documents.



Application Development Information

This chapter describes product control methods and the information required to develop applications used by the product.

Operating Environment

The operating environment required to get the most out of the product's basic specifications differs depending on the connection method.

Requirements for Using 30/60 dpm Model via USB

❑ PC

- CPU: At least Intel Celeron 3205U 1.5 GHz or the equivalent
- Memory: 1 GB or more, or more than the minimum memory size required by your OS
- Storage: At least 30 MB free space is required to install the driver
- Interface: USB2.0 Hi-speed

Driver for Windows Environment

The drivers described below are available for application development.

For detailed information on the functions, supported environments, OS, development languages, etc., please refer to the manual for the driver.

EPSON TM-S9000/S2000/S1000II Driver

The following functions are supported when using TM-S1000II with the above drivers.

✓ : Supported -: Unsupported

Function	USB connection
Scanning a document	✓
Reading a MICR line on a check	✓
Endorsing a document	-
Electronic endorsement	✓
Printing on a document (Example: printing receipts or cashier's checks)	-

Utilities

The utilities described below are available for application development.

For details about functions and support environments, refer to the documentation that comes with each utility.

TM-S1000II Utility

This utility runs on a host PC and allows you to configure the scanner settings and run operation check.

It has the following functions.

- Check and change the current settings
- Save and restore the current settings
- Perform operation checks

Epson Device Admin

This utility runs on a server and host PC, and allows you to remotely maintain and support multiple scanners at once.

It has the following functions.

- Monitor alerts/errors
- Monitor consumables information
- Update scanner's firmware

Downloading Software

You can obtain software and manuals from one of the following URLs.

For customers in North America, go to the following web site:
☞ https://www.epson.com/support/

For customers in other countries and regions, go to the following web site:
☞ https://epson.sn

Handling

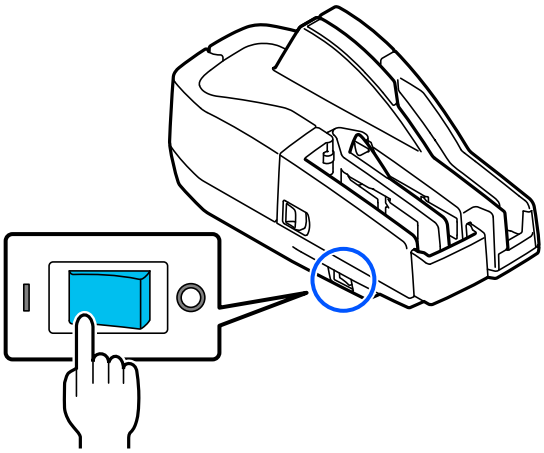
This chapter describes basic handling of the scanner.

Turning the Power On/Off

This section describes how to turn the product on/off.

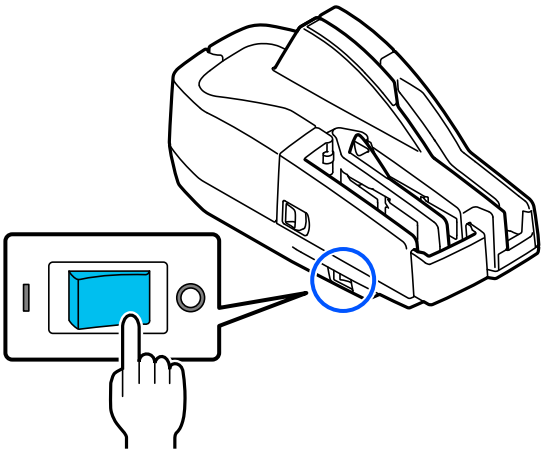
Turning the Power On

Flip the power switch to the | ON position to turn on the scanner.
The ⏻ power LED will light up and the scanner will turn on.



Turning the Power Off

Flip the power switch to the ○ OFF position to turn off the scanner.
The ⏻ power LED will stop flashing, all LEDs will turn off, and the scanner will turn off.



Opening the Covers

> **CAUTION** Do not open any cover of the scanner during operation, such as while scanning a document. Doing so may cause a scanning error, MICR error, or paper jam error.

Opening the Scanner Cover

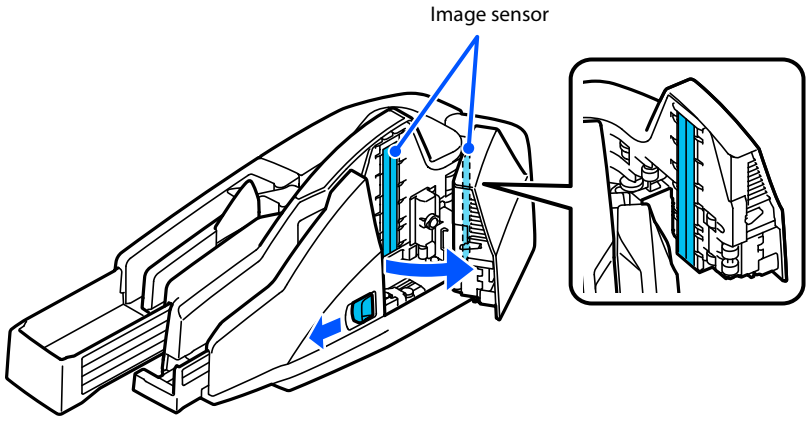
Move the scanner cover open lever to open the scanner cover.

Open the scanner cover when you clean the image sensor of the scanner or remove jammed paper.

☞ "Cleaning the Image Sensor" on page 42

☞ "Removing a Paper Jam" on page 44

> **CAUTION** Do not touch the image sensor inside the scanner cover with your bare hands.



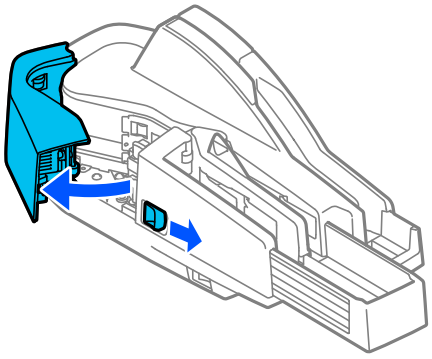
Opening the Franker Cover

Move the franker cover open lever to open the franker cover.

Open the franker cover when you replace the franking cartridge with new one or remove jammed paper.

☞ "Installing and Replacing the Franking Cartridge" on page 38

☞ "Removing a Paper Jam" on page 44



Installing and Replacing the Franking Cartridge

Important Notes on the Franking Cartridge

- Keep the franking cartridges out of the reach of children.
- Do not disassemble franking cartridges.
- Be careful during handling because the ink can permanently stain clothing.
- For the best performance of the scanner, it is recommended to use genuine Epson cartridges. Use of non-genuine Epson products can adversely affect the scanner and print quality and prevent the scanner from realizing its maximum performance.
- Do not unpack the franking cartridge until just before installing it. Print quality will deteriorate if the franking cartridge is left unpacked for an extended period of time.
- Use up the franking cartridge within 18 months from the date of production indicated on the cartridge box.
- Dispose of franking cartridges in accordance with the laws, ordinances, and regulations of your country or region.

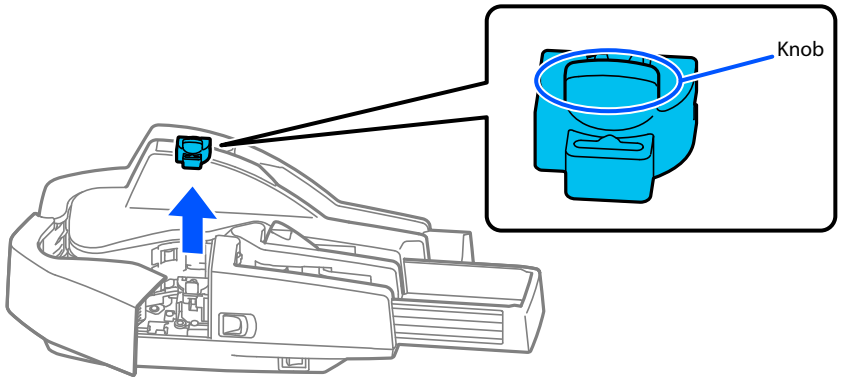
Installing and Replacing the Franking Cartridge

Follow these steps to install a franking cartridge for the first time or to replace it.

1 **Open the franker cover.**

"Opening the Franker Cover" on page 37

2 **When replacing a used franking cartridge, hold the cartridge by its top knob and remove it upward.**



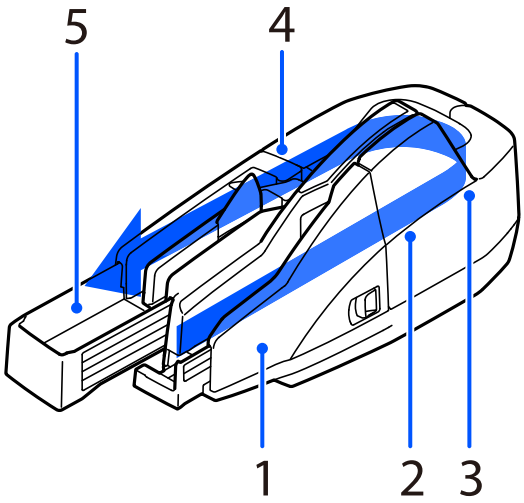
3 **Carefully insert a new franking cartridge from the top, and push it firmly but gently until it clicks in place.**

4 **Close the franker cover firmly until it clicks in place.**

Processing Documents

The TM-S1000II series can perform four operations in a single pass: scanning front and back sides of a document, reading a magnetic ink character recognition (MICR) line, and franking.

Document Process Flow



1 **Documents loaded here are fed into the scanner one by one.**
See "How to Set Documents" on page 40.

2 **Both sides of the document are scanned at the same time.**

3 **Magnetic ink characters recognition (MICR) line on the check is scanned.**

4 **Franking; a fixed message is stamped on the document in red ink.**

5 **Processed documents are ejected here.**
See "How to Remove Documents" on page 41.

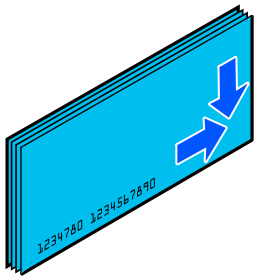
Important Notes on Processing Documents

- Load paper that meets the requirements listed in "Paper Specifications" on page 49.
- Do not load copy paper or other multi-ply paper.
- Make sure that the documents have no curl, bending (especially on the corners), warpage, or wrinkles.
- Do not load checks with paper clips, staples, adhesive tape, or other foreign materials attached.
- Do not open the covers while the scanner is processing documents.

How to Set Documents

1 When loading multiple documents at one time, neatly align the bottom right corner of the stack of documents.

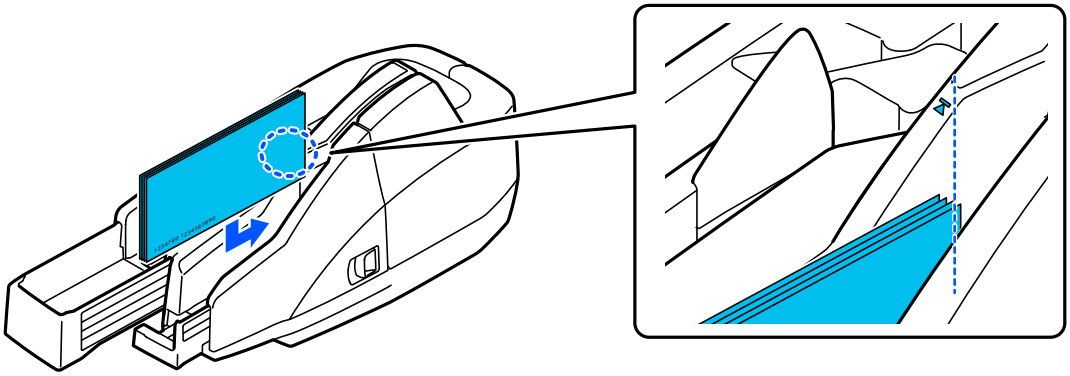
CAUTION	If the documents are loaded without being aligned, they may not be fed at all, or a paper jam or multi-feed error may occur.



2 Load documents into the ASF. If the documents have MICR lines, load them with the MICR line facing outward. Be sure to align the leading edge of the documents with the ▼ mark.

The scanner starts to feed the documents one by one.

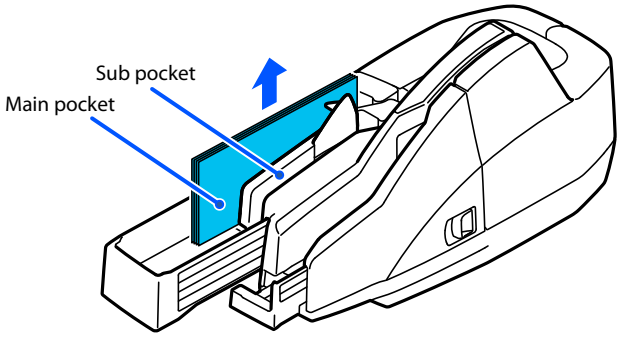
CAUTION	• Release your hand as soon as you load documents into the ASF. If the scanner starts feeding before you release your hand, the documents may be skewed resulting in a paper jam or MICR reading error. • Do not open the covers while the scanner is processing documents.



How to Remove Documents

When the documents are ejected, remove the documents.

CAUTION The number of documents ejected into the pockets should not exceed the capacity (up to 100 sheets for the main pocket and 50 sheets for the sub-pocket). Exceeding the capacity while the scanner is processing documents may result in paper jams.



NOTE

- With your application software, you can configure the ejection settings, such as which of the two pockets the processed documents will be ejected into, and whether to automatically switch to the other pocket when the first pocket is nearly full.
- You can set the scanner's built-in buzzer to sound when an error occurs, such as a paper jam, in your application software.

Cleaning

Cleaning the Image Sensor

If the image sensor of the scanner becomes dirty with ink, or paper dust, scan quality may deteriorate. Clean the image sensor once a week or every 2,000 scans.

Follow these steps to clean the image sensor.

1 **Open the scanner cover.**

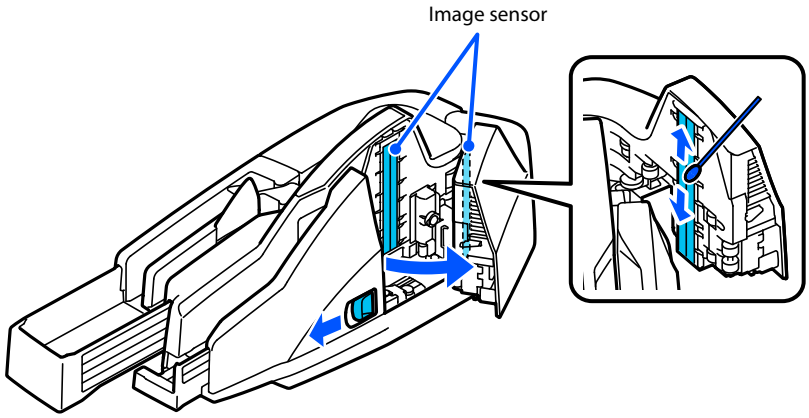
☞ "Opening the Scanner Cover" on page 37

2 **Lightly wipe the image sensor shown in the figure below with a soft, dry cloth.**

For stubborn stains such as oil or grease, wipe them off with a cloth lightly moistened with alcohol. Then, wipe off the alcohol with a dry cloth.

CAUTION

- **Do not use synthetic detergents, benzene, water or other liquids for cleaning. Using them may cause stains on the glass surface.**
- **Never apply any liquid directly to the glass of the scanner.**
- **Be careful not to spill liquid into the scanner mechanism or electronic components. This could permanently damage the mechanism and circuitry.**



3 **Close the scanner cover firmly until it clicks in place.**

Cleaning the MICR Unit

Dirt on the MICR unit can cause frequent MICR read errors. The MICR unit should be cleaned once a week or every 2,000 scans.

Use the following cleaning cards manufactured by KICTeam, Inc.

- Waffletechnology® MICR cleaning card (model: KWEPS-CS1B15WS)
- Epson Check Scanner Cleaning Kit (model: KWEPS-KCS2)

Use the TM-S1000II Utility or your application software to clean the MICR unit.

CAUTION

- **Do not use sticky cleaning sheets. They may cause a paper jam or machine failure.**
- **Be sure to dispose of used cleaning sheets.**

NOTE

- For cleaning procedures, see the manual for the TM-S1000II Utility or your application software.
- We recommend cleaning the image scanner after cleaning the MICR unit. See "Cleaning the Image Sensor" on page 42.

Removing a Paper Jam

Open the scanner cover or franker cover to remove the jammed paper.

“Opening the Scanner Cover” on page 37
“Opening the Franker Cover” on page 37

Preparing for Transport

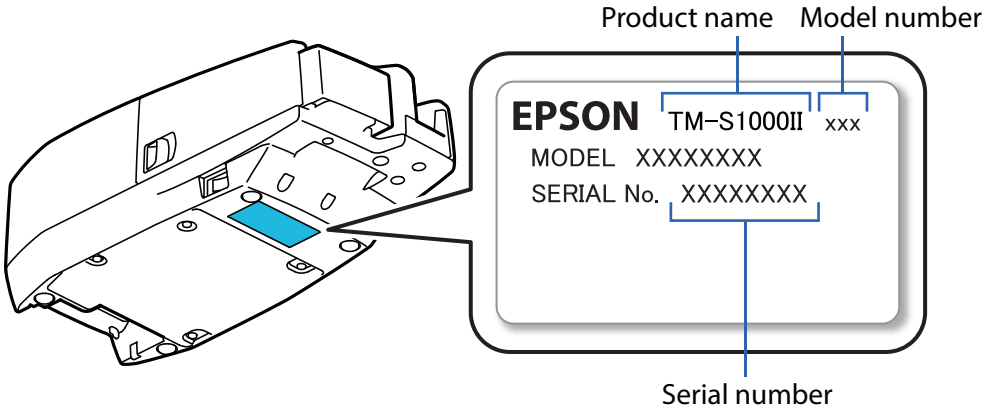
Follow the steps below to transport the scanner.

1. **Turn off the scanner.**
2. **Confirm that the ⏻ power LED is off.**
3. **Remove the power supply connector.**
4. **Store the pocket guide and the ASF guide inside the scanner.**
5. **Pack the scanner upright.**

Checking the Nameplate

The nameplate is affixed to the bottom of the scanner.

It shows the product name, model number, and serial number.



Troubleshooting

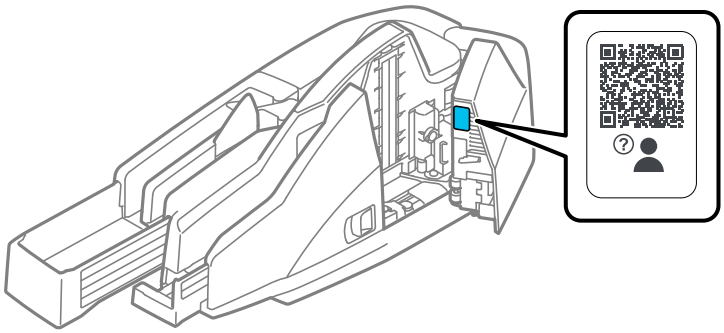
This chapter describes how to resolve problems.

Trouble	Reference
The Product Does Not Turn On	page 46
The ! Error LED is Lit or Flashing	page 46
Paper Jam	page 46
Problems with Reading Quality	page 46
Documents are not Fed Properly	page 46

About the QR Code Label on the Scanner

By scanning the QR Code on the label attached to the inner side of the scanner cover, you can access the user's manual.

If you encounter any problems while using the scanner, you can use this QR Code to quickly check for trouble-shooting.



The Product Does Not Turn On

Making sure each connector is oriented correctly, insert the power cable into the product and the power outlet as far as it will go.

☞ "Connecting the AC Adapter" on page 30

The ! Error LED is Lit or Flashing

Check the flashing interval of the ! Error LED to determine what error is occurring and take action.

☞ "Error Status" on page 16

Paper Jam

Open the scanner cover or franker cover to remove the jammed paper.

☞ "Opening the Covers" on page 37

Problems with Reading Quality

Cannot Read Magnetic Ink Characters Correctly

The MICR head may be dirty. Clean the MICR unit.

☞ "Cleaning the MICR Unit" on page 43

Scan Quality is Poor

The scanner glass may be dirty. Clean the scanner glass.

☞ "Cleaning the Image Sensor" on page 42

Documents are not Fed Properly

Perform a test scan with three new documents using the TM-S1000II Utility. If the scanner has not been used for more than three months, repeat the test scan until the document is properly fed.

Product Specifications

General Specifications

Item		Description
Processing speed		30 dpm or 60 dpm depending on the model.
ASF (Auto Sheet Feeder) capacity		Up to 100 sheets of paper that is 0.13 mm or less in thickness.
MICR reader	Reading method	Permanent magnetic bias
	Supported fonts	E13B, CMC7 (Alphabetic characters are not supported.)
OCR reader	Supported fonts	E13B OCR A, OCR B
Electric endorsement		• Different images can be pasted on each document. • More than one image can be pasted. • Logos, graphics, and TrueType fonts are available.
Pocket capacity	Main pocket	Up to 100 sheets of paper that is 0.13 mm or less in thickness. The thickness of the stack of paper must be 13 mm or less, including warpage and curl of the paper.
	Sub pocket	Up to 50 sheets of paper that is 0.13 mm or less in thickness. The thickness of the stack of paper must be 6.5 mm or less, including warpage and curl of the paper.
Franking cartridge	Type	Dedicated franking cartridge (EFC-01)
	Ink color	Red
	Life of ink	18,000 times (when printing the default message)
Power supply		Power supply by the included AC adapter (AC Adapter, C1). AC adapter (PS-190) can also be used.
Interface		USB ("USB (type-B) Interface" on page 54)
Life*1		1,000,000 sheets
MTBF*2		180,000 hours
MCBF*3		2,470,000 cycles
Overall dimension (W × H × D)		355 × 176 × 160 mm {14.0 × 6.93 × 6.30 in.}
Weight		Approx. 4.0 kg {8.82 lb} (excluding franking cartridge and AC adapter)

dpm: documents per minute, dpi: dots per inch (25.4 mm)

*1: Indicates the point at which the wear-out failure period starts.

*2: Indicates the mean time between failures during the random failure period.

*3: Indicates the overall mean time between failures, including wear-out and random failures, before the life is reached.

NOTE

- For detailed information about supported operating systems, .NET Frameworks, and development languages, see the TM-S1000II API Reference Guide.
- The processing speed is not achievable when using USB Full-Speed.

Scanning Specifications

Item		Description
Image scanner		CIS (Contact Image Sensor)
Resolution		200 × 200 dpi, 120 × 120 dpi, 100 × 100 dpi
Graduation		Grayscale (256 shades of gray), Black and white
Data compression format	Grayscale	JPEG
	Black and white	CCITT/group 4
Data format	Gray scale	TIFF, JPEG, BMP, Raster, JTIFF
	Black and white*1	TIFF*2, BMP
Scanning area		Height: 106 mm {4.17 in.} Length: Up to 235 mm {9.25 in.}
Image quality		Complies with IQA (Image Quality Assurance) formulated by FSTC (Financial Services Technology Consortium).
Skew correction		Detects and corrects the skew of the scanned document image according to the TM-S1000II driver settings.
Auto size adjustment		Crops the image and adjusts the size to the document size, according to the TM-S1000II driver settings.
Scanning speed		500 mm/s {19.69 in./s}

dpi: dots per inch (25.4 mm)

*1: Image noise reduction is automatically performed by the TM-S1000II driver when digitizing grayscale images.

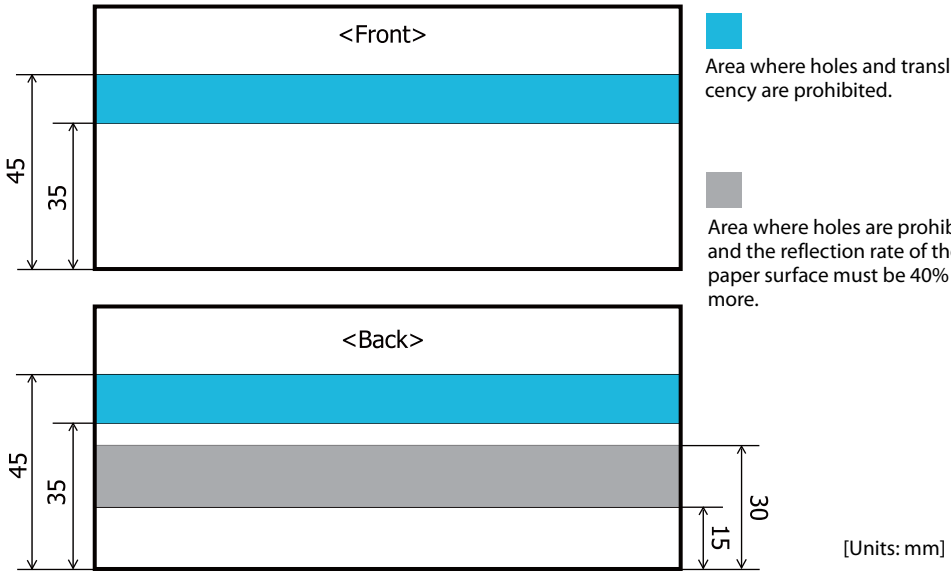
*2: The TIFF format of resolution 200 dpi, binary, CCITT-Group 4 compression conforms to ANSI X9.100-181-2007.

Paper Specifications

Item	Description
Type	Normal paper (single-ply only)
Size	Height: 68 to 120 mm {2.68 to 4.72 in.} Length: 120 to 235 mm {4.72 to 9.25 in.}
Thickness	0.075 to 0.2 mm {0.003 to 0.008 in.} (single-ply only)
Weight	60 to 120 g/m^2 {16 to 32 lb}

CAUTION

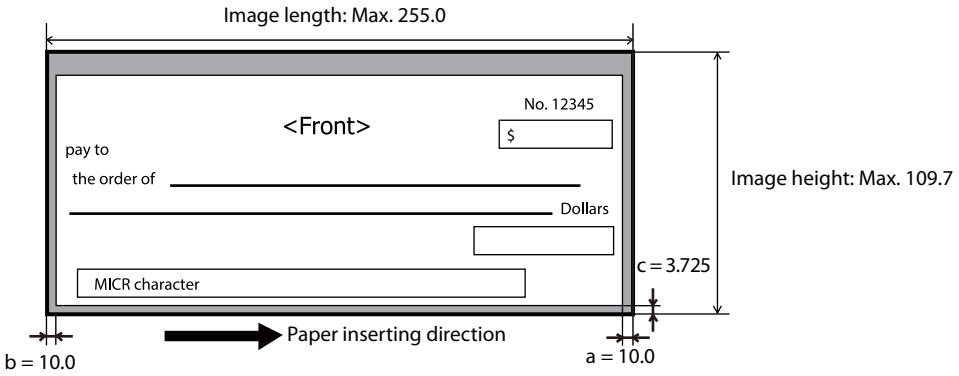
- Make sure that the paper has no curl, folds (especially at the top edges), warps, or wrinkles. Otherwise a paper jam may occur.
- Since the paper sensors use a translucent photo sensor and reflective photo sensor, do not use paper that has holes or translucency at the sensor position as shown in the figures below.

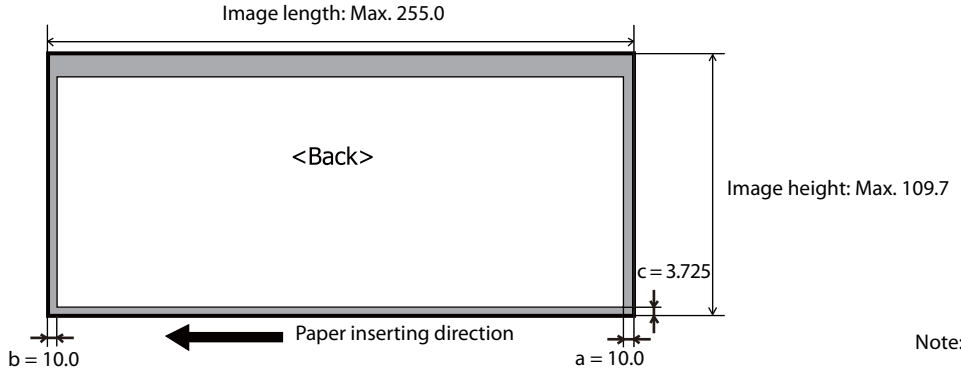


- The paper sensors ignore the range indicated in the figure below for the guide holes in fan-folded paper.

Scannable Area

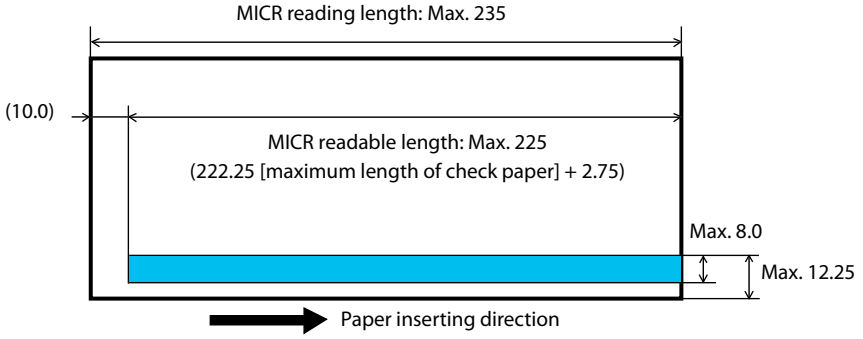
Image scanning may not be possible in the area a, b, and c in the figures below.





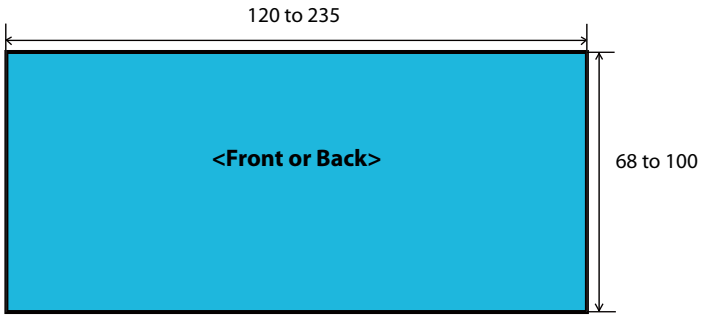
[Units: mm]
Note: Values are typical.

MICR Readable Area



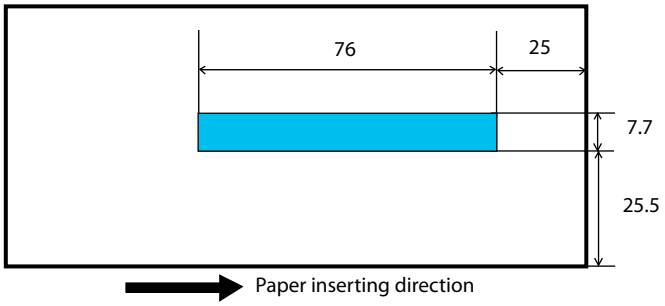
[Units: mm]

Area for Electric Endorsement



[Units: mm]

Area for Franking



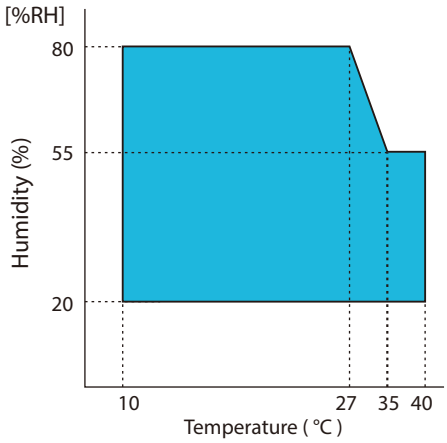
[Units: mm]

Electrical Specifications

Item	Description
Rated input	AC 115 to 230 V/50 to 60 Hz
Input current	1.0 A (max)
Rated output	DC 24 V/1.5 A
AC power consumption (115 to 230 V/50 to 60 Hz)*	Operating: Approx. 25.8 W Ready: Approx. 3.7 W Sleep: Approx. 1.1 W

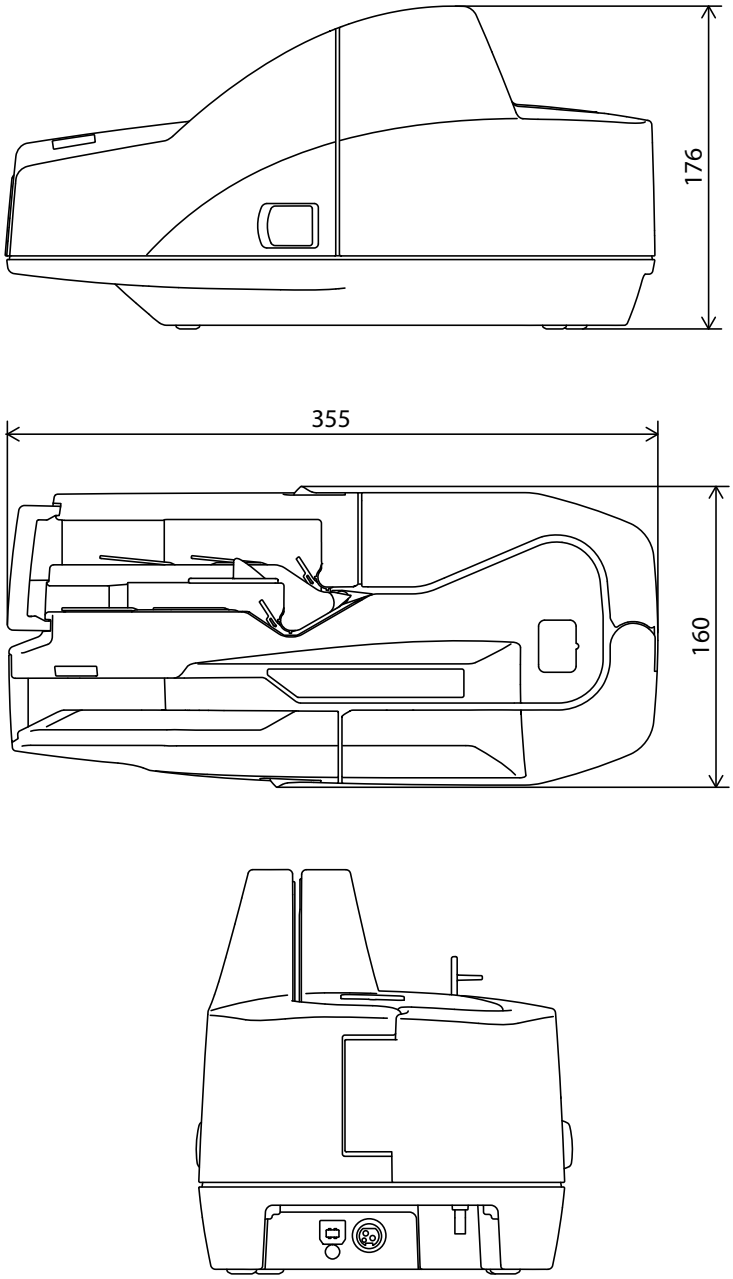
*According to our operation conditions. It may differ depending on the usage conditions and product model.

Environmental Conditions

Item		Description
Temperature/ humidity	Operating	10 to 40°C {50 to 104°F}, 20 to 80% RH, without condensation (See the graph on the right for operating temperature and humidity range.) 
	Storage (Factory packing)	-20 to 60°C {-4 to 140°F}, 5 to 85% RH, without condensation (120 hours or less at -20 {-4°F} or 60°C {140°F})
Vibration resistance	When packed	Frequency: 5 to 55 Hz Acceleration: Approx. 19.6 m/s^2 {2G} Sweep: 10 minutes (half cycle) Time: 1 hour Orientation: x, y, and z There is no external or internal visible damage and the unit operates normally after being subjected to vibration.
Shock resistance	When packed	Packing: Epson standard package specifications Height: 60 cm {23.62 in.} Orientation: 1 corner, 3 edges, and 6 surfaces There is no external or internal visible damage and the unit operates normally after being dropped.
	When unpacked	Height: 5 cm {1.97 in.} Orientation: Lift one edge and release it (for all 4 edges) There is no external or internal visible damage and the unit operates normally after being dropped while not operating.
Acoustic noise (operating)		Approx. 57.9 dB (bystander position) Note: The above value was measured under Epson's evaluation conditions. The value varies depending on the paper used, operating conditions (processing mode, processing speed, etc.).
Altitude		3,000 m or less

External Dimensions and Weight

Height: Approx. 176 mm {6.93 in.}
Width: Approx. 355 mm {13.98 in.}
Depth: Approx. 160 mm {6.30 in.}
Weight: Approx. 4.0 kg {8.82 lb}



[Unit: mm]

Interface Specifications

USB (type-B) Interface

Item	Description
General specification	USB 2.0
Communication speed	Hi-Speed (480 Mbps) Full-Speed (12 Mbps) The scanner processing speeds described in "Processing Speed" on page 19 cannot be achieved with Full-Speed.
Communication method	USB bulk transmission USB interrupt transmission
Power supply specification	USB self power supply function
USB bus current consumption	Approx. 0.2 mA

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