# ∋ SUZOHAPP

# SC 1600 Currency Counter
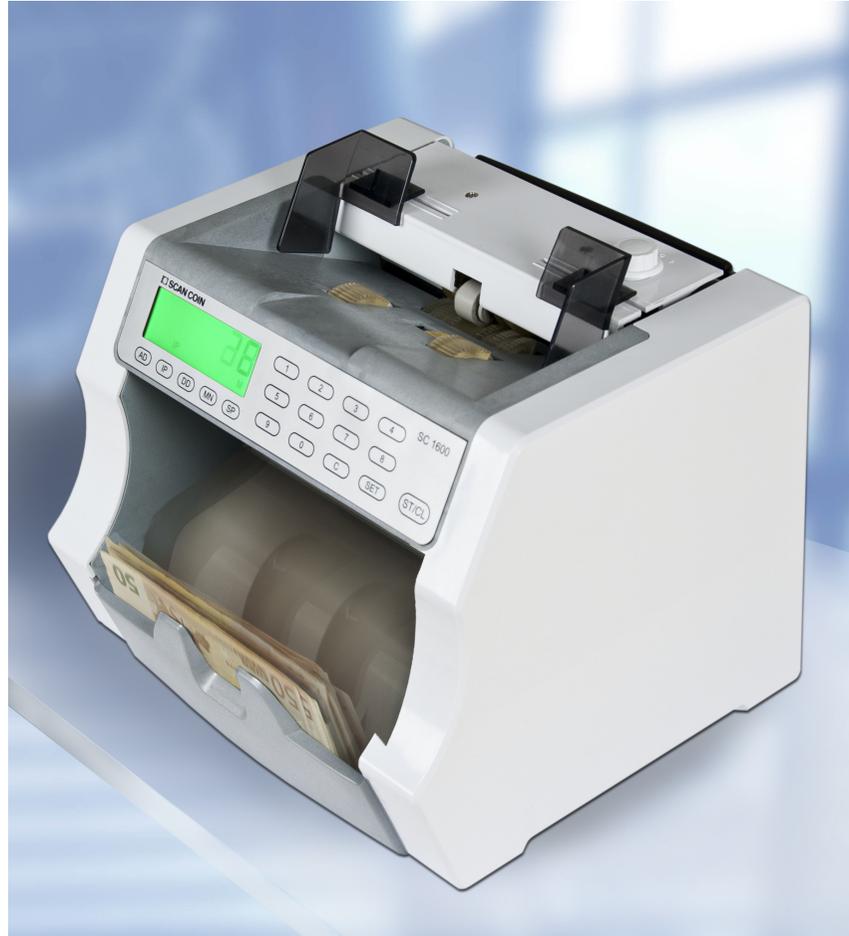


# User's Guide

**SCAN COIN**

# User's Guide

## SCAN COIN 1600

### Currency Counters

# General Information

SCAN COIN AB reserves the right to revise and improve its products as it sees fit. This publication describes this product at the time of publication and may not reflect the product in the future.

This publication, or parts thereof, may not be reproduced in any form whatsoever other than the purchaser's personal use without the express permission of SCAN COIN AB, Sweden.

## Declaration of Conformity

We, SCAN COIN AB, Malmö, Sweden, declare under our sole responsibility, that the product in this manual is in conformity with the following standards and/or other normative documents:

- EN 60 950-1:2006 + A11(2009) + A1(2010)
- EN 61000-6-1 (2007)
- EN 61000-6-3 (2007)

following the provisions of:
- Low Voltage Directive 2006/95/EC;
- EMC Directive 2004/108/EC.

## Environmental Compliance

### WEEE Directive (valid in the EU only)

Waste Electrical and Electronic Equipment Directive 2002/96/EC.



Equipment marked with this symbol must be treated separately and in accordance with any local legislation requiring proper treatment, recovery and recycling of used electric and electronic equipment.

Contact your SCAN COIN representative for further details.

# Responsibility

The supplier of the equipment accepts no responsibility for injury or damage to personnel or equipment if the equipment is altered in any way or used in a manner for which it was not intended at the time of delivery.

If the conditions for use of the equipment are changed, the supplier must be contacted or the declaration of conformity is invalidated.

# Safety Precautions

This guide contains hazard information which **must** be read by all users. The hazard information is presented as a warning as follows:

**WARNING**
**Risk of personal injury**
Warnings indicate a potential hazard to the health and safety of users. They clearly state the nature of the hazard and how to avoid it. The warning symbols appear at their points of application in this guide.

Caution!
Cautions indicate a hazard to the machine, but not a danger to personnel. They clearly state how to avoid the hazard. They appear at their points of application in this guide.

**WARNING**
**Risk of electric shock**
Lethal voltages exist in the machine when connected to mains power. Make sure you disconnect the power cord before cleaning or servicing the machine.

**WARNING**
**Risk of electric shock**
The machine is of metal construction and must therefore always be earthed to the supply. Ensure that both the plug on the supply lead and the supply source are earthed. This is a requirement for this type of equipment and if not adhered to will contravene the national and international standards of Health and Safety in the work place.

**WARNING**
**Risk of jamming**
This machine contains moving parts and sharp edges. Always be careful. Do not touch the components inside the machine while it is running.

**WARNING**
**Risk of jamming**
Switch off and disconnect the machine before opening the friction roller assembly. The machine may otherwise start, making it possible to get fingers caught between the rollers. Use the handle when lifting the machine.

**WARNING**
**Risk of entanglement!**
Keep long sleeves, ties, necklaces and long hair that can trigger the autostart sensor away from the machine. If the autostart function is enabled, the machine may start.

# Introduction

The SC 1600-series are compact desktop machines for counting notes/documents, detecting suspicious counterfeits and detecting undersized notes/documents.



There are several models with different functions, see . Throughout this guide, the instructions given apply to all versions unless stated otherwise.

The machines are light, easy to carry and easy to operate. By pressing keys on the control panel, you can select the various modes of operation. There is a LCD (Liquid Chrystal Display), which displays counted totals, batch quantity, error codes and other information.

Notes to be counted are placed on the feed table on top of the machine. As the notes are fed into the machine, they are counted and then collected on the stacker table at the bottom front of the machine.

The machines can operate at three different counting speeds: low, medium and high.

There is one RJ45 connector for serial communication to a PC and also a connector for an external display (RD 7).



## Accessories

| Part No. | Description |
|---|---|
| 013617-000 | External display. |
| 013975-100 | Communication cable. |

## Machine Part Terminology

### Front view
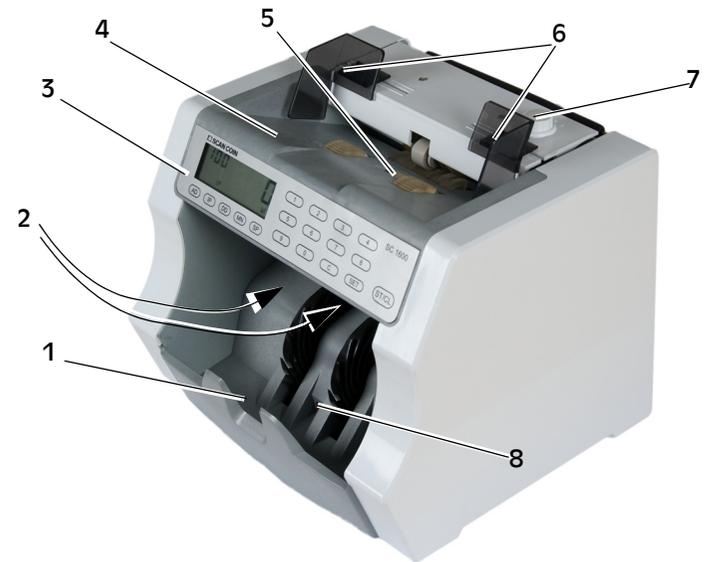


| | |
|---|---|
| 1 Stacker table | 6 Adjustable note holders |
| 2 Left and right count sensor | 7 Knob for note thickness adjustment |
| 3 Control panel | 8 Stacker sensor |
| 4 Feed table | |
| 5 Start sensor | |

## Rear view



1  Communication port
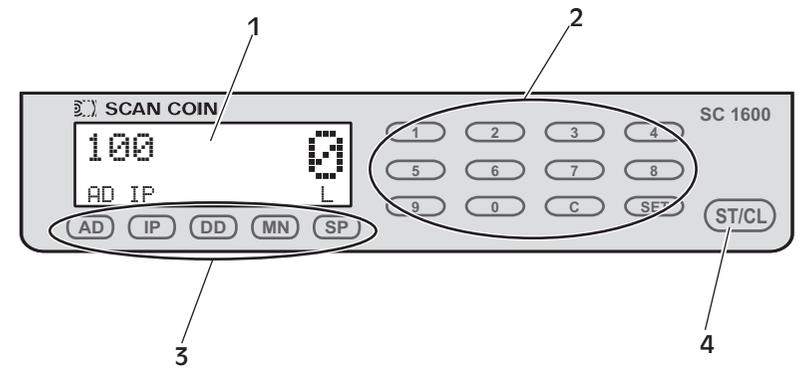2  Not used
3  External display port
4  Mains socket
5  Main switch

## Positional References

Unless stated otherwise, positions and directions such as left, right, upper, lower, rear, clockwise and counterclockwise are given with respect to the machine when viewed from the front.
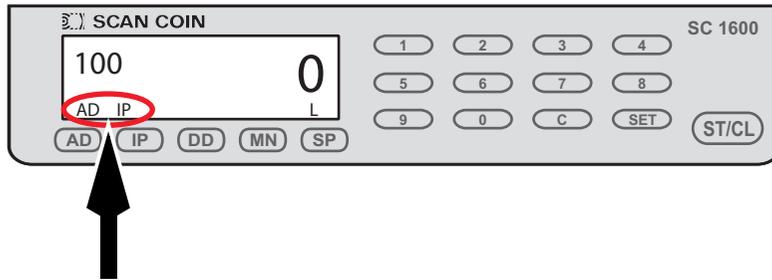
## Control Panel



1  Display
2  Numerical keys
3  Function keys (SC 1600 std)
4  ST/CL -key (Start/Clear)

## Functions keys

For further instructions, see . To use a function, press the key.

**Note!**
The corresponding text will light up on the display, to indicate that the function is active.



| Function | Description |
|---|---|
| **AD** | **Adding**<br><br>The machine will add each successive counting to the counted total. |
| **IP** | **Intelligent processing**<br><br>This function can be used together with other functions.<br><br>The machine will automatically select the correct setting for light or dark notes/documents (density).<br><br>If extremely dark and light notes are mixed in a bundle, the **IP** function can be disabled and a manually selected density can be used, see "Setting Note Density (IP)" on page 9. |

| Function | Description |
|---|---|
| **DD** | **Dimension detection (in mm)**<br><br>Detects notes/documents of differing width (short side) in any bundle.<br><br>If an under-sized or over-sized note/documents is detected, the machine stops at once with a beep tone and "dd" is displayed.<br><br>☐    **DD** function **not** in use.<br><br>↕    **DD** function in use.<br><br>The top most note/document on the stacker table is the different one and is not included in the counted total.<br><br>The minimum detectable difference (detecting accuracy) is 2 mm and can also be changed up to 7 mm (see "Setting Dimension Detection Accuracy (DD function, Short Side)" on page 9). The factory setting is 4 mm. |
| **MN** | **Manual start (SC 1600 std only).**<br><br>This function can be used together with other functions.<br><br>When the **MN** function is enabled, the machine does not start automatically when notes are placed on the feed table, see "Setting Automatic Start On/Off (MN)" on page 11. |
| **SP** | **Speed**<br><br>Select between low, medium and high speed.<br><br>Only used on some machines, see "Setting Counting Speed (SP)" on page 10. |

| Function | Description |
|---|---|
| **UV** | **UV detection (UV-versions only)**<br><br>Checks notes/documents by means of ultraviolet light. Can be used for almost any notes. The purpose is to identify the paper quality. It is used to detect suspicious notes/documents.<br><br>When a suspicious note/document is detected, the machine stops at once with a beep tone and "CF1" is displayed. See "Setting UV Detection Sensitivity (UV-Version Only)" on page 10. |
| **3D** | **Three-dimensional detection (3D-versions only)**<br><br>Detects notes/documents of differing width **and** length (long side) in any bundle. The function can be switched off, can be set to check the short side only (**DD** function) or to check both short side and long side at the same time (**3D** function). A symbol will indicate the currenct choise on the display:<br><br>☐     **3D** function **not** in use.<br><br>⬍     **DD** function in use.<br><br>⬌     **3D** function in use.<br><br>The accuracy for long side and short side detection can be set separately. The factory setting is 4 mm (short side) and 5 mm (long side). The setting will remain even if the machine is switched Off. See "Setting Dimension Detection Accuracy (3D function)" on page 9. |
| **MG** | **Magnetic print detection (MG-versions only)**<br><br>Checks for magnetic ink print. Can be used for example on USD and euro-notes. The purpose is to detect suspicious notes/documents.<br><br>When a suspicious note/document is detected, the machine stops at once with a beep tone and "CF2" is displayed. See also "Setting MG/IR Sensitivity" on page 11 |

## Installation

⚠ **WARNING**
**Risk of electric shock**
Follow the "Safety Precautions" on page 3.

**Caution!**
**The machine must be protected by a fuse or circuit breaker in the electrical circuit.**

Please also note the following when installing the machine:
- Operating temperature      15–35 °C
- Operating humidity      30–80% R.H.

Do not place the machine close to any radiators. Make sure there is some free space around the machine to allow the air to circulate.

Make sure that the machine is positioned so that the socket outlet is easily accessible.

If the plug on the supply lead to the machine has a fuse, make sure it has the correct rating in amps.

Although this machine has been tested and complies with the national and international standards/regulations, it is recommended that no equipment which generate a high level of electromagnetic interference (EMI) or vibration is placed close to the machine.

## Machine Label

The label below is an **example** of the information available on the machine.



| | |
|---|---|
| 1 Machine type | 7 Supply voltage |
| 2 Machine No. | 8 Frequency |
| 3 Serial No. | 9 Current consumption |
| 4 RoHS compliant | 10 Fuse |
| 5 CE-symbol | 11 Place and year of manufacture |
| 6 WEEE-symbol* | |

* See "Environmental Compliance" on page 2.

## Operation



**WARNING**
**Risk of jamming**
Follow the "Safety Precautions" on page 3.

### Getting Started

a) Connect the mains supply cable to the mains socket at the rear of the machine.

b) Set the power switch to I (**ON** position).

The machine will initiate a start and load all start-up parameters. It is automatically set to Batch counting mode. The display shows count "0" and batch "100".
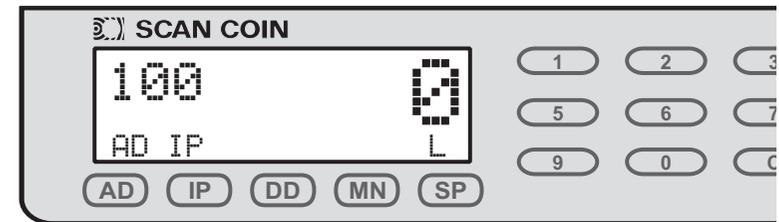


If any error occurs, an error code is displayed.

Any function can now be selected, see "Functions keys" on page 6.

## Batch Counting

The machine will count the notes according to the selected batch number and then stop.

The batch size "100" is automatically selected when the machine is switched **ON**. Press **C** to clear the batch number.

a) Set any batch number by means of the numerical keys **0–9**.

b) Place the notes on the feed table.

c) Adjust the note holders so that they fit the size of the notes.

The counting starts automatically and stops when the selected batch size has been reached.



d) Remove the counted notes.

The counting continues automatically as long as there are notes on the feed table.

## Adding (AD)

a) Press **AD**.

"AD" is displayed.

b) Place the notes on the feed table.

The counting starts automatically. Each batch of notes will be counted and added to the total. The display will show the total number of notes counted.

## Setting Dimension Detection Accuracy (DD function, Short Side)

a) Press **SET** several times until "dd" is displayed.

b) Press numerical key **1** (increase) or **0** (decrease) to select the desired detecting accuracy.

The range is 2–7 mm.

c) Press **ST/CL**.

## Setting Dimension Detection Accuracy (3D function)

To set the short side detction accuracy, follow the previous instruction ().

The **3D** function must be in use.

a) Press **SET** several times until "3d" is displayed.

b) Press the numerical key **1** (increase) or **0** (decrease) to select the desired detection accuracy.

The range is 4–8 mm.

c) Press **ST/CL**.

## Setting Note Density (IP)

When the **IP** function is off, "DE X" is displayed, the density range can be set according to the notes to be counted.

Eight levels of note density are provided. The factory setting is level 4.

**Note!**

The **IP** function will automatically handle almost any kind of note/document and should only be switched off when notes/documents in a specific condition is to be counted (for example extremely light and/or extremely dark documents mixed in the same bundle).

**a)** Press **SET** several times until "dE" is displayed.

**b)** Press numerical key **1** (increase) or **0** (decrease) to select the proper density level:

  – DE 1–2: thin, light colored or new note/document;
  – DE 3–5: note/document with color between light and dark;
  – DE 6–8: thick, dark colored, old or dirty note/document.

**c)** Press **ST/CL**.

## Setting UV Detection Sensitivity (UV-Version Only)

**Note!**

If mis-detection often occurs (a real note is taken for a counterfeit), select a lower sensitivity. If no-detection (the counterfeit is taken for real note) occurs, select a higher sensitivity.

**a)** Press **SET**.

**b)** Press **UV** several times to select the proper sensitivity level:

  – "L"- low sensitivity;
  – "M"- medium sensitivity;
  – "H"- high sensitivity.

**c)** Press **ST/CL**.

## Setting Counting Speed (SP)

**Note!**

**a)** Press **SP** to select the desired counting speed.

  The display will show:
    – "L"- low speed
    – "M"- medium speed
    – "H"- high speed.

The preset speeds can be also be set. There are nine different levels available.

• Press numerical keys **1** (increase) or **0** (decrease) to select the desired speed. The speed is changed in steps of 100 (+/- 100 notes/min).

To change the fixed values of the three counting speeds countinue below.

•

**b)** Press **SET**.

  "SP1" and the high speed setting is displayed.

**c)** Press numerical key **1** (increase) or **0** (decrease) to select the desired high speed.

**d)** Press **SET**.

  "SP2" and the medium speed setting is displayed.

**e)** Press numerical key **1** or **0** to select the desired medium speed.

**f)** Press **SET**.

  "SP3" and the low speed setting is displayed.

**g)** Press numerical key **1** or **0** to select the desired low speed.

**h)** Press **ST/CL**.

## Setting Counting Speed (SET)

If the **SP**-key is not available, the counting speed can be set by means of the **SET** key.

- Press **SET** to select one of three preset counting speeds.
  The display shows "SP".
    - Press **2** to select low speed.
    - Press **3** to select medium speed.
    - Press **4** to select high speed.

The preset speeds can be also be set. There are nine different levels available.

- Press numerical keys **1** (increase) or **0** (decrease) to select the desired speed. The speed is changed in steps of 100 (+/- 100 notes/min).

## Setting Automatic Start On/Off (MN)

If the **MN**-key is not available, the function can be set by means of the **SET** key.

a)  Press **SET** a number of times until "AU" is displayed.

b)  Press numerical key **1** (On) or **0** (Off) to select the desired function.

## Setting MG/IR Sensitivity

To set the sensitivity of any of the **MG** or **IR** functions, the function must be activated. Press the **MG**-key or, for **IR**, press **SET**.

a)  Press **SET**.

b)  Press **MG** or **SET** (**IR**).

Press **MG** to select the desired level:
- "L"- low sensitivity;
- "M"- medium sensitivity;
- "H"- high sensitivity.

To set the sensitivity of **IR**:
- Press **SET** a number of times until "IR" is displayed.
- Select the level in eight steps, 0–8 (0=the function is switched off).
  Press numerical keys **1** (increase) or **0** (decrease).

c)  Press **ST/CL**.

## Setting Position of Thickness Adjusting Knob

The purpose of this knob is to adjust for most convenient separation of the notes/document.

- If the machine stops frequently and displays "dbL". Turn the adjusting knob slightly counter-clockwise to decrease the gap between the feed rollers.
- If the notes run hard or too slow, turn the adjusting knob clockwise to increase the gap between the rollers.
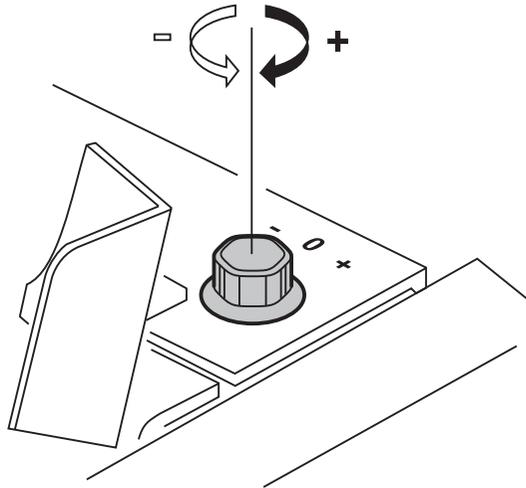
## Display Messages

Messages may appear on the display during normal operations. When the machine stops, read the message and then carry out the appropriate action described below. If any message persists contact your SCAN COIN representative.

This is a list of the messages shown on the display.

| Code | Description |
|------|-------------|
| 3d | Undersized or oversized note detected. |
| | Remove the note and press **ST/CL** to continue counting. No need to remove the complete bundle. |
| CF1 | Suspicious note/document detected (**UV**). |
| | Remove the suspicious note only and then press **ST/CL** to continue counting. The suspicious note is not included in the counted total. |
| CF2 | Suspicious note/document detected (**MG**). |
| | Remove the suspicious note only and then press **ST/CL** to continue counting. The suspicious note is not included in the counted total. |
| CF3 | Suspicious note/document detected (**IR**). |
| | Remove the suspicious note only and then press **ST/CL** to continue counting. The suspicious note is not included in the counted total. |
| dbL | Double notes or chained notes detected. |
| | Remove notes from the stacker and recount all notes. If the "dbL" occurs frequently, adjust the position of the thickness adjusting knob. |
| dd | Undersized or oversized note detected. |
| | Remove the note and press **ST/CL** to continue counting. No need to remove the complete bundle. |

| Code | Description |
|---|---|
| HAF | Half note detected. |
| | Remove the half note and press **ST/CL** to continue counting. No need to remove the complete bundle. |
| InS | Jammed note/document inside the machine. |
| | Remove the note and start counting. |
| JAn | Protective stop. |
| | Press **ST/CL** to continue counting. |
| | If the machine does not start, remove the jammed notes, check the position of thickness adjusting knob and then start again. |

# Troubleshooting

**WARNING**
**Risk of electric shock**
Follow the "Safety Precautions" on page 3.

## Sensor errors

The following error messages are all associated with sensor failures. The main cause of sensor failure is a dirty sensor or that the sensor is covered by a note/document. The corrective action in these cases is to use a soft brush or cloth to clean the surface of the sensor or to remove the note and then restart the machine.

| Code | Error position |
|---|---|
| E01 | Left count sensor |
| E02 | Right count sensor |
| E03 | Left double sensor |
| E04 | Right double sensor |
| E05 | Stacker sensor |
| E06 | Feed sensor |
| E07 | Speed sensor |
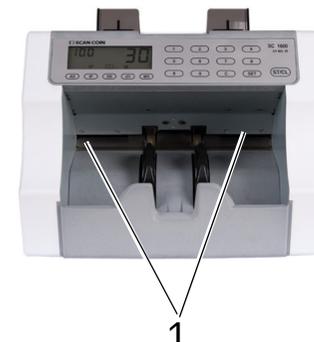
1  Left and right count sensor
2  Feed sensor
3  Stacker sensor

# Maintenance

**WARNING**
**Risk of electric shock**
Follow the "Safety Precautions" on page 3.

Clean the machine daily to prevent from accumulation of dirt.

**Caution!**
Only use cleaning materials and implements which do not scratch.

## Changing fuses

a) Carefully pull out the bottom holder.

b) Exchange the fuse. See "Technical Data" on page 15 for correct rating.

c) Replace the bottom holder.

# Cleaning

## Sensors

There are five sensors which need to be cleaned regularly. Use a soft brush.

Clean:
- the start sensor,
- the stacker sensor,
- the left and right count sensors.

## Feed system

a) Make sure the note holders are **not** in ther outermost position.

b) Place the handle in its front position.

c) Lift the upper friction roller unit.

d) Inspect and if necessary clean the area with a soft brush.

# Technical Data

**Part number:**

SC 1600 std . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 018520-600
SC 1600 UV. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .018520-601
SC 1600 UV MG IR. . . . . . . . . . . . . . . . . . . . . . . 018520-602
SC 1600 UV 3D MG IR. . . . . . . . . . . . . . . . . . . 018520-603

**Power supply** . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .99–245 V AC
**Frequency** . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .60/50 Hz
**Current consumption** . . . . . . . . . . . . . . . . . . . . . . . . . . . 40 W
**Fuse** . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2 A
**Counting speed** (selectable)**:**

High . . . . . . . . . . . . . . . . . . 1 300, 1 400, 1 500 notes/minute
Medium. . . . . . . . . . . . . . . . .900, 1 000, 1 100 notes/minute
Low . . . . . . . . . . . . . . . . . . . . . .500, 600, 700 notes/minute

**Note size:**

Minimum . . . . . . . . . . . . . . . . . . . . . 110x50 mm (4.33–1.97")
Maximum . . . . . . . . . . . . . . . . . . . . . 185x90 mm (7.28–3.54")

**Dimensions**:

Width . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 270 mm (10.63")
Depth . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 230 mm (9.06")
Height . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 250 mm (9.84")

**Weight** . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .5.6 kg (12.3 lbs)
**Noise level** (during operation) . . . . . . . . . . . . . . . . . . . . .79 dB (A)