



SII Print Class Library for Android™ Application Programmer's Guide

Rev.06

[Products]

MP-B20 Series

Seiko Instruments Inc.

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Introduction

This document describes the "SII Print Class Library for Android™" for MP-B20 Series (hereinafter referred to as "SII print class library") provided by Seiko Instruments Inc. (hereinafter referred to as "SII").

Target printers

This section lists the printers supported by SII print class library.

| Printers | Interface |
|---------------|-----------|
| MP-B20 Series | Bluetooth |
| | USB |

Terms

This section describes terms used in this manual.

| Terms | Description |
|-----------------|---|
| Printer Command | Command for controlling the printer described in "MP-B20 Series Thermal Printer Technical References" |

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Chapter 1

Product Overview

This chapter describes the product overview of SII print class library.

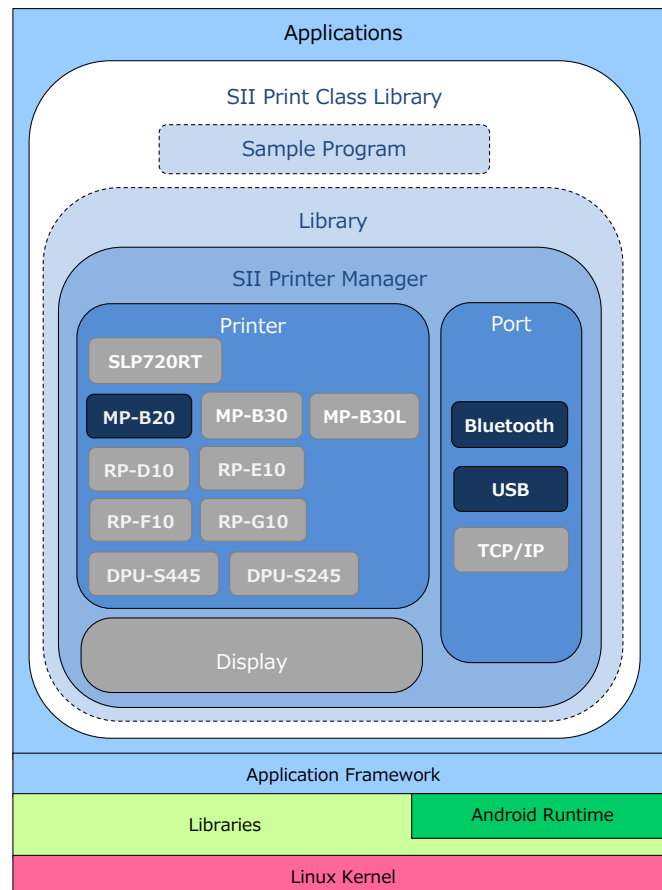
1.1 Functions Provided by SII Print Class Library

The SII print class library including the library and the sample programs provides the functions to use SII printer MP-B20 Series (hereinafter referred to as "printer") in Android applications. Moreover, the SII print class library provides Android Studio projects as a sample program for SII print class library.

1.2 SII Print Class Library Overview

1.2.1 SII Print Class Library Configuration

The library and sample program in SII print class library are indicated with dashed lines in the figure below.



1.2.2 Functions Provided by Library

By using the library, Android applications can easily send print data and printer commands to a printer through communication port (Bluetooth or USB) on an Android device. Also, the applications can get printer status.

The library provides the following functions.

- Connecting to / disconnecting from a printer
- Sending data to a printer (print data and/or printer commands*¹)
- Printing barcode and 2-dimensional barcode
- Sending a data file to a printer (print data and/or printer commands*¹)
- Getting the printer status
- Aborting the waiting state of a printer
- Getting various responses from a printer
- Bulk registration of print commands
- Registering a printer status call back function
- Searching the printer by Bluetooth

*1: Commands that read responses from the printer are not available. In order to read responses from a printer, use `getStatus` or `getPrinterResponse`.

| |
|---|
| (NOTE) MP-B20 does not support the APIs of page mode, Display, or the barcode scanner. |
|---|

Chapter 2

Product Specifications

This chapter describes the product specifications of the library.

2.1 Operating Environment

Operating environment for the library is shown in the following table.

| | | | | |
|--------------------|-------------------------|-----------------------|-------------------------|-------------------|
| Printer | Model | | MP-B20 | |
| | F/W Version | | 1.00 or later | |
| | Communication Interface | | Bluetooth | USB |
| Android Device | Communication Port | | Bluetooth ^{*1} | USB ^{*2} |
| | OS | Android 5.0 (API 21) | Supported | Supported |
| | | Android 5.1 (API 22) | | |
| | | Android 6.0 (API 23) | | |
| | | Android 7.0 (API 24) | | |
| | | Android 7.1 (API 25) | | |
| | | Android 8.0 (API 26) | | |
| | | Android 8.1 (API 27) | | |
| | | Android 9.0 (API 28) | | |
| | | Android 10.0 (API 29) | | |
| | | Android 11.0 (API 30) | | |
| | | Android 12.0 (API 31) | | |
| Supported Language | | Japanese, English | | |

*1: Bluetooth connection needs to be established by SPP (Serial Port Profile).

*2: Android device needs to support USB host function.

2.2 Operating Conditions

This section describes the operating conditions for the library.

Set the Function Setting of the printer from [value] in the following table before using the library.

See "MP-B20 SERIES THERMAL PRINTER USER'S GUIDE" for details about Function Setting and the factory default settings.

| MS | Function | Value |
|-----|---|-------------------------|
| 1-1 | Interface Selection (Interface) | 0 : USB 1 : Wireless |
| 3-1 | Automatic Status Response Selection (Auto Status Back) | 0 : Enable |
| 3-2 | Initialized Response Selection (Init. Response) | 0 : Enable |
| 3-3 | Realtime Command Selection (Realtime Command) | 0 : Enable |
| 3-4 | Data Discard Selection When Error Occurs (Error Through) | 0 : Enable |
| 3-5 | Data Discard Selection When Output Buffer Full Occurs (Response Data Discarding) | 1 : Disable |

Chapter 3

How to Use Library

This chapter describes the development environment for Android application and how to use the library.

3.1 Development Environment for Android Application

In order to develop Android applications, the following tools are required. See each of the following URLs for more details.

- Android Studio
<https://developer.android.com/studio/index.html>
- USB driver for Windows (When develop on Windows environment)
<https://developer.android.com/studio/run/oem-usb.html>

In this chapter and after in this document, it is required to set up an environment where each tool is available.

3.2 Provided Files

The file configuration of SII print class library is as follows.

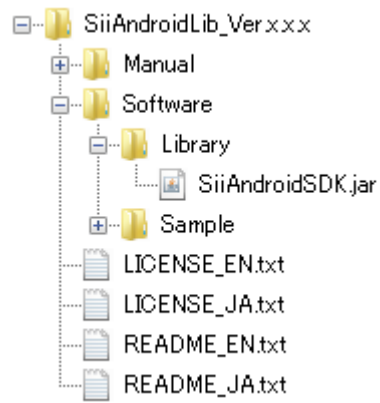


Figure 3-1

The file format of the library is jar. The file name of the library is SiiAndroidSDK.jar.

3.3 Add Library to Android Studio Projects

Using the project of the sample program included in SII print class library as an example, this section describes how to add the library to Android Studio projects.

See "Chapter 5 Sample Program" for sample programs included in SII print class library.

- (1) Select and right click the module (app) displayed in the Android Project view of Android Studio, select [New] and [Directory] (Figure 3-2), and enter "libs" in the folder name to create a folder. (Figure 3-3)

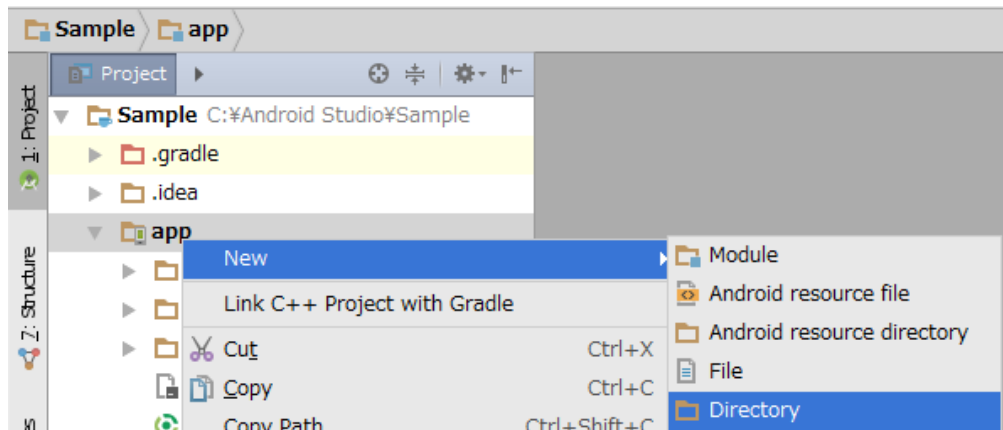


Figure 3-2

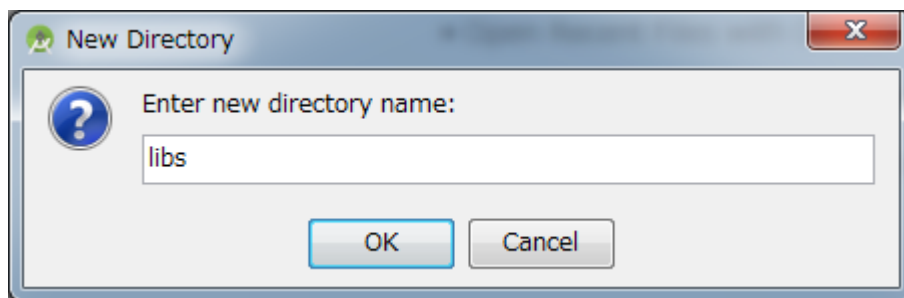


Figure 3-3

- (2) Copy the library file (SiiAndroidSDK.jar) into the folder (¥Sample¥app¥libs) created in step (1).

- (3) After adding the library, the view looks like Figure 3-4.

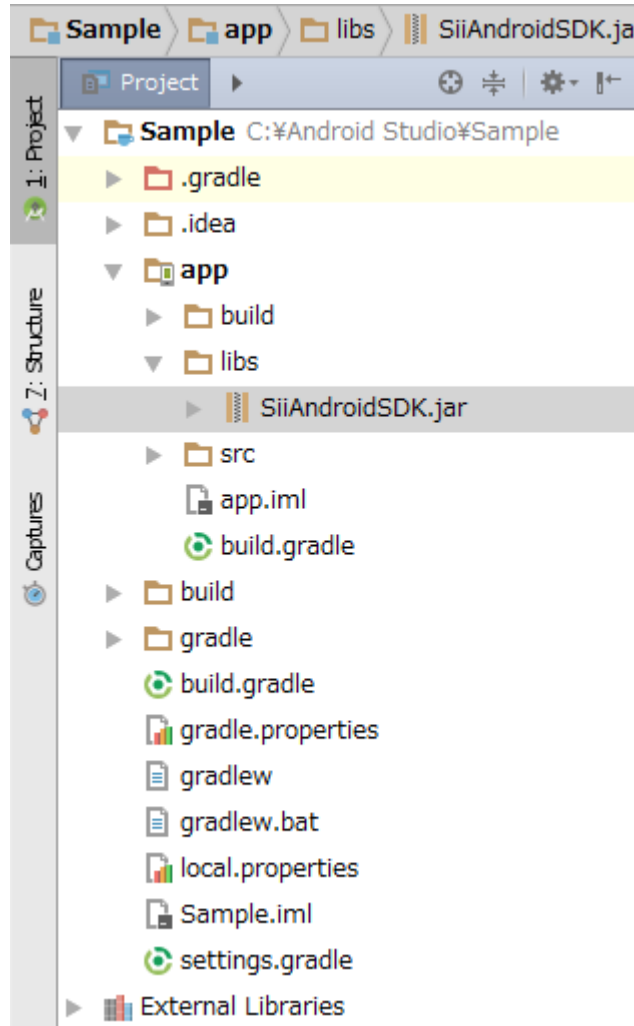


Figure 3-4

- (4) Add the following codes at the beginning of the main source file.
(Add at the beginning of MainActivity.java for the sample program.)

```
import com.seikoinstruments.sdk.thermalprinter.PrinterEvent;  
import com.seikoinstruments.sdk.thermalprinter.PrinterException;  
import com.seikoinstruments.sdk.thermalprinter.PrinterInfo;  
import com.seikoinstruments.sdk.thermalprinter.PrinterListener;  
import com.seikoinstruments.sdk.thermalprinter.PrinterManager;
```

By completing these procedures, functions of the library become available.

3.4 Use Developed Android Application on Android Device

In order to use the developed Android applications on the Android device, configure the following settings on the Android device.

(NOTE) This procedure is based on the menu of Android 7.1. Menu contents may vary depending on the using Android device.

- (1) Select [Settings], [Security], and turn on [Unknown sources]. (Figure 3-5)

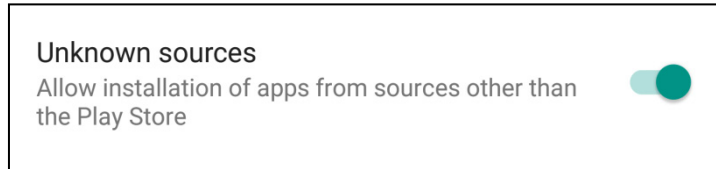


Figure 3-5

- (2) Select [Settings], [Developer options], and turn on [USB debugging]. (Figure 3-6)

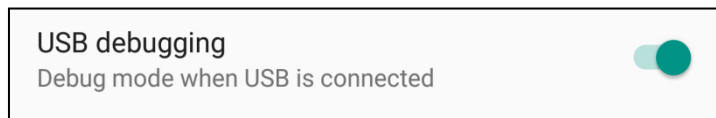


Figure 3-6

3.5 Precautions

- **About Scoped Storage**

"Scoped Storage" that is introduced in Android 10 distinguishes between app-specific storage and external storage.

When targeting Android 10 (API 29) or later, files that do not correspond to media files in the external storage cannot be handled directly. Files that do not correspond to media files can be handled by using the "Storage Access Framework".

See below for details of Scoped Storage.

- Data and file storage overview
<https://developer.android.com/training/data-storage>

Chapter 4

Functions of the Library

This chapter describes the APIs of each class implemented in the library.

4.1 API Reference

The package of the library is `com.seikoinstruments.sdk.thermalprinter`.
`com.seikoinstruments.sdk.thermalprinter` includes the following classes.

| Class Name | Description | Supported ^{*1} |
|---------------------------------|---|-------------------------|
| PrinterManager | Provides the API used for communication with the printer and for printing. See " 4.1.1 PrinterManager Class " for more details. | ✓ |
| PrinterEvent | Provides the API that gets the end event when <code>startDiscoveryPrinter</code> is terminated. See " 4.1.2 PrinterEvent Class " for more details. | ✓ |
| PrinterListener | Interface for getting the end event when <code>startDiscoveryPrinter</code> is terminated. See " 4.1.3 PrinterListener Interface " for more details. | ✓ |
| PrinterInfo | Stores the printer information found by <code>startDiscoveryPrinter</code> . See " 4.1.4 PrinterInfo Class ". | ✓ |
| PrinterException | Exception class that is thrown at API call. See " 4.1.5 PrinterException Class " for more details. | ✓ |
| CallbackFunctionListener | Interface for getting the change event of printer status. See " 4.1.6 CallbackFunctionListener Interface " for more details. | ✓ |
| BarcodeScannerListener | Interface for getting barcode scanner connection or barcode scanner disconnection, or received barcode data. See " 4.1.7 BarcodeScannerListener Interface " for more details. | - |

*1: ✓: Supported, -: Not supported in MP-B20

(NOTE) MP-B20 does not support the APIs of page mode, Display, or the barcode scanner.

4.1.1 PrinterManager Class

(1) Method List

Methods provided by the **PrinterManager** class are shown in the following table.

| Name | Description | Supported ^{*1} |
|--|--|-------------------------|
| PrinterManager | Constructor | ✓ |
| connect | Start communicating with printer (Bluetooth) | ✓ |
| connect | Start communicating with printer (USB) | ✓ |
| disconnect | Stop communicating with printer | ✓ |
| setBarcodeScannerListener | Start/End callback of barcode scanner | - |
| sendText | Send text data | ✓ |
| sendTextEx | Send format specified text data | ✓ |
| printBarcode | Print barcode | ✓ |
| printPDF417 | Print PDF417 | ✓ |
| printQRcode | Print QR Code | ✓ |
| printDataMatrix | Print Data Matrix | ✓ |
| printMaxiCode | Print MaxiCode | ✓ |
| printGS1DataBarStacked | Print GS1 Databar Stacked | ✓ |
| printGS1DataBarStackedOmnidirectional | Print GS1 Databar Stacked Omni-directional | ✓ |
| printGS1DataBarExpandedStacked | Print GS1 Databar Expanded Stacked | ✓ |
| printAztecCode | Print Aztec Code | - |
| cutPaper | Cut paper ^{*2} | ✓ |
| feedPosition | Paper form feed | - |
| openDrawer | Open cash drawer | - |
| buzzer | Sound buzzer | - |
| externalBuzzer | Sound external buzzer | - |
| sendBinary | Send binary data | ✓ |
| sendDataFile | Send specified file | ✓ |
| getStatus | Get printer status | ✓ |
| setCallbackFunctionListener | Start/End callback of printer status change | ✓ |
| abort | Abort waiting state of printer | ✓ |
| registerLogo | Register logo | ✓ |
| printLogo | Print logo | ✓ |
| unregisterLogo | Delete registered logo | ✓ |
| registerStyleSheet | Register style sheet | - |
| unregisterStyleSheet | Delete registered style sheet | - |
| resetPrinter | Reset printer | ✓ |
| getPrinterResponse | Get various responses from printer | ✓ |
| startDiscoveryPrinter | Start printer search (Bluetooth) | ✓ |
| startDiscoveryPrinter | Start printer search (USB) | ✓ |

| Name | Description | Supported *1 |
|----------------------------------|--------------------------------------|--------------|
| startDiscoveryPrinter | Start printer search (TCP/IP) | - |
| cancelDiscoveryPrinter | Cancel printer search | ✓ |
| getFoundPrinter | Get found printer information | ✓ |
| getSendTimeout | Get send timeout period | ✓ |
| setSendTimeout | Set send timeout period | ✓ |
| getReceiveTimeout | Get receive timeout period | ✓ |
| setReceiveTimeout | Set receive timeout period | ✓ |
| getInternationalCharacter | Get international character set | ✓ |
| setInternationalCharacter | Set international character set | ✓ |
| getCodePage | Get codepage | ✓ |
| setCodePage | Set codepage | ✓ |
| getPrinterModel | Get printer model | ✓ |
| getPortType | Get connecting port type | ✓ |
| isConnect | Verify connection state with printer | ✓ |
| getSocketKeepingTime | Get socket keeping time | - |
| setSocketKeepingTime | Set socket keeping time | - |
| getVersion | Get SDK version | ✓ |
| controlTransaction | Start/End batch processing | ✓ |

*1: ✓ : Supported, -: Not supported in MP-B20

*2: Only the paper feed operation to the paper cut position is performed.

(2) Constant List

① Printer model

Constants used for starting communicating with a printer and getting the printer model are shown in the following table.

| Constant Name | Description | Value |
|------------------------------|--------------------------------|-------|
| PRINTER_MODEL_MP_B20 | MP-B20 | 298 |
| PRINTER_MODEL_DEFAULT | Default value of printer model | 284 |

② Response type

Constants used for getting various responses from a printer are shown in the following table.

| Constant Name | Description | Value |
|---|--|-------|
| PRINTER_RESPONSE_REQUEST | Request of execution response | 0 |
| PRINTER_RESPONSE_USER_AREA | Send remaining capacity response in user area | 1 |
| PRINTER_RESPONSE_ARRANGE_USER_AREA | Send remaining capacity response in user area after defragment | 2 |
| PRINTER_RESPONSE_NV_GRAPHICS | Send NV graphics memory capacity | 3 |

| Constant Name | Description | Value |
|--|---|-------|
| PRINTER_RESPONSE_KEY_CODE | Send key code list of defined NV graphics | 4 |
| PRINTER_RESPONSE_BATTERY_STATUS | Battery remaining capacity level | 5 |

③ Battery remaining capacity level

Constants of the battery remaining capacity level retrieved from a printer are shown in the following table.

| Constant Name | Description | Value |
|------------------------------|---|-------|
| BATTERY_STATUS_FULL | Battery remaining capacity: approx. 80% | 0 |
| BATTERY_STATUS_MIDDLE | Battery remaining capacity: approx. 40% | 1 |
| BATTERY_STATUS_LOW | Battery remaining capacity: approx. 10% | 2 |
| BATTERY_STATUS_EMPTY | No battery | 3 |

④ International character set

Constants used for setting/getting international character set are shown in the following table.

| Constant Name | Description | Value |
|------------------------------|----------------|-------|
| COUNTRY_USA | USA | 0 |
| COUNTRY_FRANCE | France | 1 |
| COUNTRY_GERMANY | Germany | 2 |
| COUNTRY_ENGLAND | United Kingdom | 3 |
| COUNTRY_DENMARK_1 | Denmark I | 4 |
| COUNTRY_SWEDEN | Sweden | 5 |
| COUNTRY_ITALY | Italy | 6 |
| COUNTRY_SPAIN | Spain I | 7 |
| COUNTRY_JAPAN | Japan | 8 |
| COUNTRY_NORWAY | Norway | 9 |
| COUNTRY_DENMARK_2 | Denmark II | 10 |
| COUNTRY_SPAIN_2 | Spain II | 11 |
| COUNTRY_LATIN_AMERICA | Latin America | 12 |
| COUNTRY_ARABIA | Arabia | 17 |

⑤ Codepage

Constants used for setting/getting codepage are shown in the following table.

| Constant Name | Codepage | Value |
|------------------------------------|--------------------------------------|-------|
| CODE_PAGE_437 | USA, Standard Europe (Code Page 437) | 0 |
| CODE_PAGE_KATAKANA | Katakana | 1 |
| CODE_PAGE_850 | Multilingual (Code Page 850) | 2 |
| CODE_PAGE_860 | Portuguese (Code Page 860) | 3 |
| CODE_PAGE_863 | Canadian-French (Code Page 863) | 4 |
| CODE_PAGE_865 | Nordic (Code Page 865) | 5 |
| CODE_PAGE_857 | Turkish (Code Page 857) | 13 |
| CODE_PAGE_737 | Greek (Code Page 737) | 14 |
| CODE_PAGE_1252 | Latin (Code Page 1252) | 16 |
| CODE_PAGE_866 | Russian (Code Page 866) | 17 |
| CODE_PAGE_852 | Eastern Europe (Code Page 852) | 18 |
| CODE_PAGE_858 | Euro (Code Page 858) | 19 |
| CODE_PAGE_855 | Cyrillic (Code Page 855) | 34 |
| CODE_PAGE_864^{*1*} | Arabic (Code Page 864) | 37 |
| CODE_PAGE_1250 | Central European (Code Page 1250) | 45 |
| CODE_PAGE_1251 | Cyrillic (Code Page 1251) | 46 |
| CODE_PAGE_1253 | Greek (Code Page 1253) | 47 |
| CODE_PAGE_1254 | Turkish (Code Page 1254) | 48 |

*1: 20ACh of the Unicode cannot be printed.

*2: Font B cannot be printed.

⑥ Port type

Constants used for starting communicating with a printer and getting the connecting port type are shown in the following table.

| Constant Name | Description | Value |
|-------------------------------|-------------|-------|
| PRINTER_TYPE_BLUETOOTH | Bluetooth | 0 |
| PRINTER_TYPE_USB | USB | 1 |

⑦ Barcode or PDF417

Constants used for printing barcode and printing PDF417 are shown in the following table.

| Constant Name | Description | Value |
|-------------------------------------|---|-------|
| BARCODE_HEIGHT_DEFAULT | Default value of barcode height | 162 |
| PDF417_MODULE_HEIGHT_DEFAULT | Default value of PDF417 height | 10 |
| PDF417_ROW_AUTO | Automatic selection of the number of rows | 0 |

| Constant Name | Description | Value |
|--------------------|--|-------|
| PDF417_COLUMN_AUTO | Automatic selection of the number of columns | 0 |

(3) Enumerated Constant List

① Bold print (CharacterBold)

Constants of enumerated type used for bold print are shown in the following table.

| Constant Name | Description |
|---------------|--------------------|
| BOLD_CANCEL | Cancel bold print |
| BOLD | Specify bold print |

② Underline (CharacterUnderline)

Constants of enumerated type used for underlining are shown in the following table.

| Constant Name | Description |
|------------------|-------------------------------------|
| UNDERLINE_CANCEL | Cancel underline print |
| UNDERLINE_1 | Specify 1-dot width underline print |
| UNDERLINE_2 | Specify 2-dot width underline print |

③ Reverse print (CharacterReverse)

Constants of enumerated type used for reverse print are shown in the following table.

| Constant Name | Description |
|----------------|-----------------------|
| REVERSE_CANCEL | Cancel reverse print |
| REVERSE | Specify reverse print |

④ Inversion print (CharacterInversion)

Constants of enumerated type used for inversion print are shown in the following table.
Inversion print cannot be added to the text data before inserting a new line feed.

| Constant Name | Description |
|------------------|-------------------------|
| INVERSION_CANCEL | Cancel inversion print |
| INVERSION | Specify inversion print |

⑤ Character font (CharacterFont)

Constants of enumerated type used for character font are shown in the following table.

| Constant Name | Description |
|---------------|------------------|
| FONT_A | Font A (24 × 12) |
| FONT_B | Font B (16 × 8) |

⑥ Character scale (CharacterScale)

Constants of enumerated type used for character scale are shown in the following table.

| Constant Name | Description |
|-------------------------|--------------------------|
| VERTICAL_1_HORIZONTAL_1 | Height × 1 and width × 1 |
| VERTICAL_1_HORIZONTAL_2 | Height × 1 and width × 2 |
| VERTICAL_1_HORIZONTAL_3 | Height × 1 and width × 3 |
| VERTICAL_1_HORIZONTAL_4 | Height × 1 and width × 4 |
| VERTICAL_2_HORIZONTAL_1 | Height × 2 and width × 1 |
| VERTICAL_2_HORIZONTAL_2 | Height × 2 and width × 2 |
| VERTICAL_2_HORIZONTAL_3 | Height × 2 and width × 3 |
| VERTICAL_2_HORIZONTAL_4 | Height × 2 and width × 4 |
| VERTICAL_2_HORIZONTAL_6 | Height × 2 and width × 6 |
| VERTICAL_3_HORIZONTAL_1 | Height × 3 and width × 1 |
| VERTICAL_3_HORIZONTAL_2 | Height × 3 and width × 2 |
| VERTICAL_3_HORIZONTAL_3 | Height × 3 and width × 3 |
| VERTICAL_3_HORIZONTAL_4 | Height × 3 and width × 4 |
| VERTICAL_4_HORIZONTAL_1 | Height × 4 and width × 1 |
| VERTICAL_4_HORIZONTAL_2 | Height × 4 and width × 2 |
| VERTICAL_4_HORIZONTAL_3 | Height × 4 and width × 3 |
| VERTICAL_4_HORIZONTAL_4 | Height × 4 and width × 4 |
| VERTICAL_4_HORIZONTAL_6 | Height × 4 and width × 6 |
| VERTICAL_4_HORIZONTAL_8 | Height × 4 and width × 8 |
| VERTICAL_6_HORIZONTAL_2 | Height × 6 and width × 2 |
| VERTICAL_6_HORIZONTAL_4 | Height × 6 and width × 4 |
| VERTICAL_6_HORIZONTAL_6 | Height × 6 and width × 6 |
| VERTICAL_6_HORIZONTAL_8 | Height × 6 and width × 8 |
| VERTICAL_8_HORIZONTAL_4 | Height × 8 and width × 4 |
| VERTICAL_8_HORIZONTAL_6 | Height × 8 and width × 6 |
| VERTICAL_8_HORIZONTAL_8 | Height × 8 and width × 8 |

⑦ Alignment (PrintAlignment)

Constants of enumerated type used for alignment are shown in the following table.
Alignment cannot be added to the text data before inserting a new line feed.

| Constant Name | Description |
|------------------|---------------|
| ALIGNMENT_LEFT | Aligned left |
| ALIGNMENT_CENTER | Centered |
| ALIGNMENT_RIGHT | Aligned right |

⑧ Pending data output specifying (OutputPendingData)

Constants of enumerated type used for pending data output specifying are shown in the following table.

| Constant Name | Description |
|------------------------------|--|
| PENDING_DATA_OUTPUT_FIRST | Output pending data at first and start the processing |
| PENDING_DATA_OUTPUT_TOGETHER | Output pending data at the same time as the processing |

⑨ Barcode symbol (BarcodeSymbol)

Constants of enumerated type used for barcode symbol are shown in the following table.

| Constant Name | Description | Syntax ^{*1} |
|-------------------------------------|------------------------------|----------------------|
| BARCODE_SYMBOL_UPC_A | UPC-A | (a) |
| BARCODE_SYMBOL_UPC_E | UPC-E | (a) |
| BARCODE_SYMBOL_EAN13 | EAN13 | (a) |
| BARCODE_SYMBOL_JAN13 | JAN13 | (a) |
| BARCODE_SYMBOL_EAN8 | EAN8 | (a) |
| BARCODE_SYMBOL_JAN8 | JAN8 | (a) |
| BARCODE_SYMBOL_CODE39 | CODE39 | (a), (b) |
| BARCODE_SYMBOL_CODE93 | CODE93 | (c) |
| BARCODE_SYMBOL_CODE128 | CODE128 | (c) |
| BARCODE_SYMBOL_ITF | ITF | (a), (b) |
| BARCODE_SYMBOL_CODABAR | CODABAR | (a), (b) |
| BARCODE_SYMBOL_EAN13_ADDON | EAN13 add-on | (a) |
| BARCODE_SYMBOL_JAN13_ADDON | JAN13 add-on | (a) |
| BARCODE_SYMBOL_GS1_OMNI_DIRECTIONAL | GS1 Databar Omni-directional | (a) |
| BARCODE_SYMBOL_GS1_TRUNCATED | GS1 Databar Truncated | (a) |
| BARCODE_SYMBOL_GS1_LIMITED | GS1 Databar Limited | (a) |
| BARCODE_SYMBOL_GS1_EXPANDED | GS1 Databar Expanded | (a) |

*1: See "4.1.1(4) Method Details printBarcode" for more details of syntax.

⑩ Module size (ModuleSize)

Constants of enumerated type used for width, nominal fine element width, and module size of barcode are shown in the following table.

| Constant Name | Description | Method to Use |
|------------------------|--|---------------|
| BARCODE_MODULE_WIDTH_2 | Fine element 2 dots Module width 0.250 mm | printBarcode |
| BARCODE_MODULE_WIDTH_3 | Fine element 3 dots Module width 0.375 mm | |
| BARCODE_MODULE_WIDTH_4 | Fine element 4 dots Module width 0.500 mm | |
| BARCODE_MODULE_WIDTH_5 | Fine element 5 dots Module width 0.625 mm | |
| BARCODE_MODULE_WIDTH_6 | Fine element 6 dots Module width 0.750 mm | |
| PDF417_MODULE_WIDTH_2 | Nominal fine element width 2 dots | printPDF417 |
| PDF417_MODULE_WIDTH_3 | Nominal fine element width 3 dots | |
| PDF417_MODULE_WIDTH_4 | Nominal fine element width 4 dots | |
| PDF417_MODULE_WIDTH_5 | Nominal fine element width 5 dots | |
| PDF417_MODULE_WIDTH_6 | Nominal fine element width 6 dots | |
| PDF417_MODULE_WIDTH_7 | Nominal fine element width 7 dots | |
| PDF417_MODULE_WIDTH_8 | Nominal fine element width 8 dots | printQRcode |
| QR_MODULE_SIZE_2 | 2 dots | |
| QR_MODULE_SIZE_3 | 3 dots | |
| QR_MODULE_SIZE_4 | 4 dots | |
| QR_MODULE_SIZE_5 | 5 dots | |
| QR_MODULE_SIZE_6 | 6 dots | |
| QR_MODULE_SIZE_7 | 7 dots | |
| QR_MODULE_SIZE_8 | 8 dots | |
| QR_MODULE_SIZE_9 | 9 dots | |
| QR_MODULE_SIZE_10 | 10 dots | |
| QR_MODULE_SIZE_11 | 11 dots | |
| QR_MODULE_SIZE_12 | 12 dots | |
| QR_MODULE_SIZE_13 | 13 dots | |
| QR_MODULE_SIZE_14 | 14 dots | |
| QR_MODULE_SIZE_15 | 15 dots | |
| QR_MODULE_SIZE_16 | 16 dots | |

| Constant Name | Description | Method to Use |
|---------------------------|-------------|--|
| DATAMATRIX_MODULE_SIZE_2 | 2 dots | printDataMatrix |
| DATAMATRIX_MODULE_SIZE_3 | 3 dots | |
| DATAMATRIX_MODULE_SIZE_4 | 4 dots | |
| DATAMATRIX_MODULE_SIZE_5 | 5 dots | |
| DATAMATRIX_MODULE_SIZE_6 | 6 dots | |
| DATAMATRIX_MODULE_SIZE_7 | 7 dots | |
| DATAMATRIX_MODULE_SIZE_8 | 8 dots | |
| DATAMATRIX_MODULE_SIZE_9 | 9 dots | |
| DATAMATRIX_MODULE_SIZE_10 | 10 dots | |
| DATAMATRIX_MODULE_SIZE_11 | 11 dots | |
| DATAMATRIX_MODULE_SIZE_12 | 12 dots | |
| DATAMATRIX_MODULE_SIZE_13 | 13 dots | |
| DATAMATRIX_MODULE_SIZE_14 | 14 dots | |
| DATAMATRIX_MODULE_SIZE_15 | 15 dots | |
| DATAMATRIX_MODULE_SIZE_16 | 16 dots | |
| GS1DATABAR_MODULE_SIZE_2 | 2 dots | <ul style="list-style-type: none"> ● printGS1DataBarStacked ● printGS1DataBarStackedOmni directional ● printGS1DataBarExpandedStacked |
| GS1DATABAR_MODULE_SIZE_3 | 3 dots | |
| GS1DATABAR_MODULE_SIZE_4 | 4 dots | |
| GS1DATABAR_MODULE_SIZE_5 | 5 dots | |
| GS1DATABAR_MODULE_SIZE_6 | 6 dots | |
| GS1DATABAR_MODULE_SIZE_7 | 7 dots | |
| GS1DATABAR_MODULE_SIZE_8 | 8 dots | |
| GS1DATABAR_MODULE_SIZE_9 | 9 dots | |
| GS1DATABAR_MODULE_SIZE_10 | 10 dots | |
| GS1DATABAR_MODULE_SIZE_11 | 11 dots | |
| GS1DATABAR_MODULE_SIZE_12 | 12 dots | |
| GS1DATABAR_MODULE_SIZE_13 | 13 dots | |
| GS1DATABAR_MODULE_SIZE_14 | 14 dots | |
| GS1DATABAR_MODULE_SIZE_15 | 15 dots | |
| GS1DATABAR_MODULE_SIZE_16 | 16 dots | |

⑪ HRI character print position (HriPosition)

Constants of enumerated type used for HRI character print position are shown in the following table.

| Constant Name | Description |
|--------------------------|--------------------------------|
| HRI_NONE | Not printed |
| HRI_POSITION_ABOVE | Above barcode |
| HRI_POSITION_BELOW | Below barcode |
| HRI_POSITION_ABOVE_BELOW | Above and below barcode (both) |

⑫ N:W ratio (NwRatio)

Constants of enumerated type used for N:W ratio are shown in the following table.

| Constant Name | Description |
|----------------|-------------|
| NWRATIO_1TO2 | 1:2 |
| NWRATIO_1TO2_5 | 1:2.5 |
| NWRATIO_1TO3 | 1:3 |

⑬ Error correction level (ErrorCorrection)

Constants of enumerated type used for error correction level are shown in the following table.

| Constant Name | Description | Method to Use |
|---------------------------|--------------------------|---------------|
| PDF417_ERROR_CORRECTION_0 | Error correction level 0 | printPDF417 |
| PDF417_ERROR_CORRECTION_1 | Error correction level 1 | |
| PDF417_ERROR_CORRECTION_2 | Error correction level 2 | |
| PDF417_ERROR_CORRECTION_3 | Error correction level 3 | |
| PDF417_ERROR_CORRECTION_4 | Error correction level 4 | |
| PDF417_ERROR_CORRECTION_5 | Error correction level 5 | |
| PDF417_ERROR_CORRECTION_6 | Error correction level 6 | |
| PDF417_ERROR_CORRECTION_7 | Error correction level 7 | |
| PDF417_ERROR_CORRECTION_8 | Error correction level 8 | |
| QR_ERROR_CORRECTION_L | Error correction level L | printQRcode |
| QR_ERROR_CORRECTION_M | Error correction level M | |
| QR_ERROR_CORRECTION_H | Error correction level H | |
| QR_ERROR_CORRECTION_Q | Error correction level Q | |

⑭ PDF417 symbol (Pdf417Symbol)

Constants of enumerated type used for PDF417 symbol are shown in the following table.

| Constant Name | Description |
|-----------------|----------------|
| PDF417_STANDARD | PDF417 |
| PDF417_COMPACT | Compact PDF417 |

⑮ QR Code Model (QrModel)

Constants of enumerated type used for QR Code Model are shown in the following table.

| Constant Name | Description |
|---------------|-----------------|
| QR_MODEL_1 | QR Code Model 1 |
| QR_MODEL_2 | QR Code Model 2 |

⑩ Data Matrix module (DataMatrixModule)

Constants of enumerated type used for Data Matrix module are shown in the following table.

| Constant Name | Description |
|---------------------|------------------------------|
| DATA_MATRIX_AUTO | Number of modules: Automatic |
| DATA_MATRIX_10_10 | Number of modules: 10 × 10 |
| DATA_MATRIX_12_12 | Number of modules: 12 × 12 |
| DATA_MATRIX_14_14 | Number of modules: 14 × 14 |
| DATA_MATRIX_16_16 | Number of modules: 16 × 16 |
| DATA_MATRIX_18_18 | Number of modules: 18 × 18 |
| DATA_MATRIX_20_20 | Number of modules: 20 × 20 |
| DATA_MATRIX_22_22 | Number of modules: 22 × 22 |
| DATA_MATRIX_24_24 | Number of modules: 24 × 24 |
| DATA_MATRIX_26_26 | Number of modules: 26 × 26 |
| DATA_MATRIX_32_32 | Number of modules: 32 × 32 |
| DATA_MATRIX_36_36 | Number of modules: 36 × 36 |
| DATA_MATRIX_40_40 | Number of modules: 40 × 40 |
| DATA_MATRIX_44_44 | Number of modules: 44 × 44 |
| DATA_MATRIX_48_48 | Number of modules: 48 × 48 |
| DATA_MATRIX_52_52 | Number of modules: 52 × 52 |
| DATA_MATRIX_64_64 | Number of modules: 64 × 64 |
| DATA_MATRIX_72_72 | Number of modules: 72 × 72 |
| DATA_MATRIX_80_80 | Number of modules: 80 × 80 |
| DATA_MATRIX_88_88 | Number of modules: 88 × 88 |
| DATA_MATRIX_96_96 | Number of modules: 96 × 96 |
| DATA_MATRIX_104_104 | Number of modules: 104 × 104 |
| DATA_MATRIX_120_120 | Number of modules: 120 × 120 |
| DATA_MATRIX_132_132 | Number of modules: 132 × 132 |
| DATA_MATRIX_144_144 | Number of modules: 144 × 144 |
| DATA_MATRIX_8_18 | Number of modules: 8 × 18 |
| DATA_MATRIX_8_32 | Number of modules: 8 × 32 |
| DATA_MATRIX_12_26 | Number of modules: 12 × 26 |
| DATA_MATRIX_12_36 | Number of modules: 12 × 36 |
| DATA_MATRIX_16_36 | Number of modules: 16 × 36 |
| DATA_MATRIX_16_48 | Number of modules: 16 × 48 |

⑰ MaxiCode Mode (MaxiCodeMode)

Constants of enumerated type used for MaxiCode Mode are shown in the following table.

| Constant Name | Description |
|--------------------|-------------|
| MAXI_CODE_2 | Mode2 |
| MAXI_CODE_3 | Mode3 |
| MAXI_CODE_4 | Mode4 |
| MAXI_CODE_5 | Mode5 |

⑱ Cutting method (CuttingMethod)

Constants of enumerated type used for cutting method are shown in the following table. Whichever constant of enumerated type is specified, the printer only feeds the paper to the paper cut position without cutting.

| Constant Name | Description |
|--------------------|-------------|
| CUT_FULL | Full cut |
| CUT_PARTIAL | Partial cut |

⑲ Dithering (Dithering)

Constants of enumerated type used for dithering are shown in the following table.

| Constant Name | Description |
|---------------------------------|-----------------------|
| DITHERING_DISABLE | Dithering is disabled |
| DITHERING_ERRORDIFFUSION | Dithering is enabled |

⑳ Batch processing selection (TransactionFunction)

Constants of enumerated type used for batch processing selection are shown in the following table.

| Constant Name | Description |
|--------------------------|--|
| TRANSACTION_CLEAR | Cancel batch processing |
| TRANSACTION_START | Start batch processing |
| TRANSACTION_PRINT | Finish batch printing and batch processing |

PrinterManager**Constructor**

Constructor for **com.seikoinstruments.sdk.thermalprinter.PrinterManager** class.

Syntax (a) public **PrinterManager**(Context *context*)

(b) public **PrinterManager**()

Parameter *context* Specify application context to call this method.
Example: **MainActivity.this**

Note Use the syntax (a) when using this method newly.
Syntax (b) is a method that will be unsupported in the future.

connect**Start communicating with printer (Bluetooth)**

Starts communication with a printer by Bluetooth connection.

The method of syntax (a) always communicates with a printer in secure mode.

The method of syntax (b) communicates with a printer by specifying secure mode or insecure mode.

Syntax (a) public void **connect**(int *printerModel*, String *address*) throws **PrinterException**

(b) public void **connect**(int *printerModel*, String *address*, boolean *secure*)
throws **PrinterException**

Parameter *printerModel* Printer model constant for Bluetooth connection
See "4.1.1(2)① Printer model" for available constants.

address Bluetooth address
Example: "00:11:22:AA:BB:CC"

secure true Communicates with a printer in secure mode
false Communicates with a printer in insecure mode
Normally, communication in secure mode is recommended.

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "**4.1.5 PrinterException Class**" for details of the error.

Description Call this method before using other **PrinterManager** class methods.

The printer specified by *printerModel* is connected to the Bluetooth address specified by *address*.

Also, printer initial setting is performed at the connection based on *printerModel* specified.

Monitoring of the printer status is started with this method. The latest printer status can be retrieved from **getStatus**.

Changes of the printer status can be notified as events by **onStatusChanged** and **setCallbackFunctionListener**.

connect**Start communicating with printer (USB)**

Starts communication with a printer by USB connection.

The method of syntax (a) specifies the printer model.

The method of syntax (b) specifies the printer model and specifies the context to call the application.

| | | |
|-------------|--|---|
| Syntax | (a) public void connect (int <i>printerModel</i>) throws PrinterException | |
| | (b) public void connect (int <i>printerModel</i> , Context <i>context</i>) throws PrinterException | |
| Parameter | <i>printerModel</i> | Printer model constant for USB connection See "4.1.1(2)① Printer model" for available constants. |
| | <i>context</i> | Specify application context to call this method. Example: MainActivity.this |
| Exception | PrinterException PrinterException is thrown when an error occurs while calling this method. See " 4.1.5 PrinterException Class " for details of the error. | |
| Description | Call this method before using other PrinterManager class methods. The printer specified by <i>printerModel</i> is connected. Also, printer initial setting is performed at the connection based on <i>printerModel</i> specified. Monitoring of the printer status is started with this method. The latest printer status can be retrieved from getStatus . Changes of the printer status can be notified as events by onStatusChanged and setCallbackFunctionListener . | |
| Note | Use the syntax (a) when using this method newly. Syntax (b) is a method that will be unsupported in the future. | |

disconnect**Stop communicating with printer**

Stops communicating with the printer and monitoring the printer status.

| | | |
|-------------|--|--|
| Syntax | public void disconnect () throws PrinterException | |
| Exception | PrinterException PrinterException is thrown when an error occurs while calling this method. See " 4.1.5 PrinterException Class " for details of the error. | |
| Description | This method discards the print data kept by controlTransaction . | |
| Note | It is recommended to get the execution response by PRINTER_RESPONSE_REQUEST of getPrinterResponse method before executing this method. If not, the communication is disconnected by this method before the print data sending from Android device to the printer is completed, and a part of the data may be lost. If you do not execute getPrinterResponse in your program, evaluate your program to confirm no problems arise. | |

setBarcodeScannerListener**Start/End callback of barcode scanner**

This method is not supported. When this method is executed, **PrinterException** is thrown.

| | | |
|--------|--|--|
| Syntax | public void setBarcodeScannerListener (BarcodeScannerListener <i>listener</i>) throws PrinterException | |
|--------|--|--|

Sends text data.

Syntax public void **sendText**(String *text*) throws **PrinterException**

Parameter *text* Text data to send to the printer
Data size that can be specified at 1 time is 16 KB (16384 bytes).

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "**4.1.5 PrinterException Class**" for details of the error.
When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

Description This method encodes the specified text data to printable text data based on **setInternationalCharacter** and **setCodePage**, and then sends it to the printer.

This method does not add any line feed code at the end of the text data. In order to print to the end, add a line feed code to the end of the text data.

Sends format specified text data to the printer.

The method of syntax (a) or (c) outputs the pending data at first and starts processing.

The method of syntax (b) starts processing according to the constants of the pending data output specifying.

Syntax (a) public void **sendTextEx**(String *text*,
CharacterBold *bold*,
CharacterUnderline *underline*,
CharacterReverse *reverse*,
CharacterFont *font*,
CharacterScale *scale*,
PrintAlignment *alignment*) throws **PrinterException**

(b) public void **sendTextEx**(String *text*,
CharacterBold *bold*,
CharacterUnderline *underline*,
CharacterReverse *reverse*,
CharacterFont *font*,
CharacterScale *scale*,
PrintAlignment *alignment*,
OutputPendingData *output*) throws **PrinterException**

(c) public void **sendTextEx**(String *text*,
CharacterBold *bold*,
CharacterUnderline *underline*,
CharacterInversion *inversion*,
CharacterFont *font*,
CharacterScale *scale*,
PrintAlignment *alignment*) throws **PrinterException**

Parameter *text* Text data to send to the printer
Data size that can be specified at 1 time is 16 KB (16384 bytes).

bold Bold print
See "4.1.1(3)① Bold print (CharacterBold)" for available constants.

| | |
|------------------|---|
| <i>underline</i> | Underline See "4.1.1(3)② Underline (CharacterUnderline)" for available constants. |
| <i>reverse</i> | Reverse print See "4.1.1(3)③ Reverse print (CharacterReverse)" for available constants. |
| <i>inversion</i> | Inversion print See "4.1.1(3)④ Inversion print (CharacterInversion)" for available constants. |
| <i>font</i> | Font See "4.1.1(3)⑤ Character font (CharacterFont)" for available constants. |
| <i>scale</i> | Character scale See "4.1.1(3)⑥ Character scale (CharacterScale)" for available constants. |
| <i>alignment</i> | Alignment See "4.1.1(3)⑦ Alignment (PrintAlignment)" for available constants. |
| <i>output</i> | Pending data output specifying See "4.1.1(3)⑧ Pending data output specifying (OutputPendingData)" for available constants. |

Exception PrinterException

PrinterException is thrown when an error occurs while calling this method.

See "**4.1.5 PrinterException Class**" for details of the error.

When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

Description This method encodes the specified text data to printable text data based on **setInternationalCharacter** and **setCodePage**, and then sends it to the printer.

For laying out text data by sending following printer commands with **sendBinary** or **sendDataFile**, specify **PENDING_DATA_OUTPUT_TOGETHER** at *output* in the method of syntax (b).

- "Horizontal Tab"
- "Specify Absolute Position"
- "Specify Relative Position"

When the method of the syntax (a) is executed or **PENDING_DATA_OUTPUT_FIRST** is specified at *output* in the method of syntax (b), the print position set in above becomes invalid.

This method does not add any line feed code at the end of the text data. In order to print to the end, add a line feed code to the end of the text data.

printBarcode

Print barcode

Prints barcode.

The method of syntax (a) specifies the barcode data by character string.

The method of syntax (b) specifies the barcode data by character string and specifies the alignment and N:W ratio of the barcode.

The method of syntax (c) specifies the barcode data by the array of bytes and specifies the alignment of the barcode.

| | | |
|-----------|--|---|
| Syntax | <p>(a) public void printBarcode(BarcodeSymbol <i>barcodeSymbol</i>, String <i>text</i>, ModuleSize <i>moduleSize</i>, int <i>moduleHeight</i>, HriPosition <i>hriPosition</i>, CharacterFont <i>hriFont</i>, PrintAlignment <i>alignment</i>) throws PrinterException</p> <p>(b) public void printBarcode(BarcodeSymbol <i>barcodeSymbol</i>, String <i>text</i>, ModuleSize <i>moduleSize</i>, int <i>moduleHeight</i>, HriPosition <i>hriPosition</i>, CharacterFont <i>hriFont</i>, PrintAlignment <i>alignment</i>, NwRatio <i>nwRatio</i>) throws PrinterException</p> <p>(c) public void printBarcode(BarcodeSymbol <i>barcodeSymbol</i>, byte[] <i>data</i>, ModuleSize <i>moduleSize</i>, int <i>moduleHeight</i>, HriPosition <i>hriPosition</i>, CharacterFont <i>hriFont</i>, PrintAlignment <i>alignment</i>) throws PrinterException</p> | |
| Parameter | <i>barcodeSymbol</i> | Barcode symbol See "4.1.1(3)⑨ Barcode symbol (BarcodeSymbol)" for available constants. |
| | <i>text (data)</i> | Barcode data to send to the printer |
| | <i>moduleSize</i> | Barcode width See "4.1.1(3)⑩ Module size (ModuleSize)" for available constants. |
| | <i>moduleHeight</i> | Barcode height (dot) <ul style="list-style-type: none"> When <i>barcodeSymbol</i> is set to the following, the valid range is 1 to 255. BARCODE_SYMBOL_UPC_A BARCODE_SYMBOL_UPC_E BARCODE_SYMBOL_EAN13 BARCODE_SYMBOL_JAN13 BARCODE_SYMBOL_EAN8 BARCODE_SYMBOL_JAN8 BARCODE_SYMBOL_CODE39 BARCODE_SYMBOL_CODE93 BARCODE_SYMBOL_CODE128 BARCODE_SYMBOL_ITF BARCODE_SYMBOL_CODABAR BARCODE_SYMBOL_EAN13_ADDON BARCODE_SYMBOL_JAN13_ADDON |

- When *barcodeSymbol* is set to the following, the valid range is different by *barcodeSymbol* and *moduleSize*.

| <i>barcodeSymbol</i> | | |
|--|------------------------|-------------|
| | <i>moduleSize</i> | Valid Range |
| BARCODE_SYMBOL_GS1_OMNI_DIRECTIONAL | | |
| | BARCODE_MODULE_WIDTH_2 | 66 to 255 |
| | BARCODE_MODULE_WIDTH_3 | 99 to 255 |
| | BARCODE_MODULE_WIDTH_4 | 132 to 255 |
| | BARCODE_MODULE_WIDTH_5 | 165 to 255 |
| | BARCODE_MODULE_WIDTH_6 | 198 to 255 |
| BARCODE_SYMBOL_GS1_TRUNCATED | | |
| | BARCODE_MODULE_WIDTH_2 | 26 to 255 |
| | BARCODE_MODULE_WIDTH_3 | 39 to 255 |
| | BARCODE_MODULE_WIDTH_4 | 52 to 255 |
| | BARCODE_MODULE_WIDTH_5 | 65 to 255 |
| | BARCODE_MODULE_WIDTH_6 | 78 to 255 |
| BARCODE_SYMBOL_GS1_LIMITED | | |
| | BARCODE_MODULE_WIDTH_2 | 20 to 255 |
| | BARCODE_MODULE_WIDTH_3 | 30 to 255 |
| | BARCODE_MODULE_WIDTH_4 | 40 to 255 |
| | BARCODE_MODULE_WIDTH_5 | 50 to 255 |
| | BARCODE_MODULE_WIDTH_6 | 60 to 255 |
| BARCODE_SYMBOL_GS1_EXPANDED | | |
| | BARCODE_MODULE_WIDTH_2 | 68 to 255 |
| | BARCODE_MODULE_WIDTH_3 | 102 to 255 |
| | BARCODE_MODULE_WIDTH_4 | 136 to 255 |
| | BARCODE_MODULE_WIDTH_5 | 170 to 255 |
| | BARCODE_MODULE_WIDTH_6 | 204 to 255 |

| | |
|--------------------|--|
| <i>hriPosition</i> | HRI character print position See "4.1.1(3)⑪ HRI character print position (HriPosition)" for available constants. |
| <i>hriFont</i> | HRI character font See "4.1.1(3)⑤ Character font (CharacterFont)" for available constants. |
| <i>alignment</i> | Alignment See "4.1.1(3)⑦ Alignment (PrintAlignment)" for available constants. |
| <i>nwRatio</i> | N:W ratio See "4.1.1(3)⑫ N:W ratio (NwRatio)" for available constants. Depending on specified <i>nwRatio</i> and <i>moduleSize</i> , the wide element width is set in the following table. |

| <i>moduleSize</i> | <i>nwRatio</i> | | |
|------------------------|-----------------------|-----------------------|-----------------------|
| | NWRATIO_ 1TO2 | NWRATIO_ 1TO2_5 | NWRATIO_ 1TO3 |
| BARCODE_MODULE_WIDTH_2 | 0.500 mm (4 dots) | 0.625 mm (5 dots) | 0.750 mm (6 dots) |
| BARCODE_MODULE_WIDTH_3 | 0.750 mm (6 dots) | 1.000 mm (8 dots) | 1.125 mm (9 dots) |
| BARCODE_MODULE_WIDTH_4 | 1.000 mm (8 dots) | 1.250 mm (10 dots) | 1.500 mm (12 dots) |
| BARCODE_MODULE_WIDTH_5 | 1.250 mm (10 dots) | 1.625 mm (13 dots) | 1.875 mm (15 dots) |
| BARCODE_MODULE_WIDTH_6 | 1.500 mm (12 dots) | 1.875 mm (15 dots) | 2.250 mm (18 dots) |

Exception **PrinterException**

PrinterException is thrown when an error occurs while calling this method.

See "**4.1.5 PrinterException Class**" for details of the error.

When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

printPDF417

Print PDF417

Prints PDF417.

The method of syntax (a) specifies PDF417 symbol.

The method of syntax (b) is fixed to standard PDF417.

Syntax (a) public void **printPDF417**(String *text*,
ErrorCorrection *errorCorrection*,
int *row*,
int *column*,
ModuleSize *moduleSize*,
int *moduleHeight*,
PrintAlignment *alignment*,
Pdf417Symbol *pdf417Symbol*) throws **PrinterException**

(b) public void **printPDF417**(String *text*,
ErrorCorrection *errorCorrection*,
int *row*,
int *column*,
ModuleSize *moduleSize*,
int *moduleHeight*,
PrintAlignment *alignment*) throws **PrinterException**

| | | |
|-----------|------------------------|--|
| Parameter | <i>text</i> | Barcode data to send to the printer |
| | <i>errorCorrection</i> | Error correction level See "4.1.1(3)⑬ Error correction level (ErrorCorrection)" for available constants. |
| | <i>row</i> | The number of rows (row) The valid range is 0 to 90. When 0 is specified, the number of rows is automatically set. |

| | |
|---------------------|--|
| <i>column</i> | The number of columns in data area The valid range is 0 to 30. When 0 is specified, the number of columns in the data area is automatically set. |
| <i>moduleSize</i> | Nominal fine element width See "4.1.1(3)⑩ Module size (ModuleSize)" for available constants. |
| <i>moduleHeight</i> | Module height (dot) The valid range is 2 to 127. When the module height is set smaller, some barcode scanners may not read it. Set 3 or more for normal use. |
| <i>alignment</i> | Alignment See "4.1.1(3)⑦ Alignment (PrintAlignment)" for available constants. |
| <i>pdf417Symbol</i> | Symbol of PDF417 See "4.1.1(3)⑭ PDF417 symbol (Pdf417Symbol)" for available constants. |

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "4.1.5 PrinterException Class" for details of the error.
When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

printQRcode Print QR Code

Prints QR Code.
The method of syntax (a) specifies QR Code Model.
The method of syntax (b) is fixed to QR Code Model 2.

Syntax (a) public void **printQRcode**(String *text*,
ErrorCorrection *errorCorrection*,
ModuleSize *moduleSize*,
PrintAlignment *alignment*,
QrModel *model*) throws **PrinterException**

(b) public void **printQRcode**(String *text*,
ErrorCorrection *errorCorrection*,
ModuleSize *moduleSize*,
PrintAlignment *alignment*) throws **PrinterException**

Parameter *text* Barcode data to send to the printer
The version for either syntax (a) or (b) is automatically set depending on the number of data specified on *text*.

errorCorrection Error correction level
See "4.1.1(3)⑬ Error correction level (ErrorCorrection)" for available constants.

moduleSize Module size
See "4.1.1(3)⑩ Module size (ModuleSize)" for available constants.

alignment Alignment
See "4.1.1(3)⑦ Alignment (PrintAlignment)" for available constants.

model QR Code Model
See "4.1.1(3)⑮ QR Code Model (QrModel)" for available constants.

Exception **PrinterException**

PrinterException is thrown when an error occurs while calling this method.

See **"4.1.5 PrinterException Class"** for details of the error.

When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

printDataMatrix

Print Data Matrix

Prints Data Matrix.

| | |
|--------|--|
| Syntax | <pre>public void printDataMatrix(String <i>text</i>, DataMatrixModule <i>dataMatrixModule</i>, ModuleSize <i>moduleSize</i>, PrintAlignment <i>alignment</i>) throws PrinterException</pre> |
|--------|--|

| | | |
|-----------|-------------------------|---|
| Parameter | <i>text</i> | Barcode data to send to the printer |
| | <i>dataMatrixModule</i> | The number of Data Matrix modules See "4.1.1(3)⑯ Data Matrix module (DataMatrixModule)" for available constants. |
| | <i>moduleSize</i> | Module size See "4.1.1(3)⑩ Module size (ModuleSize)" for available constants. |
| | <i>alignment</i> | Alignment See "4.1.1(3)⑦ Alignment (PrintAlignment)" for available constants. |

Exception **PrinterException**

PrinterException is thrown when an error occurs while calling this method.

See **"4.1.5 PrinterException Class"** for details of the error.

When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

printMaxiCode

Print MaxiCode

Prints MaxiCode.

Syntax `public void printMaxiCode(String text,
MaxiCodeMode maxiCodeMode,
PrintAlignment alignment) throws PrinterException`

| | | |
|-----------|---------------------|--|
| Parameter | <i>text</i> | Barcode data to send to the printer |
| | | <ul style="list-style-type: none"> • When <i>maxiCodeMode</i> is MAXI_CODE_2 Add the service class (3 digits), the country code (3 digits), and the postal code (9 digits) to the beginning of the data. • When <i>maxiCodeMode</i> is MAXI_CODE_3 Add the service class (3 digits), the country code (3 digits), and the postal code (6 digits) to the beginning of the data. |
| | <i>maxiCodeMode</i> | MaxiCode Mode See "4.1.1(3)⑪ MaxiCode Mode (MaxiCodeMode)" for available constants. |
| | <i>alignment</i> | Alignment See "4.1.1(3)⑦ Alignment (PrintAlignment)" for available constants. |

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "**4.1.5 PrinterException Class**" for details of the error.
When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

| | |
|-------------------------------|----------------------------------|
| printGS1DataBarStacked | Print GS1 Databar Stacked |
|-------------------------------|----------------------------------|

Prints GS1 Databar Stacked.

Syntax `public void printGS1DataBarStacked(String text,
ModuleSize moduleSize,
PrintAlignment alignment) throws PrinterException`

Parameter *text* Barcode data to send to the printer
Enter 13 characters from '0' to '9'. The leading '01' is automatically added by the printer. The check digit is automatically calculated by the printer.

moduleSize Module size
See "4.1.1(3)⑩ Module size (ModuleSize)" for available constants.

alignment Alignment
See "4.1.1(3)⑦ Alignment (PrintAlignment)" for available constants.

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "**4.1.5 PrinterException Class**" for details of the error.
When the data transmission is failed, the communication with the printer is ended and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

| | |
|--|---|
| printGS1DataBarStackedOmnidirectional | Print GS1 Databar Stacked Omni-directional |
|--|---|

Prints GS1 Databar Stacked Omni-directional.

Syntax `public void printGS1DataBarStackedOmnidirectional(String text,
int moduleHeight,
ModuleSize moduleSize,
PrintAlignment alignment) throws PrinterException`

Parameter *text* Barcode data to send to the printer
Enter 13 characters from '0' to '9'. The leading '01' is automatically added by the printer. The check digit is automatically calculated by the printer.

moduleHeight Barcode module height (the number of the modules)
The valid range is 33 to 255.

moduleSize Module size
See "4.1.1(3)⑩ Module size (ModuleSize)" for available constants.

alignment Alignment
See "4.1.1(3)⑦ Alignment (PrintAlignment)" for available constants.

cutPaper**Cut paper**

Feeds the paper to the paper cut position. The paper is not cut.

Syntax public void **cutPaper**(CuttingMethod *cuttingMethod*) throws **PrinterException**

Parameter *cuttingMethod* Cutting method
See "4.1.1(3)⑱ Cutting method (CuttingMethod)" for available constants.

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "**4.1.5 PrinterException Class**" for details of the error.
When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

feedPosition**Paper form feed**

This method is not supported. When this method is executed, **PrinterException** is thrown.

Syntax public void **feedPosition**(FeedPosition *feedPosition*) throws **PrinterException**

openDrawer**Open cash drawer**

This method is not supported. When this method is executed, **PrinterException** is thrown.

Syntax public void **openDrawer**(DrawerNum *drawerNum*, PulseWidth *onOffTime*) throws **PrinterException**

buzzer**Sound buzzer**

This method is not supported. When this method is executed, **PrinterException** is thrown.

Syntax public void **buzzer**(int *onTime*, int *offTime*) throws **PrinterException**

externalBuzzer**Sound external buzzer**

This method is not supported. When this method is executed, **PrinterException** is thrown.

Syntax public void **externalBuzzer**(BuzzerPattern *buzzer pattern*, int *buzzerCount*)
throws **PrinterException**

sendBinary**Send binary data**

Sends binary data to the printer.

Syntax public void **sendBinary**(byte [] *binary*) throws **PrinterException**

Parameter *binary* Binary data to send to the printer
Data size that can be specified at 1 time is 16 KB (16384 bytes).

| | |
|-------------|---|
| Exception | <p>PrinterException</p> <p>PrinterException is thrown when an error occurs while calling this method. See "4.1.5 PrinterException Class" for details of the error. When the data transmission is failed, the communication with the printer is ended, and PrinterException may be thrown. See isConnect for verifying the connection state with the printer.</p> |
| Description | <p>This method sends the specified binary data to the printer without conversion.</p> <p>By sending printer commands as binary data with this method, printer functions which are not supported in the library become available. However, this method does not support commands which get responses from the printer.</p> |

| sendDataFile | Send specified file |
|---------------------|----------------------------|
|---------------------|----------------------------|

| | |
|--|--|
| <p>Sends file data. The method of syntax (a), dithering can be specified. The method of syntax (b), dithering is fixed to be disabled.</p> | |
| Syntax | <p>(a) public void sendDataFile(String <i>fileName</i>, PrintAlignment <i>alignment</i>, Dithering <i>dithering</i>) throws PrinterException</p> <p>(b) public void sendDataFile(String <i>fileName</i>, PrintAlignment <i>alignment</i>) throws PrinterException</p> |
| Parameter | <p><i>fileName</i> Name of the data file to send to the printer The formats that can be entered are described below.</p> <ul style="list-style-type: none"> • Absolute path string handled by Java standard class "java.io.File" When targeting Android 10 (API 29) or later, please note that some files cannot be handled directly. See "3.5 Precautions - About Scoped Storage" for details. • URI string of the following scheme name handled by the class "android.net.Uri" prepared for Android <ul style="list-style-type: none"> • file:// • content:// It is necessary to specify the URI string obtained from "Storage Access Framework" for this parameter. Please note that URI created without being obtained from "Storage Access Framework" may not be able to open the file. <p>The maximum file size that can be specified is 1 MB (1048576 bytes). The file extensions that can be sent and the file transmission are described below.</p> <ul style="list-style-type: none"> • .bmp, .jpg, .jpeg, .png Data is sent to the printer as image data. Colored image data is converted to monochrome image by binarization and sent to the printer. Printing is performed at one time after mapping the image data in memory of the printer. |

- .txt
Data is sent to the printer as text data. Text data format supports UTF-8. This method encodes the text data to printable text data based on the settings of `setInternationalCharacter` and `setCodePage`, and then sends it to the printer.
This method does not add a line feed code at the end of the text data. In order to print to the end, add a line feed code to the end of the text data.
- .bin, .dat
Data is sent to the printer as the binary data without conversion.

alignment Alignment
The alignment is valid only when the file extension specified on *fileName* is .bmp, .jpg, .jpeg, .png, or .txt.
See "4.1.1(3)⑦ Alignment (PrintAlignment)" for available constants.

dithering Dithering
The dithering is valid only when the file extension specified on *fileName* is .bmp, .jpg, .jpeg, or .png.
See "4.1.1(3)⑨ Dithering (Dithering)" for available constants.

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "**4.1.5 PrinterException Class**" for details of the error.
When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See `isConnect` for verifying the connection state with the printer.

getStatus

Get printer status

Gets the latest printer status.
The method of syntax (a) returns the printer status with return value.
The method of syntax (b) stores the printer status in an array of int type.

Syntax (a) public int **getStatus()** throws **PrinterException**
(b) public void **getStatus(int [] buf)** throws **PrinterException**

Return value Status retrieved from the printer

Parameter *buf* Status retrieved from the printer

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "**4.1.5 PrinterException Class**" for details of the error.
When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See `isConnect` for verifying the connection state with the printer.

Description Status retrieved from the printer is stored to an integer array.

The printer status is shown below.

When the connection failed, the printer status is shown in 0x80000000.

| Bit | Function | Value | |
|----------|----------------------------------|---|-----------|
| | | 0 | 1 |
| 0 | Voltage error | No error | Error |
| 1 | Hardware error | No error | Error |
| 2 | Head temperature error | No error | Error |
| 3 | Reserved | Fixed | - |
| 4 | Out-of-paper error | No error | Error |
| 5 | Reserved | Fixed | - |
| 6 | Reserved | Fixed | - |
| 7 | Reserved | Fixed | - |
| 8 | FEED Switch status | OFF | ON |
| 9 | Reserved | Fixed | - |
| 10 | Paper feed status | Stop | Operating |
| 11 | Return-waiting status | Not waiting | Waiting |
| 12 | Reserved | Fixed | - |
| 13 | Reserved | - | Fixed |
| 14 | Reserved | - | Fixed |
| 15 | Reserved | - | Fixed |
| 16 | FLASH memory rewriting | Not rewriting | Rewriting |
| 17 | Reserved | - | Fixed |
| 18 | Reserved | - | Fixed |
| 19 | Reserved | - | Fixed |
| 20 to 22 | Battery remaining capacity level | 000: No battery 001: Low (Battery remaining capacity: approx. 10%) 011: Middle (Battery remaining capacity: approx. 40%) 111: Full (Battery remaining capacity: approx. 80%) | |
| 23 | Battery error | No error | Error |
| 24 to 31 | Reserved | - | Fixed |

setCallbackFunctionListener

Start/End callback of printer status change

Starts or ends callback to be executed according to changes of the printer status.

Syntax `public void setCallbackFunctionListener(CallbackFunctionListener listener)`
throws **PrinterException**

Parameter *listener* Instance of **CallbackFunctionListener** interface

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
 See "**4.1.5 PrinterException Class**" for details of the error.

The file extensions for supporting image data are .bmp, .jpg, .jpeg, and .png. When the image data is colored, it is converted to monochrome image by binarization and registered.

id Logo ID to register (key code)
Specify the logo ID to register by character string of 2 characters.
The valid characters are ASCII character code from 20h (space) to 7Eh (tilde) such as alphanumeric ('0' to '9', 'A' to 'Z', 'a' to 'z').

dithering Dithering
See "4.1.1(3)⑱ Dithering (Dithering)" for available constants.

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "4.1.5 PrinterException Class" for details of the error.
When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

printLogo

Print logo

Prints the registered logo.

Syntax `public void printLogo(String id, PrintAlignment alignment) throws PrinterException`

Parameter *id* Logo ID to be printed (key code)
Specify the ID of the registered logo as a character string.

alignment Alignment
See "4.1.1(3)⑦ Alignment (PrintAlignment)" for available constants.

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "4.1.5 PrinterException Class" for details of the error.
When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

unregisterLogo

Delete registered logo

Deletes the registered logo.

Syntax `public void unregisterLogo(String id) throws PrinterException`

Parameter *id* Logo ID to delete (key code)
Specify the ID of the registered logo as a character string.

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
See "4.1.5 PrinterException Class" for details of the error.
When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

This method is not supported. When this method is executed, **PrinterException** is thrown.

Syntax public void **registerStyleSheet**(String *fileName*, int *num*) throws **PrinterException**

This method is not supported. When this method is executed, **PrinterException** is thrown.

Syntax public void **unregisterStyleSheet**(int *num*) throws **PrinterException**

Resets the printer hardware.

Syntax public void **resetPrinter**() throws **PrinterException**

Exception **PrinterException**

PrinterException is thrown when an error occurs while calling this method.

See "4.1.5 **PrinterException Class**" for details of the error.

When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

Description For Bluetooth connection:

The printer hardware reset is performed by the printer command "Printer Reset".

For USB connection:

The printer reset is performed by using the SOFT_RESET function in USB printer class.

Gets response data from the printer.

Syntax public void **getPrinterResponse**(int *id*, Object *buf*) throws **PrinterException**

Parameter *id*

Response type constant

See "4.1.1(2)② Response type" for available constants.

buf

Buffer that stores the retrieved response data

This method stores the response data specified by *id* to the object specified by *buf*.

The buffer type varies depending on the response type constant. See the following table for buffer types.

| Response Type Constant | |
|--|---|
| Parameter | Description |
| PRINTER_RESPONSE_REQUEST (Execution response request) | |
| <i>buf</i> | Specify an int type array of length 1. Specify 0 to 15 (00h to 0Fh) for <i>buf[0]</i> . When the response is retrieved successfully, the response code of the execution response request is stored to <i>buf[0]</i> with 128 to 143 (80h to 8Fh). |

| Response Type Constant | |
|---|--|
| Parameter | Description |
| PRINTER_RESPONSE_USER_AREA (Send remaining capacity of user area) | |
| <i>buf</i> | Specify an int type array of length 1. When the response is retrieved successfully, the remaining capacity of the user area is stored as a numerical value in bytes. |
| PRINTER_RESPONSE_ARRANGE_USER_AREA (Send remaining user area response after defragment) | |
| <i>buf</i> | Specify an int type array of length 1. When the response is retrieved successfully, the remaining capacity of the user area after defragment is stored as a numerical value in bytes. |
| PRINTER_RESPONSE_NV_GRAPHICS (Send NV graphics memory capacity) | |
| <i>buf</i> | Specify an int type array of length 1. When the response is retrieved successfully, the NV graphics memory capacity is stored as a numerical value in bytes. |
| PRINTER_RESPONSE_KEY_CODE (Send key code list of defined NV graphics) | |
| <i>buf</i> | Specify an ArrayList<String> array. When the response is retrieved successfully, the key code of NV graphics is as a stored in string array. Example: <i>buf.size()</i> = 3, <i>buf[0]</i> = "22", <i>buf[1]</i> = "23", <i>buf[2]</i> = "24", etc. |
| PRINTER_RESPONSE_BATTERY_STATUS (Battery remaining capacity level) | |
| <i>buf</i> | Specify an integer array of length 1. When the response is retrieved successfully, the battery remaining capacity level is stored as a value. See "4.1.1(2)③ Battery remaining capacity level" for details of the value. Battery remaining capacity level BATTERY_STATUS_FULL : Full (Battery remaining capacity: approx. 80%) BATTERY_STATUS_MIDDLE : Middle (Battery remaining capacity: approx.40%) BATTERY_STATUS_LOW : Low (Battery remaining capacity: approx. 10%) BATTERY_STATUS_EMPTY : No battery |

Exception **PrinterException**

PrinterException is thrown when an error occurs while calling this method.

See "**4.1.5 PrinterException Class**" for details of the error.

When the data transmission is failed, the communication with the printer is ended, and **PrinterException** may be thrown. See **isConnect** for verifying the connection state with the printer.

startDiscoveryPrinter

Start printer search (Bluetooth)

Searches for the printer using the Bluetooth connection. The found printer information is stored in **PrinterInfo** class.

The method of syntax (a) specifies the instance of **PrinterListener**.

The method of syntax (b) specifies the instance of **PrinterListener** and specifies the context to call the application.

Syntax (a) public void **startDiscoveryPrinter**(PrinterListener *listener*) throws **PrinterException**

(b) public void **startDiscoveryPrinter**(PrinterListener *listener*, Context *context*)
throws **PrinterException**

| | |
|-------------|---|
| Parameter | <p><i>listener</i> Instance of PrinterListener. Completion of this method or cancellation by cancelDiscoveryPrinter is notified to the user application as an end event by finishEvent through the instance set in <i>listener</i>.</p> <p><i>context</i> Context of the application</p> |
| Exception | <p>PrinterException</p> <p>PrinterException is thrown when an error occurs while calling this method. See "4.1.5 PrinterException Class" for details of the error.</p> |
| Description | <p>This method may discover other printers besides SII printer. In addition, the printers in which the Bluetooth connection is already established by the library or other applications are not found.</p> <p>Do not call this method from the main thread of the application.</p> |
| Note | <p>Use the syntax (a) when using this method newly. Syntax (b) is a method that will be unsupported in the future.</p> |

startDiscoveryPrinter

Start printer search (USB)

Searches for the printer using the USB connection. The found printer information is stored in **PrinterInfo** class.

Syntax

```
public void startDiscoveryPrinter(PrinterListener listener; int deviceType) throws PrinterException
```

| | | |
|-----------|-------------------|---|
| Parameter | <i>listener</i> | Instance of PrinterListener Completion of this method or cancellation by cancelDiscoveryDevice is notified to the user application as an end event by finishEvent through the instance set in <i>listener</i> . |
| | <i>deviceType</i> | Port type Specify PRINTER_TYPE_USB . |

Exception **PrinterException**
PrinterException is thrown when an error occurs while calling this method.
 See "**4.1.5 PrinterException Class**" for details of the error.

| | |
|-------------|---|
| Description | This method searches for SII printer. The printer information of the found printer is stored to PrinterInfo class described later. |
|-------------|---|

startDiscoveryPrinter

Start printer search (TCP/IP)

This method is not supported. When this method is executed, it searches SII printer other than MP-B20.

Syntax

```
public void startDiscoveryPrinter(PrinterListener listener, int retry, int timeout) throws PrinterException
```

cancelDiscoveryPrinter

Cancel printer search

Cancels **startDiscoveryPrinter** under execution.

Syntax `public void cancelDiscoveryPrinter()`

| | |
|-------------|---|
| Description | Cancellation by this method is notified as an end event to the user application by finishEvent through the instance set in <i>listener</i> of startDiscoveryPrinter . |
|-------------|---|

getFoundPrinter

Get found printer information

Gets the information of the printer found by **startDiscoveryPrinter** in **ArrayList** from the **PrinterInfo** class, which is the storage destination.

Syntax `public ArrayList<PrinterInfo> getFoundPrinter()`

Return value **ArrayList** of **PrinterInfo** class

getSendTimeout

Get send timeout period

Gets the send timeout period.

Syntax `public int getSendTimeout()`

Return value Send timeout period (millisecond: ms)

Description This method can get the send timeout period regardless of whether **isConnect** is true or false.

setSendTimeout

Set send timeout period

Sets the send timeout period.

Syntax `public void setSendTimeout(int sendTimeout)`

Parameter *sendTimeout* Send timeout period (millisecond: ms)
The valid range is 100 to 90000.
The value is set to 10000 ms when the value out of the valid range is specified.

Description When the send timeout period is not set by this method, the value is set to 10000.

This method can set the send timeout period regardless of whether **isConnect** is true or false.
The set timeout period becomes effective at the next data sending.

getReceiveTimeout

Get receive timeout period

Gets the receive timeout period.

Syntax `public int getReceiveTimeout()`

Return value Receive timeout period (millisecond: ms)

Description This method can get the receive timeout period regardless of whether **isConnect** is true or false.

setReceiveTimeout

Set receive timeout period

Sets the receive timeout period.

Syntax `public void setReceiveTimeout(int receiveTimeout)`

Parameter *receiveTimeout* Receive timeout period (millisecond: ms)
The valid range is 100 to 90000.
The value is set to 10000 ms when the value out of the valid range is specified.

Description When the receive timeout period is not set by this method, the value is set to 10000.

This method can set the receive timeout period regardless of whether **isConnect** is true or false.

The set timeout period becomes effective at the next data receiving.

getInternationalCharacter

Get international character set

Gets the value of international character set.

Syntax `public int getInternationalCharacter()`

Return value See "4.1.1(2)④ International character set" for details of the value.

Description When the text data is sent by **sendText**, **sendTextEx** or **sendDataFile**, the print result for the following character codes varies. See "Appendix A Character Set" for details about characters to be printed.

Character codes whose print result varies depending on the international character set configuration

0x23, 0x24, 0x40, 0x5B, 0x5C, 0x5D, 0x5E, 0x60, 0x7B, 0x7C, 0x7D, 0x7E

setInternationalCharacter

Set international character set

Sets the value of international character set.

Syntax `public void setInternationalCharacter(int internationalCharacter)`

Parameter *internationalCharacter* International character set constant
See "4.1.1(2)④ International character set" for the values available for setting.
When an invalid value is specified, it is ignored.

Description When the international character set is not set by this method, it is as follows depending on the language setting of an Android device.

When the language setting of the Android device is Japanese:

COUNTRY_JAPAN

When the language setting of the Android device is other languages than Japanese:

COUNTRY_USA

getCodePage

Get codepage

Gets the value of codepage.

Syntax `public int getCodePage()`

Return value See "4.1.1(2)⑤ Codepage" for details of the value.

Description The encoder used for sending the text data by **sendText**, **sendTextEx**, or **sendDataFile** is changed. See "Appendix A Character Set" for details about characters to be printed.

setCodePage

Set codepage

Sets the value of codepage.

Syntax public void **setCodePage**(int *codePage*)

Parameter *codePage* Codepage constant
See "4.1.1(2)⑤ Codepage" for the values available for setting.
When an invalid value is specified, it is ignored.

Description When the codepage is not set by this method, it is as follows depending on the language setting of an Android device.

When the language setting of the Android device is Japanese:

CODE_PAGE_KATAKANA

When the language setting of the Android device is other languages than Japanese:

CODE_PAGE_1252

getPrinterModel

Get printer model

Gets the value of the connecting printer model.

Syntax public int **getPrinterModel**()

Return value See "4.1.1(2)① Printer model" for details of the value.
PRINTER_MODEL_DEFAULT is returned when **isConnect** is false.

Description Even when the printer is not connected, when **connect** has been succeeded once, the printer model value successfully connected last time is returned.

getPortType

Get connecting port type

Gets the port type used for connecting with the printer.

Syntax public int **getPortType**()

Return value See "4.1.1(2)⑥ Port type" for details of the value.
PRINTER_TYPE_BLUETOOTH is returned when **isConnect** is false.

Description Even when the printer is not connected, when **connect** has been succeeded once, the port type value successfully connected last time is returned.

isConnect

Verify connection state with printer

Verifies connection state with the printer.

Syntax public boolean **isConnect**()

Return value true Connected to a printer
false Not connected to a printer

Description When the data transmission is failed, the communication with the printer is ended, and this method returns false. When false is returned, reconnect with the printer by **connect**.

Get socket keeping time

Syntax `public int getSocketKeepingTime()`

Set socket keeping time

Syntax `public void setSocketKeepingTime(int socketKeepingTime)`

Get SDK version

| | |
|-------------|--|
| Description | This method can get the SDK version regardless of whether isConnect is true or false. |
|-------------|--|

Start/End batch processing

| | |
|-------------|--|
| Description | <p>The procedure of batch processing is as follows:</p> <ol style="list-style-type: none"> (1) Start batch processing. Specify TRANSACTION_START. (2) Execute the method. In the case of the batch processing target method, buffering of transmission data is started. The transmission data of the batch processing target method executed during buffering is buffered in the transmission buffer without being sent to the printer. The maximum size of transmission data to be buffered is system dependent. If the buffered transmission data exceeds the maximum size, the batch processing target method at the time of exceeding becomes an error. If an error occurs, the transmission data up to the error is retained. As for the retained transmission data, finish the batch processing in step (3). In the case of a method other than the batch processing target method, transmission data is immediately executed without being buffered. |
|-------------|--|

(3) Finish batch processing.

When **TRANSACTION_PRINT** is specified, the buffered transmission data is sent to the printer. The buffered transmission data is retained even after sent to the printer.

The retained transmission data is discarded by any of the following:

- Specify **TRANSACTION_CLEAR**
- Specify **TRANSACTION_START**
- Execute **disconnect**

The batch processing target methods are as follows:

- **sendText**
- **sendTextEx**
- **printBarcode**
- **printPDF417**
- **printQRcode**
- **printDataMatrix**
- **printMaxiCode**
- **printGS1DataBarStacked**
- **printGS1DataBarStackedOmnidirectional**
- **printGS1DataBarExpandedStacked**
- **sendBinary**
- **sendDataFile**
- **printLogo**^{*1}

*1: **printLogo** under batch processing does not notify the error even when the registered logo does not exist.

4.1.2 PrinterEvent Class

PrinterEvent class gets the end event that occurs when **startDiscoveryPrinter** is terminated.

(1) Method List

Methods provided by the **PrinterEvent** class are shown in the following table.

| Name | Description |
|---------------------|---------------|
| getEventType | Get end event |

(2) End event constant

Constants used for getting the end event are shown in the following table.

| Constant Name | Description | Value |
|---------------------------------|---|-------|
| EVENT_FINISHED_DISCOVERY | Completion of startDiscoveryPrinter | 1 |
| EVENT_CANCELED_DISCOVERY | Cancellation by cancelDiscoveryPrinter | 2 |

(3) Method Details

| | |
|---------------------|---------------|
| getEventType | Get end event |
|---------------------|---------------|

Gets the end event when **startDiscoveryPrinter** is terminated.

Syntax `public int getEventType()`

Return value See "4.1.2(2) End event constant" for details of the value.

Description Whether **startDiscoveryPrinter** has been completed or the search has been canceled by **cancelDiscoveryPrinter** can be determined by the end event.
Even when the printer was not discovered, **EVENT_FINISHED_DISCOVERY** is returned.

4.1.3 PrinterListener Interface

PrinterListener interface is for getting the end event when **startDiscoveryPrinter** is terminated.

(1) Method List

Methods of the **PrinterListener** interface are shown in the following table.

| Name | Description |
|--------------------|---------------------------------|
| finishEvent | End event of the printer search |

(2) Method Details

| | |
|--------------------|---------------------------------|
| finishEvent | End event of the printer search |
|--------------------|---------------------------------|

End event that is called when **startDiscoveryPrinter** is completed, or when **cancelDiscoveryPrinter** is executed.

Syntax `public void finishEvent(PrinterEvent event)`

Parameter *event* End event
 It is specified by **PrinterEvent** class.

Description This method is an interface, so it is not implemented.
 Implement this method in the user application that receives the notification of the end event by completion of **startDiscoveryPrinter** or cancellation by **cancelDiscoveryPrinter**. Determine the type of the end event by **getEventType** in **PrinterEvent** class.

4.1.4 PrinterInfo Class

PrinterInfo class stores the information of the printer which has been searched by **startDiscoveryPrinter**.

(1) Method List

Printer model name (Bluetooth device name), Bluetooth address, MAC address, port name (device path) and pairing status can be retrieved. Methods of **PrinterInfo** class are shown in the following table.

| Name | Description |
|----------------------------|------------------------|
| getPrinterModelName | Get printer model name |
| getBluetoothAddress | Get Bluetooth address |
| getMacAddress | Get MAC address |
| getIsBonded | Get pairing status |
| getDevicePath | Get device path |

(2) Method Details

getPrinterModelName Get printer model name

Gets the character string of the printer model name (Bluetooth device name) from the printer information found by **startDiscoveryPrinter**.

Syntax `public String getPrinterModelName()`

Return value Printer model name (Bluetooth device name)

getBluetoothAddress Get Bluetooth address

Gets the character string of the Bluetooth address from the printer information found by **startDiscoveryPrinter**.

Syntax `public String getBluetoothAddress()`

Return value Bluetooth address

getMacAddress Get MAC address

Gets the character string of the MAC address from the printer information found by **startDiscoveryPrinter**.

Syntax `public String getMacAddress()`

Return value MAC address

getIsBonded Get pairing status

Gets the status of pairing from the printer information found by **startDiscoveryPrinter**.

Syntax `public boolean getIsBonded()`

Return value true Paired
 false Not paired

Gets the character string of the USB device file path from the printer information found by **startDiscoveryPrinter**.

Syntax `public String getDevicePath()`

Return value Device path

4.1.5 PrinterException Class

(1) Method List

Methods provided by the **PrinterException** class are shown in the following table.

| Name | Description |
|-------------------------|-----------------|
| PrinterException | Constructor |
| getErrorCode | Get error codes |

(2) Constant List

① Error code

Constants used for getting error codes are shown in following table.

| Constant Name | Description | Value |
|---------------------------------------|--|-------|
| ERROR_ACCESS_DENIED | Failed to get the handle.*1 | -1 |
| | An unavailable port was specified. | |
| | An unsupported method was specified. | |
| ERROR_SHARING_VIOLATION | An already opened port was specified. | -11 |
| ERROR_PORT_NOT_OPENED | The port is not open. | -12 |
| ERROR_DEVICE_NOT_CONNECTED | There is a problem with Bluetooth connection between the Android device and the printer. | -21 |
| | There is a problem with USB connection between the Android device and the printer. | |
| ERROR_OFFLINE | Disconnected state or the printer is offline. | -22 |
| ERROR_DEVICE_INITIALIZE_FAILED | Failed to change the printer settings. Data sending to the printer is not completed within the send timeout period, or data receiving from the printer is not completed within the receive timeout period. | -31 |
| ERROR_DATA_SIZE_ZERO | 0-byte data was specified. | -101 |
| ERROR_OVER_MAX_DATA_SIZE | Maximum data size is exceeded. | -102 |
| ERROR_ENCODE_FAILED | An error occurred in encoding text data.*1 | -111 |
| ERROR_TIMEOUT | Send timeout occurred. | -201 |
| | Receive timeout occurred. | |
| ERROR_FILE_NOT_FOUND | The specified file is not found. | -301 |
| ERROR_FILE_USED | The specified file is in use by another process. | -302 |
| ERROR_FILE_INVALID | The specified file is invalid. | -303 |
| ERROR_LOW_MEMORY | Memory shortage occurred when loading image data file. | -311 |
| ERROR_OVER_MAX_IMAGE | Either or both of width and height of image data exceeds the number of printable maximum dots. | -312 |
| ERROR_LOGO_NOT_DEFINED | The logo is not registered. | -313 |
| ERROR_LOW_USER_AREA | Remaining user area is insufficient. | -401 |
| ERROR_LOW_EXTERNAL_RAM | Remaining RAM capacity is insufficient. | -402 |
| ERROR_INVALID_PARAM | The specified parameter is invalid. | -9999 |

*1: Abnormal processing might have occurred.

(3) Method Details

PrinterException

Constructor

Constructor for the `com.seikoinstruments.sdk.thermalprinter.PrinterException` class.

Syntax `public PrinterException(int code, String message)`

getErrorCode

Get error codes

Gets the error code for thrown exception.

Syntax `public int getErrorCode()`

Return value See "4.1.5(2) Constant List" for details of the error.

4.1.6 CallbackFunctionListener Interface

CallbackFunctionListener Interface is an interface for getting the change event of printer status.

(1) Method List

Method of **CallbackFunctionListener** Interface is shown below.

| Name | Description |
|------------------------|--------------------------------|
| onStatusChanged | Change event of printer status |

(2) Method Details

| | |
|------------------------|--------------------------------|
| onStatusChanged | Change event of printer status |
|------------------------|--------------------------------|

Syntax public void **onStatusChanged**(int *status*)

Parameter *status* Printer status

Description This method is called at the following timing.
 ·When **setCallbackFunctionListener** is executed.
 ·When the printer status is changed.

The change event of printer status is notified when **isConnect** is true.

This method is an interface, so it is not implemented.
Implement the optional process in the class that receives a callback of the printer status change.

Do not execute the APIs of **PrinterManager** within this method.

4.1.7 BarcodeScannerListener Interface

BarcodeScannerListener Interface is an interface for getting barcode scanner connection, barcode scanner disconnection, or received barcode data.

MP-B20 does not support this interface.

Chapter 5

Sample Program

This chapter describes the sample program provided by SII print class library.

SII print class library includes the sample program in Android Studio project format.

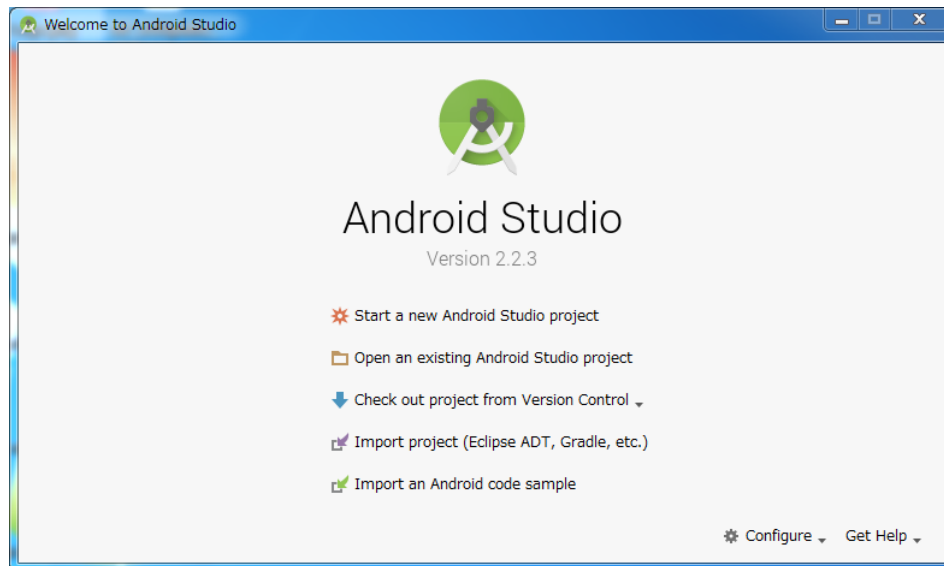
5.1 Installation

Install the sample program.

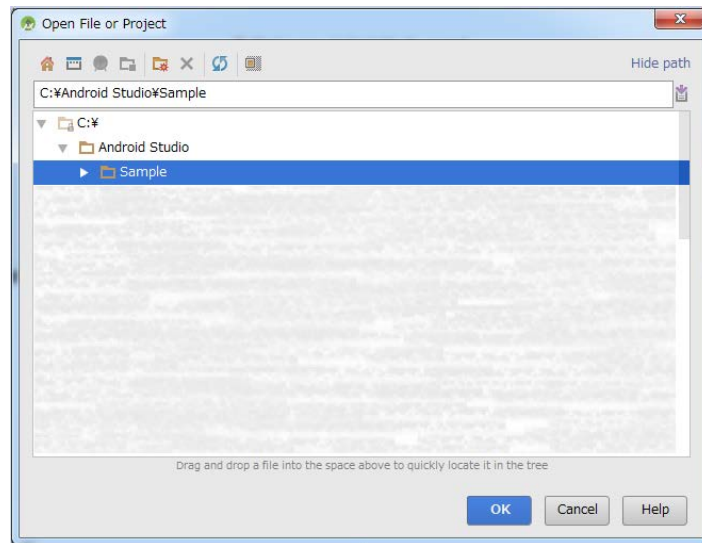
Ensure that the environment for developing Android application is prepared. See "Chapter 3 How to Use the Library" for details about required development environment.

The procedures are shown below.

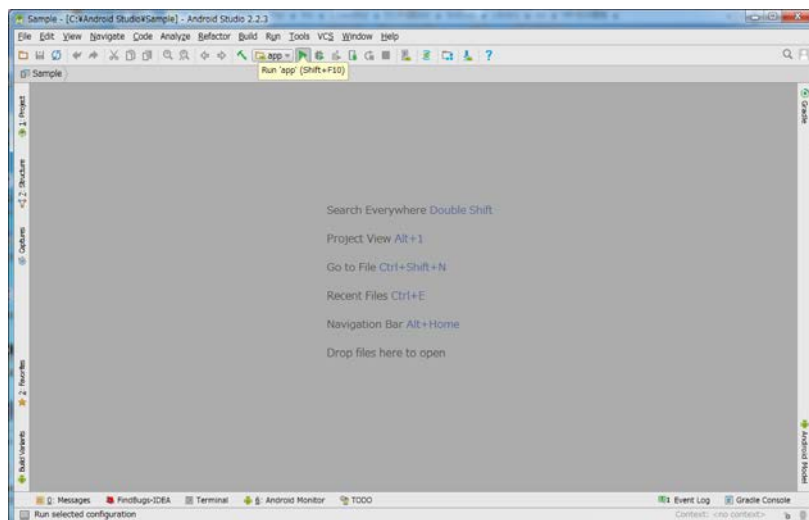
- (1) Place a sample folder at any location.
- (2) Start Android Studio, and click "Open an existing Android Studio project".



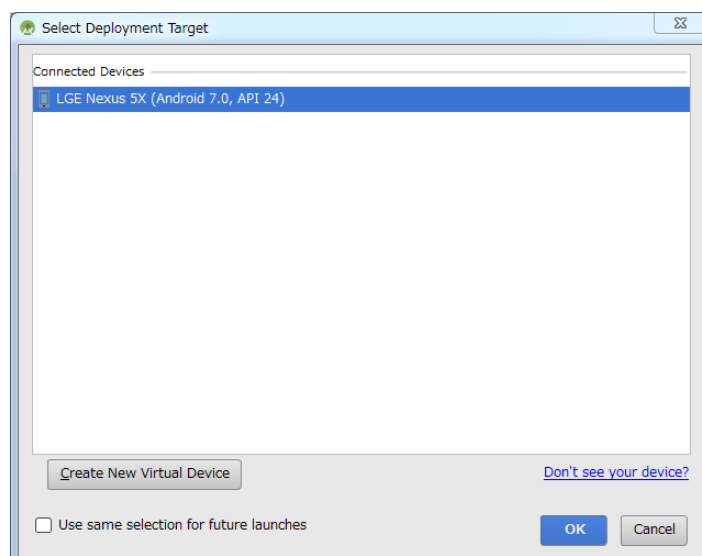
(3) Select the folder placed in the step (1), and click [OK].



(4) Click [Run 'app'].



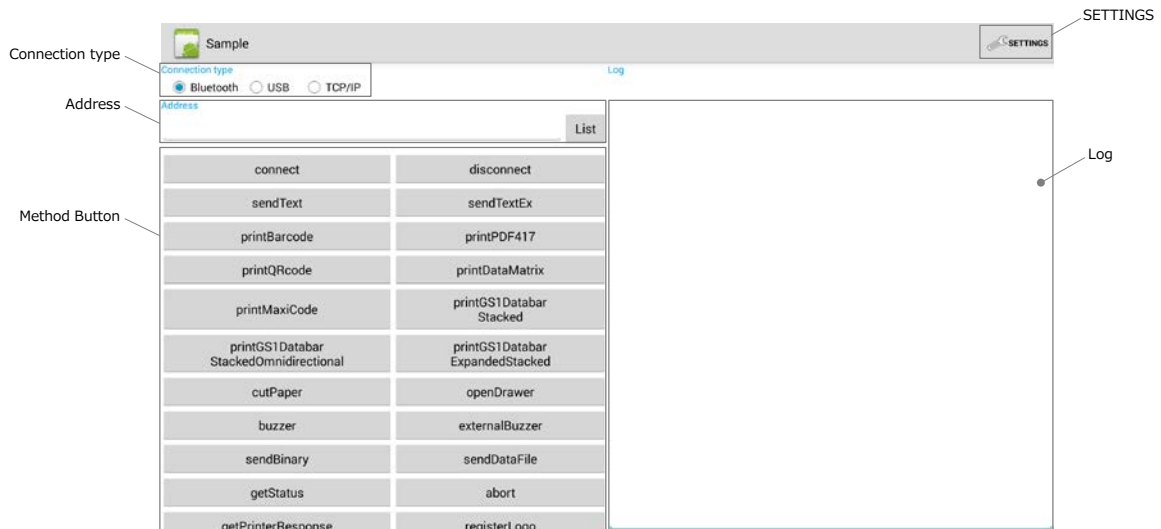
(5) Select the device, and click [OK].




5.2 Screen

This section describes the screen of the sample program.

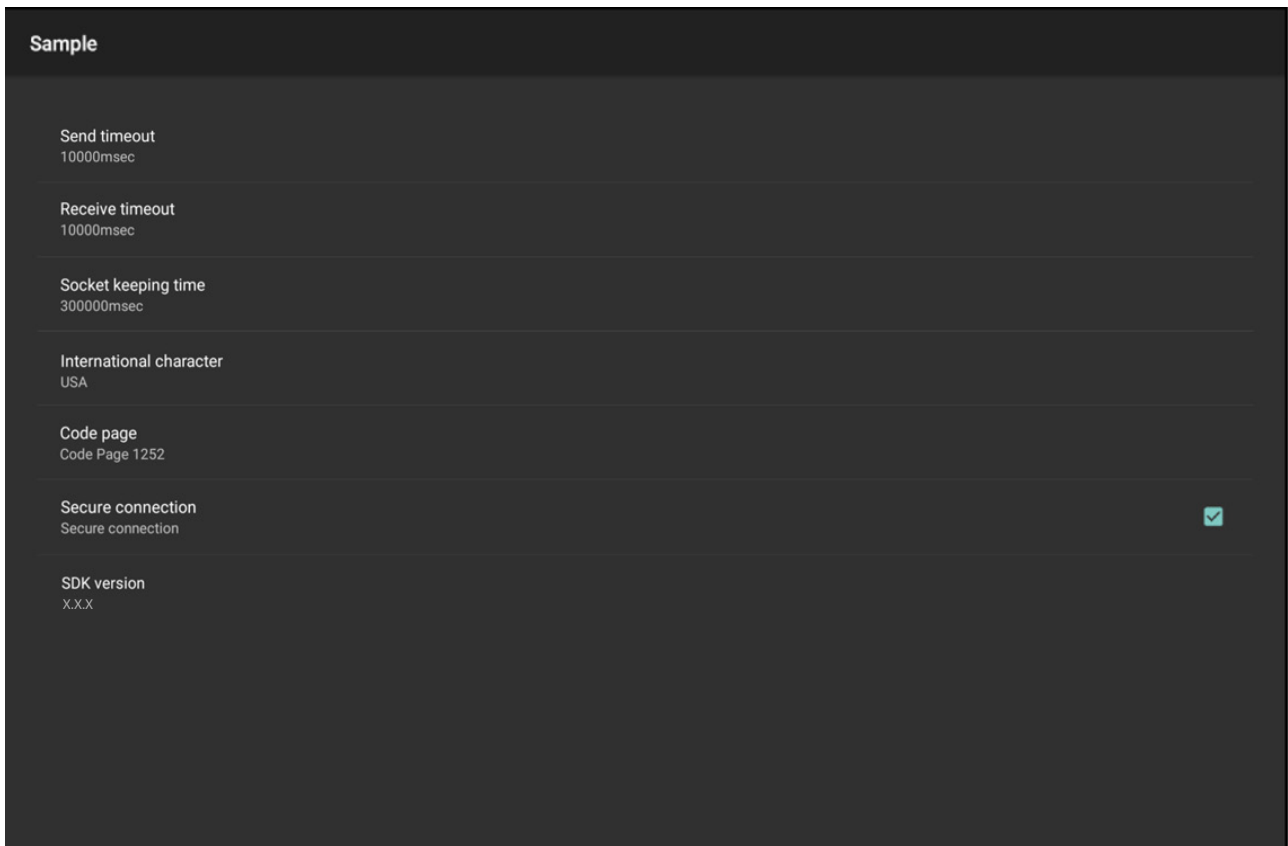
5.2.1 Main screen



| Item | Description |
|-----------------|--|
| Connection type | Selects connection form to a printer. |
| Address | Specifies the printer address. For manual input: When connecting with Bluetooth, enter the Bluetooth address. For automatic input: By tapping the [List] button, the information of printers found by startDiscoveryPrinter(Bluetooth) is displayed in a list. When selecting a printer from the displayed list, the Bluetooth address is automatically entered. |
| Method Button | The buttons for executing each method. When scrolling, it is possible to see the methods and properties that are not displayed. See "Chapter 4 Functions of the Library" for details of each method. |
| SETTINGS | Tapping the [SETTINGS] button opens the function setting screen. In order to go back to the main screen, tap  on the screen. |
| Log | Executing each method of "Method Button", displays the method execution logs. |

5.2.2 [SETTINGS] screen

Various setting functions are displayed in [SETTINGS].



5.3 Precaution

The sample program is subject to change without notice.

No guarantee of proper operation and support are provided for the sample program.

Chapter 6

Disclaimer

We closely monitor the development of SII print class library in order to avoid problems. However, we are not responsible for any damages arising out of the use of SII print class library.

Appendix A

Character Set

A.1 Codepage Table (Character Code Table)

The codepages when **COUNTRY_USA** is set for the international character set are shown below. Print results of the specific character codes vary depending on the setting of the international character set. See "A.2 International Character Set" for the specific character codes.

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|----|---|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|
| 20 | | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | Ç | ü | é | â | ä | à | å | ç | ê | ë | è | ï | î | ì | Ä | Å |
| 90 | É | æ | Æ | ô | ö | ò | û | ù | ÿ | Ö | Ü | φ | £ | ¥ | ℔ | ƒ |
| A0 | á | í | ó | ú | ñ | Ñ | ä | ö | ¿ | ¬ | ½ | ¼ | ¿ | » | « | » |
| B0 | ☐ | ☐ | ☐ | | † | ‡ | § | ¶ | § | ¶ | § | ¶ | § | ¶ | § | ¶ |
| C0 | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ |
| D0 | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ |
| E0 | α | β | γ | π | Σ | σ | μ | τ | φ | θ | Ω | δ | ∞ | φ | ε | ∩ |
| F0 | ≡ | ± | ≥ | ≤ | | J | ÷ | ≈ | ° | • | • | √ | n | 2 | ■ | ■ |

Figure A-1 CODE_PAGE_437 (USA, Standard Europe)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | |
| A0 | 。 | 「 | 」 | 、 | ・ | ヲ | ア | イ | ウ | エ | オ | ヤ | ユ | ヨ | ッ | |
| B0 | ー | ア | イ | ウ | エ | オ | カ | キ | ク | ケ | コ | サ | シ | ス | セ | ソ |
| C0 | タ | チ | ツ | テ | ト | ナ | ニ | ヌ | ネ | ノ | ハ | ヒ | フ | ヘ | ホ | マ |
| D0 | ミ | ム | メ | モ | ヤ | ユ | ヨ | ラ | リ | ル | レ | ロ | ワ | ン | ゝ | 。 |
| E0 | | | | | | | | | | | | | | | | |
| F0 | | | | | | | | | | | | | | | | |

Figure A-2 CODE_PAGE_KATAKANA

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | Ç | ü | é | â | ä | à | â | ç | ê | ë | è | ï | î | ì | Ä | Å |
| 90 | É | æ | Æ | ô | ö | ò | û | ù | ÿ | Ö | Ü | ø | £ | Ø | × | f |
| A0 | á | í | ó | ú | ñ | Ñ | ä | ö | ¿ | ® | ¬ | ½ | ¼ | ¡ | « | » |
| B0 | ☐ | ☐ | ☐ | | | Á | Â | À | © | ¶ | ¶ | ¶ | ¶ | ¢ | ¥ | ₱ |
| C0 | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ã | Ã | ℓ | ℓ | ℓ | ℓ | ℓ | ℓ | = | ℓ | α |
| D0 | ð | Đ | Ê | Ë | È | Í | Î | Ï | ⌋ | ⌋ | ■ | ■ | ■ | ■ | ■ | ■ |
| E0 | ó | β | ô | ò | õ | õ | μ | þ | þ | ú | û | ù | ý | ý | - | ' |
| F0 | - | ± | = | ¾ | ¶ | § | ÷ | , | ° | … | . | ¹ | ³ | ² | ■ | |

Figure A-3 CODE_PAGE_850 (Multilingual)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | Ç | ü | é | â | ã | à | Á | ç | ê | Ê | è | Í | Ô | ì | Ã | Â |
| 90 | É | À | È | ô | õ | ò | Ú | ù | Ì | Õ | Ü | ¢ | £ | Ù | Þ | Ó |
| A0 | á | í | ó | ú | ñ | Ñ | ä | ö | ï | ò | ¬ | ½ | ¼ | ¡ | « | » |
| B0 | ☐ | ☐ | ☐ | | | | | | | | | | | | | |
| C0 | L | L | T | | - | + | + | + | + | + | + | + | + | + | + | + |
| D0 | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ |
| E0 | α | β | Γ | π | Σ | σ | μ | τ | φ | θ | Ω | δ | ∞ | φ | ε | Π |
| F0 | ≡ | ± | ≥ | ≤ | | J | ÷ | ≈ | ° | • | • | √ | n | 2 | ■ | |

Figure A-4 CODE_PAGE_860 (Portuguese)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | Ç | ü | é | â | Â | à | ¶ | ç | ê | ë | è | ï | î | ≡ | À | § |
| 90 | É | È | Ê | ô | Ë | Ï | Ô | Ù | ⌘ | Ô | Ü | ¢ | £ | Ù | û | f |
| A0 | í | ´ | ó | ú | ¨ | ³ | - | î | ¬ | ¬ | ½ | ¼ | ¾ | « | » | |
| B0 | ☐ | ☐ | ☐ | | | | | | | | | | | | | |
| C0 | L | L | T | | - | + | + | + | + | + | + | + | + | + | + | + |
| D0 | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ | ⌌ |
| E0 | α | β | Γ | π | Σ | σ | μ | τ | φ | θ | Ω | δ | ∞ | φ | ε | Π |
| F0 | ≡ | ± | ≥ | ≤ | | J | ÷ | ≈ | ° | • | • | √ | n | 2 | ■ | |

Figure A-5 CODE_PAGE_863 (Canadian-French)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|----|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | Ç | ü | é | â | ä | à | å | ç | ê | ë | è | ï | î | ì | Ä | Å |
| 90 | É | æ | Æ | ô | ö | ò | û | ù | ÿ | Ö | Ü | ø | £ | Ø | Pt | f |
| A0 | á | í | ó | ú | ñ | Ñ | ä | ö | ¿ | ¬ | ½ | ¼ | ì | « | » | |
| B0 | ☐ | ☐ | ☐ | | † | ‡ | § | ¶ | § | | ¶ | | ¶ | | ¶ | |
| C0 | L | ⊥ | T | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ |
| D0 | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ |
| E0 | α | β | Γ | π | Σ | σ | μ | τ | φ | θ | Ω | δ | ∞ | φ | ε | Π |
| F0 | ≡ | ± | ≥ | ≤ | | J | ÷ | ≈ | ° | . | . | √ | n | 2 | ■ | |

Figure A-6 CODE_PAGE_865 (Nordic)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|----|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | Ç | ü | é | â | ä | à | å | ç | ê | ë | è | ï | î | ì | Ä | Å |
| 90 | É | æ | Æ | ô | ö | ò | û | ù | ÿ | Ö | Ü | ø | £ | Ø | Ş | ş |
| A0 | á | í | ó | ú | ñ | Ñ | Ğ | ğ | ¿ | ® | ¬ | ½ | ¼ | ì | « | » |
| B0 | ☐ | ☐ | ☐ | | † | ‡ | § | ¶ | § | | ¶ | | ¶ | | ¶ | |
| C0 | L | ⊥ | T | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ |
| D0 | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ |
| E0 | ó | β | ô | ò | õ | õ | μ | × | ú | û | ü | ì | ÿ | - | ' | |
| F0 | - | ± | ¾ | ¶ | § | ÷ | . | ° | .. | . | 1 | 3 | 2 | ■ | | |

Figure A-7 CODE_PAGE_857 (Turkish)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | Α | Β | Γ | Δ | Ε | Ζ | Η | Θ | Ι | Κ | Λ | Μ | Ν | Ξ | Ο | Π |
| 90 | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ | Ω | α | β | γ | δ | ε | ζ | η | θ |
| A0 | ι | κ | λ | μ | ν | ξ | ο | π | ρ | σ | ς | τ | υ | φ | χ | ψ |
| B0 | ⋈ | ⋈ | ⋈ | | † | ‡ | | π | ‡ | | | π | | | | |
| C0 | L | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ |
| D0 | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ |
| E0 | ω | ά | έ | ή | ϊ | ί | ό | ύ | ϋ | ώ | Ά | Έ | Ή | Ί | Ό | Υ |
| F0 | Ω | ± | ≥ | ≤ | İ | ÿ | ÷ | ≈ | ° | • | • | √ | n | 2 | ■ | |

Figure A-8 CODE_PAGE_737 (Greek)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | € | ‚ | ƒ | „ | … | † | ‡ | ^ | ‰ | Š | < | Œ | | Ž | | |
| 90 | | ‘ | ’ | “ | ” | • | - | - | ~ | ™ | š | > | œ | | ž | ÿ |
| A0 | | ı | ¢ | £ | ¤ | ¥ | ¦ | § | ¨ | © | ª | « | ¬ | ® | ¯ | |
| B0 | ° | ± | ² | ³ | ´ | µ | ¶ | · | | ¹ | º | » | ¼ | ½ | ¾ | ¿ |
| C0 | À | Á | Â | Ã | Ä | Å | Æ | Ç | È | É | Ê | Ë | Ì | Í | Î | Ï |
| D0 | Ð | Ñ | Ò | Ó | Ô | Õ | Ö | × | Ø | Ù | Ú | Û | Ü | Ý | Þ | ß |
| E0 | à | á | â | ã | ä | å | æ | ç | è | é | ê | ë | ì | í | î | ï |
| F0 | ð | ñ | ò | ó | ô | õ | ö | ÷ | ø | ù | ú | û | ü | ý | þ | ÿ |

Figure A-9 CODE_PAGE_1252 (Latin)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | А | Б | В | Г | Д | Е | Ж | З | И | Й | К | Л | М | Н | О | П |
| 90 | Р | С | Т | У | Ф | Х | Ц | Ч | Ш | Щ | Ъ | Ы | Ь | Э | Ю | Я |
| A0 | а | б | в | г | д | е | ж | з | и | й | к | л | м | н | о | п |
| B0 | ␣ | ␣ | ␣ | | † | ‡ | § | ¶ | ‡ | § | ¶ | ‡ | § | ¶ | ‡ | § |
| C0 | ␣ | ␣ | ␣ | | † | ‡ | § | ¶ | ‡ | § | ¶ | ␣ | ␣ | ␣ | ␣ | ␣ |
| D0 | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ |
| E0 | р | с | т | у | ф | х | ц | ч | ш | щ | ъ | ы | ь | э | ю | я |
| F0 | Ё | ё | Є | є | İ | ı | Ÿ | ÿ | ° | • | • | √ | № | α | ■ | |

Figure A-10 CODE_PAGE_866 (Russian)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | Ç | ü | é | â | ä | û | ç | ł | ë | ő | ö | î | ž | Ä | Ć | |
| 90 | É | Í | í | ô | ö | Ł | ł | Ś | ś | Ö | Ü | Ť | ť | Ł | × | č |
| A0 | á | í | ó | ú | À | à | Ž | ž | Ę | ę | ¬ | ž | Č | š | « | » |
| B0 | ␣ | ␣ | ␣ | | † | ‡ | § | ¶ | ‡ | § | ¶ | ␣ | ␣ | ␣ | ␣ | ␣ |
| C0 | ␣ | ␣ | ␣ | | † | ‡ | § | ¶ | ‡ | § | ¶ | ␣ | ␣ | ␣ | ␣ | ␣ |
| D0 | đ | Đ | Ď | Ě | ď | Ň | í | î | ě | Ĵ | Ĵ | ■ | ■ | Ť | Ů | ■ |
| E0 | ó | ß | ô | ń | ň | š | š | ř | ú | ř | ů | ý | ý | ť | ´ | |
| F0 | - | " | ˘ | ˘ | ˘ | § | ÷ | ˘ | ˘ | ˘ | ˘ | Ů | Ř | ř | ■ | |

Figure A-11 CODE_PAGE_852 (Eastern Europe)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|----|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | Ç | ü | é | â | ä | à | â | ç | ê | ë | è | ï | î | ì | Ä | Å |
| 90 | É | æ | Æ | ô | ö | ò | û | ù | ÿ | Ö | Ü | ø | £ | Ø | × | ƒ |
| A0 | á | í | ó | ú | ñ | Ñ | ä | ö | ¿ | ® | ¬ | ½ | ¼ | ¡ | « | » |
| B0 | ☐ | ☐ | ☐ | | | Á | Â | À | © | ¶ | | ¶ | ¶ | ¶ | ¢ | ¥ |
| C0 | L | ⊥ | T | └ | └ | + | ã | Ã | ℓ | ℓ | ℓ | ℓ | ℓ | ℓ | ℓ | α |
| D0 | ð | Ð | Ê | Ë | È | € | Í | Î | Ï | Ј | Г | ■ | ■ | І | Ì | ■ |
| E0 | ó | β | ô | ò | õ | õ | μ | ρ | ρ | ú | û | ù | ý | Ý | - | ' |
| F0 | - | ± | = | ¾ | ¶ | § | ÷ | , | ° | .. | . | 1 | 3 | 2 | | ■ |

Figure A-12 CODE_PAGE_858 (Euro)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | ђ | Ђ | ѓ | Ѓ | ё | Ё | є | Є | ѕ | Ѕ | і | І | ї | Ї | ј | Ј |
| 90 | љ | Љ | њ | Њ | ћ | Ћ | ќ | Ќ | џ | Џ | џ | џ | џ | џ | џ | џ |
| A0 | а | А | б | Б | в | В | г | Г | д | Д | е | Е | ф | Ф | г | Г |
| B0 | ☐ | ☐ | ☐ | | | х | Х | и | И | | | | | | | |
| C0 | L | ⊥ | T | └ | └ | + | к | К | ℓ | ℓ | ℓ | ℓ | ℓ | ℓ | ℓ | α |
| D0 | л | Л | м | М | н | Н | о | О | п | П | Г | ■ | ■ | П | я | ■ |
| E0 | Я | р | Р | с | С | т | Т | у | У | ж | Ж | в | В | ь | ь | № |
| F0 | - | ы | Ы | э | Э | ш | Ш | э | Э | щ | Щ | ч | Ч | § | | ■ |

Figure A-13 CODE_PAGE_855 (Cyrillic)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|----|----|---|---|---|---|----|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | ° | • | • | √ | ■ | - | | + | + | + | + | + | + | + | + | + |
| 90 | β | ∞ | φ | ± | ½ | ¼ | ≈ | « | » | لأ | لأ | | | | | لا |
| A0 | - | £ | £ | £ | £ | | | ل | ب | ث | ج | ح | خ | ح | خ | خ |
| B0 | • | ١ | ٢ | ٣ | ٤ | ٥ | ٦ | ٧ | ٨ | ٩ | ف | س | ش | ص | ش | ؟ |
| C0 | φ | ء | آ | أ | ؤ | ع | ئ | ب | ة | ث | ت | ج | د | خ | د | د |
| D0 | ذ | ر | ز | س | ش | ص | ض | ط | ظ | ع | غ | | ÷ | × | ع | ع |
| E0 | - | ف | ق | ك | ل | م | ن | ه | و | ي | ض | ع | غ | غ | غ | م |
| F0 | - | ” | ن | ه | ه | ي | ي | غ | ي | غ | ي | غ | ي | غ | ي | ■ |

Figure A-14 CODE_PAGE_864 (Arabic)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|----|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | € | ‘ | ’ | “ | ” | … | † | ‡ | § | Š | < | Š | Ť | Ž | Ž | |
| 90 | | ‘ | ’ | “ | ” | • | - | - | ™ | š | > | š | ť | ž | ž | |
| A0 | ˘ | ˘ | Ł | Ł | Ą | | Ś | .. | © | § | « | ¬ | - | ® | Ž | |
| B0 | ° | ± | ł | ł | μ | ¶ | • | ą | § | » | Ł | ” | ł | ž | ž | |
| C0 | Ř | Á | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā | Ā |
| D0 | Đ | Ň | Ň | Ó | Ô | Õ | Ö | × | Ř | Ů | Ú | Ú | Ú | Ú | Ý | Ť |
| E0 | ř | á | â | ä | ä | í | ć | ç | č | é | ę | ě | ě | í | î | ď |
| F0 | đ | ň | ň | ó | ô | õ | ö | ÷ | ř | ů | ú | ú | ú | ú | ý | ť |

Figure A-15 CODE_PAGE_1250 (Central European)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|-----|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | ђ | ѓ | ; | ѓ | „ | ... | † | ‡ | € | ‰ | Љ | < | Њ | ќ | ћ | џ |
| 90 | ђ | ‘ | ; | “ | ” | • | - | - | ™ | Љ | > | њ | ќ | ћ | џ | |
| A0 | ÿ | ÿ | Ј | Ѡ | Г | І | Ѕ | Ё | © | Є | « | ¬ | - | ® | İ | |
| B0 | ° | ± | І | і | г | μ | ¶ | • | ё | № | є | » | ј | Ѕ | ѕ | ї |
| C0 | А | Б | В | Г | Д | Е | Ж | З | И | Й | К | Л | М | Н | О | П |
| D0 | Р | С | Т | У | Ф | Х | Ц | Ч | Ш | Щ | Ъ | Ы | Ь | Э | Ю | Я |
| E0 | а | б | в | г | д | е | ж | з | и | й | к | л | м | н | о | п |
| F0 | р | с | т | у | ф | х | ц | ч | ш | щ | ъ | ы | ь | э | ю | я |

Figure A-16 CODE_PAGE_1251 (Cyrillic)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|-----|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | € | ‘ | ; | ƒ | „ | ... | † | ‡ | ‰ | | < | | | | | |
| 90 | | ‘ | ; | “ | ” | • | - | - | ™ | | > | | | | | |
| A0 | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ |
| B0 | ° | ± | ² | ³ | ´ | μ | ¶ | • | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ | ˆ |
| C0 | ı | Α | Β | Γ | Δ | Ε | Ζ | Η | Θ | Ι | Κ | Λ | Μ | Ν | Ξ | Ο |
| D0 | Π | Ρ | | Σ | Τ | Υ | Φ | Χ | Ψ | Ω | İ | ÿ | ά | έ | ή | ί |
| E0 | ˆ | α | β | γ | δ | ε | ζ | η | θ | ι | κ | λ | μ | ν | ξ | ο |
| F0 | π | ρ | ς | σ | τ | υ | φ | χ | ψ | ω | ı | ÿ | ό | ύ | ώ | |

Figure A-17 CODE_PAGE_1253 (Greek)

| | | | | | | | | | | | | | | | | |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 20 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / | |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | |
| 80 | € | ‘ | ’ | “ | ” | … | † | ‡ | ^ | ‰ | Š | < | Œ | | | |
| 90 | | ‚ | ‚ | „ | „ | • | - | - | ~ | ™ | š | > | œ | | | ÿ |
| A0 | ı | ¢ | £ | ¤ | ¥ | ¦ | § | ¨ | © | ª | « | ¬ | ® | ¯ | | |
| B0 | ° | ± | ² | ³ | ´ | µ | ¶ | · | ¸ | ¹ | º | » | ¼ | ½ | ¾ | ¿ |
| C0 | À | Á | Â | Ã | Ä | Å | Æ | Ç | È | É | Ê | Ë | Ì | Í | Î | Ï |
| D0 | Ğ | Ñ | Ò | Ó | Ô | Õ | Ö | × | Ø | Ù | Ú | Û | Ü | İ | Ş | ß |
| E0 | à | á | â | ã | ä | å | æ | ç | è | é | ê | ë | ì | í | î | ï |
| F0 | ğ | ñ | ò | ó | ô | õ | ö | ÷ | ø | ù | ú | û | ü | ı | ş | ÿ |

Figure A-18 CODE_PAGE_1254 (Turkish)

A.2 International Character Set

Print results of the specific character codes vary depending on the setting of the international character set.

The following table shows the specific character codes and their print results.

| | 23 | 24 | 40 | 5B | 5C | 5D | 5E | 60 | 7B | 7C | 7D | 7E |
|-----------------------|----|----|----|----|----|----|----|----|----|----|----|----|
| COUNTRY_USA | # | \$ | @ | [| \ |] | ^ | ` | { | | } | ~ |
| COUNTRY_FRANCE | # | \$ | à | ° | ç | § | ^ | ` | é | ù | è | .. |
| COUNTRY_GERMANY | # | \$ | § | Ä | Ö | Ü | ^ | ` | ä | ö | ü | ß |
| COUNTRY_ENGLAND | £ | \$ | @ | [| \ |] | ^ | ` | { | | } | ~ |
| COUNTRY_DENMARK_1 | # | \$ | @ | Æ | Ø | Å | ^ | ` | æ | ø | å | ~ |
| COUNTRY_SWEDEN | # | α | É | Ä | Ö | Å | Ü | é | ä | ö | å | ü |
| COUNTRY_ITALY | # | \$ | @ | ° | \ | é | ^ | ù | à | ò | è | ì |
| COUNTRY_SPAIN | ℙ | \$ | @ | ı | Ñ | ı | ^ | ` | .. | ñ | } | ~ |
| COUNTRY_JAPAN | # | \$ | @ | [| ¥ |] | ^ | ` | { | | } | ~ |
| COUNTRY_NORWAY | # | α | É | Æ | Ø | Å | Ü | é | æ | ø | å | ü |
| COUNTRY_DENMARK_2 | # | \$ | É | Æ | Ø | Å | Ü | é | æ | ø | å | ü |
| COUNTRY_SPAIN_2 | # | \$ | á | ı | Ñ | ı | é | ` | í | ñ | ó | ú |
| COUNTRY_LATIN_AMERICA | # | \$ | á | ı | Ñ | ı | é | ü | í | ñ | ó | ú |
| COUNTRY_ARABIA | # | \$ | @ | [| \ |] | ^ | ` | { | | } | ~ |

Figure A-19 International Character Set



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(Specifications are subject to change without notice.)