



DPU-S245, DPU-S445,
RP-D10, RP-E10
Print Class Library for Android™
Application Programmer's Guide

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INTRODUCTION

This document describes the Print Class Library for Android SDK (hereinafter referred to as "the SDK") for the printers provided by Seiko Instruments Inc. (hereinafter referred to as "SII").

Target Printers

This section lists the printers supported by the SDK.

	Description in This Manual	Interface	Printer
Mobile printer	DPU-S245	Bluetooth	DPU-S245-01A-E
			DPU-S245-01B-E
			DPU-S245-01C-E
		USB	DPU-S245-0xA-E
			DPU-S245-0xB-E
			DPU-S245-0xC-E
	DPU-S445	Bluetooth	DPU-S445-01A-E
			DPU-S445-01B-E
			DPU-S445-01C-E
		USB	DPU-S445-0xA-E
			DPU-S445-0xB-E
			DPU-S445-0xC-E
POS printer	RP-D10	Bluetooth	RP-D10-x27J2-B
		USB	RP-D10-x27J1-U
		Ethernet	RP-D10-x27J1-E
	RP-E10	Bluetooth	RP-E10-x3FJ2-B
			RP-E11-x3FJ2-B
		USB	RP-E10-x3FJ1-U
			RP-E11-x3FJ1-U
		Ethernet	RP-E10-x3FJ1-E
			RP-E11-x3FJ1-E

Use main firmware version 1.05 or later, LAN interface firmware version 1.13.01 or later for RP-D10-x27J1-E.

Use main firmware version 1.11 or later, LAN interface firmware version 1.13.01 or later for RP-E10-x3FJ1-E or RP-E11-x3FJ1-E.

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Chapter 1

Product Overview

This chapter describes the product overview of the SDK.

1.1 Function Provided by SDK

The SII print class library included in the SDK provides Android-enabled applications with the functions to use following SII printers: DPU-S245, DPU-S445 (hereinafter referred to as "Mobile printer" or "Mobile"), RP-D10, RP-E10 (hereinafter referred to as "POS printer" or "POS").

Moreover, the SDK includes Android Studio projects as a sample program.

1.2 SII Print Class Library Overview

1.2.1 SII Print Class Library Configuration

The SII print class library (hereinafter referred to as "the library") and the sample program included in the SDK are located in the section surrounded by dashed lines in the Android OS configuration diagram (Figure 1-1). The library consists of two classes: the class which produces printer commands, and the class which controls communication port.

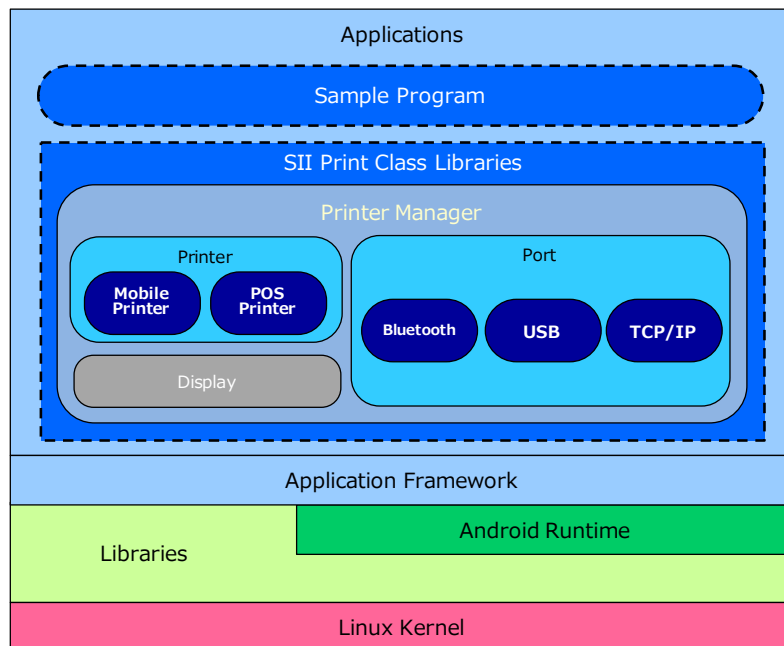


Figure 1-1

1.2.2 Function Provided by Library

Using the library, applications can easily transmit commands and data to a printer through communication port (Bluetooth, USB, or TCP/IP) on an Android device. Also, applications can retrieve printer status.

The library provides the following functions.

- Connection/disconnection to/from a printer
- Sending data to a printer (print data and/or commands*¹)
- Barcode print and 2-dimensional barcode print
- Sending a data file to a printer (print data and/or commands*¹)
- Cut paper
- Obtaining printer status
- Aborting the waiting state of a printer
- Obtaining various responses from a printer
- Bulk registration of print commands
- Registering a printer status call back function
- Printer search by Bluetooth or TCP/IP
- Outputting a log file

*1: Commands that retrieve the responses from the printer are not available.

In order to obtain responses from a printer, use "Obtaining printer status" or "Obtaining various responses from a printer".

(NOTE) Mobile printer and POS printer do not support the APIs relating to Display, the barcode scanners, or label printing function.

Chapter 2

Product Specification

This chapter describes the product specification of the library.

2.1 Product Specification

2.1.1 Applicable OS versions

Applicable OS versions for the library are shown below.

Bluetooth, USB, TCP/IP : Android 7.0 (API 24) to Android 14.0 (API 34)

2.1.2 Operating Conditions

This section describes the operating conditions for the library in Table 2-1, Table 2-2, and Table 2-3. Set the Function Setting/Function Selection to the values shown in each table before using the library. See the technical reference of each printer for details about Function Setting/Function Selection.

Table 2-1 Function Setting of the DPU-S245/DPU-S445 When Using Bluetooth Connection

SWDIP	Function	Value	Setting
2-1	Data Input Mode selection	1	Bluetooth/USB
2-2		1	
4-6	Busy Output When Error Occurs	0	Unbusy
4-8	Bluetooth Link Key Selection*1	0/1	Enable/Disable

*1 In the case of connecting with the printer in secure mode, set 1.
In the case of connecting with the printer in insecure mode, set 0.

Table 2-2 Function Setting of the DPU-S245/DPU-S445 When Using USB Connection

SWDIP	Function	Value	Setting
4-6	Busy Output When Error Occurs	0	Unbusy

Table 2-3 Function Setting When Using RP-D10/RP-E10

MS	Function	Value	Setting
5-2	Initialized Response Selection	0	Enable

2.1.3 Precautions

When TCP/IP connection is used in this library, the communication port cannot be shared with printer drivers or other libraries.

When Bluetooth connection is used in this library, Bluetooth connection needs to be established by SPP (Serial Port Profile).

When USB connection is used in this library, Android device needs to support USB host function.

When TCP/IP connection is used in this library, Android device where Wireless LAN access point is connecting to and POS printer need to be connected to the same network.

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 document, in following sections are based on the premise that environments for using each tool have been set up.

3.2 Provided Files

The file configuration of the SDK is as follows.

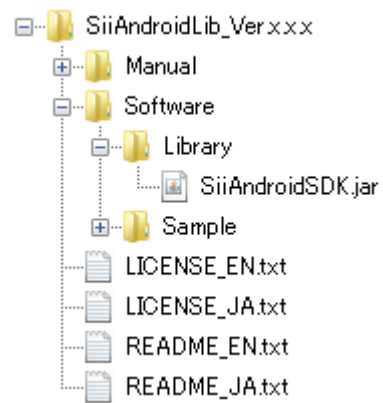


Figure 3-1

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

This section describes how to add the SDK to Android Studio projects.

See "Chapter 5 Sample Program" for sample program included in the SDK.

- (1) Create a project in Android Studio and copy the library file (SiiAndroidSDK.jar) to the [libs] folder. When the [libs] folder is not automatically created, add the folder manually.
For sample programs included in the SDK, the folder is "\Sample\app\libs".
- (2) After adding the library, the view looks like Figure 3-2.

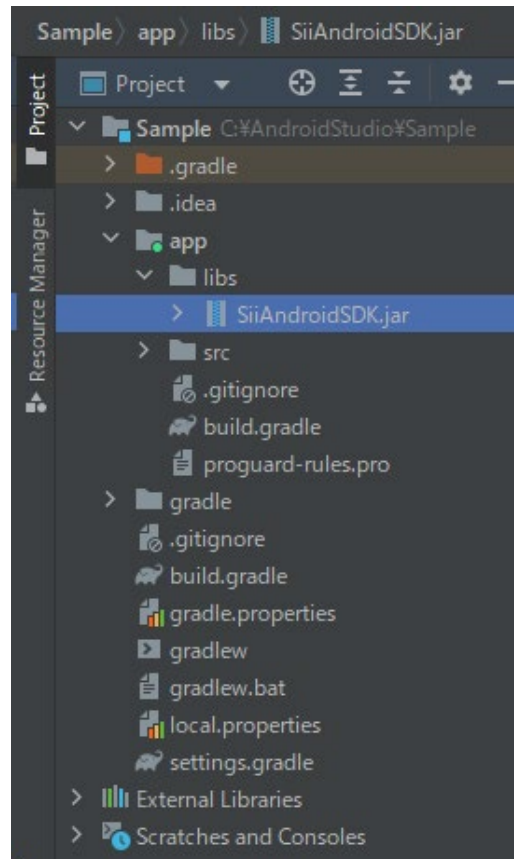


Figure 3-2

- (3) Add the following to dependencies{} of build.gradle(:app) in the application.

```
implementation 'com.journeyapps:zxing-android-embedded:3.4.0@aar'  
implementation 'com.google.zxing:core:3.4.1'  
implementation files ('libs/SiiAndroidSDK.jar')
```

- (4) Add the following codes to the beginning of the class file that uses the print class library.
(Import xxxx according to the function to use.)

```
import com.seikoinstruments.sdk.thermalprinter.PrinterManager;  
import com.seikoinstruments.sdk.thermalprinter.xxxx;
```

- (5) Add the following permission declaration to the application manifest (AndroidManifest.xml). Also, implement a process (requestPermissions()) that requests the appropriate permissions for the application.

[When using Bluetooth]

```
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
<uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>
<uses-permission android:name="android.permission.BLUETOOTH"/>
<uses-permission android:name="android.permission.BLUETOOTH_ADMIN"/>
<uses-permission android:name="android.permission.BLUETOOTH_CONNECT"/>
<uses-permission android:name="android.permission.BLUETOOTH_SCAN"/>
```

[When using TCP/IP]

```
<uses-permission android:name="android.permission.ACCESS_WIFI_STATE"/>
<uses-permission android:name="android.permission.CHANGE_WIFI_STATE"/>
<uses-permission android:name="android.permission.INTERNET"/>
```

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, make the following settings on the Android device.

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

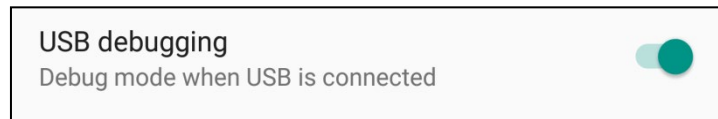


Figure 3-3

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

Function of Library

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

4.1 Standard Mode and Page Mode

4.1.1 Basic Operation

There are two printing modes "Standard mode" and "Page mode" in the library. The "Standard mode" and "Page mode" are described below.

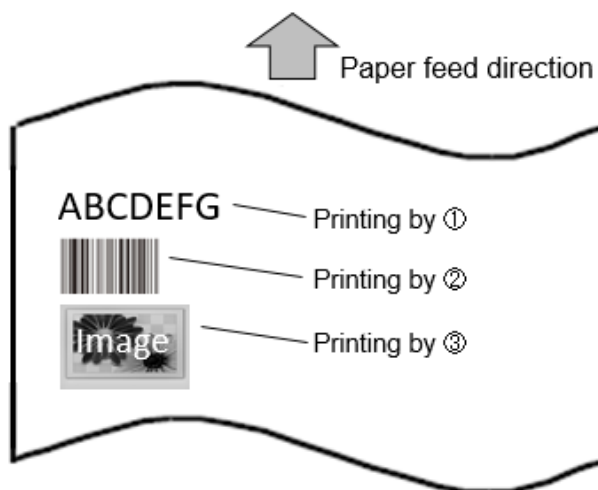
"Page mode" is supported only by POS printer.

(1) Standard mode

Standard mode is the mode to perform the printing in sequence.

Sample print command

- ① Send text data
- ② Print barcode
- ③ Send specified file (Specify an image file)



Standard mode suits the printing with an unfixed length such as a receipt.

(2) Page mode

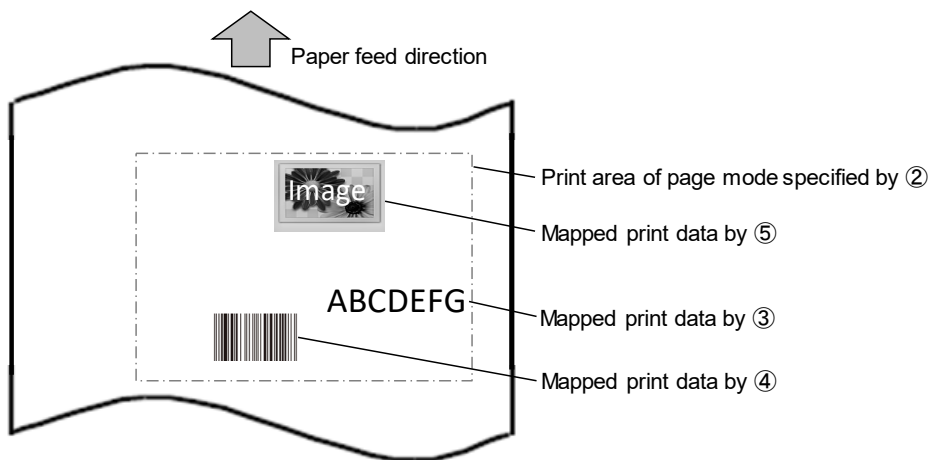
Page mode is the mode to perform the printing on a per-page basis.

In page mode, the print area of page mode is allocated at first, and then print data is mapped on an arbitrary position of the print area.

The mapped print data is printed by the print method of page mode.

Sample print command

- ① Start page mode
- ② Specify print area of page mode
- ③ Send text data of page mode
- ④ Print barcode of page mode
- ⑤ Draw image file of page mode
- ⑥ Print page mode (print the data of ③④⑤ on the print area of ②)
- ⑦ End page mode



Page mode suits the printing for the followings.

- The printing with a fixed length.
- The printing with the coordinate determination of the character starting position or the ruled line
- printing position.

4.1.2 Text Data Printing in Standard Mode

The text data in standard mode is printed each one line.

The text data is stored in the printer when the text data less than one line is specified.

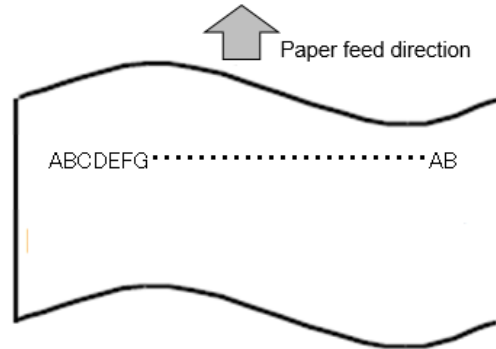
The stored text data is printed by either the following conditions.

- The text data filling for one line is specified.
- Line Feed code is specified.

- The print process when the text data filling for one line is specified.

ABCDEFGH.....ABCD
The text data filling for one line is specified.
(The continuous data is stored in the printer.)

Input data

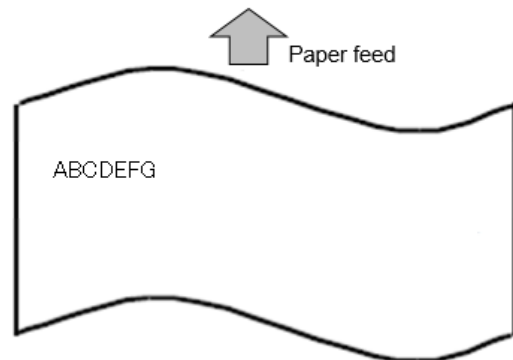


Print result

- The print process when Line Feed code is specified.

ABCDEFGH\nABCD
Line Feed code is specified.
(The continuous data is stored in the printer.)

Input data



Print result

4.1.3 Mapping Position of Print Data in Page Mode

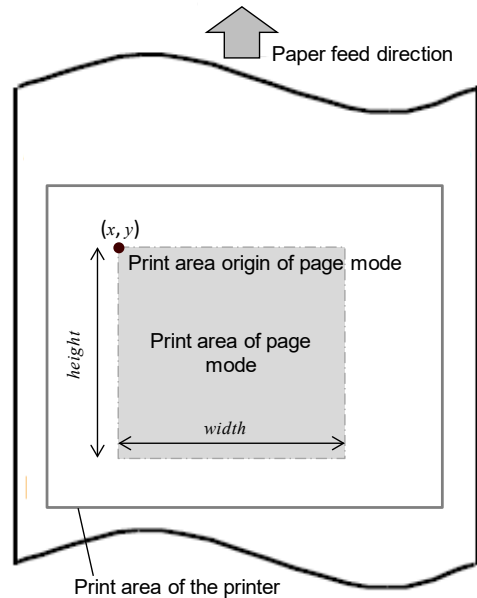
In page mode, the mapping position of print data is determined by print area, print direction, and reference point.

This section describes the print area, print direction, and reference point.

(1) Print area of page mode

The print area of page mode is specified against the print area of the printer by the print area origin, and the width and the height of page mode. The view of the print area is shown in the following figures.

The print area of page mode can be specified more than one.

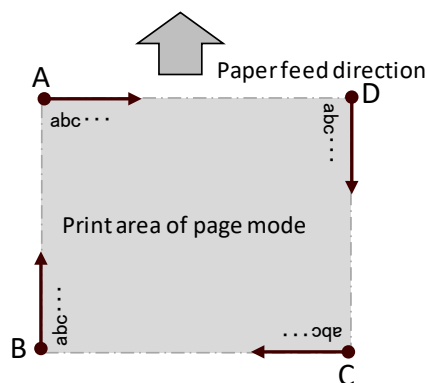


(2) Print direction

Specify the print direction at setting the print area of page mode.

The starting point is changed depending on specifying the print direction for each direction.

The relation between the print direction and the starting point is shown in the figure below.

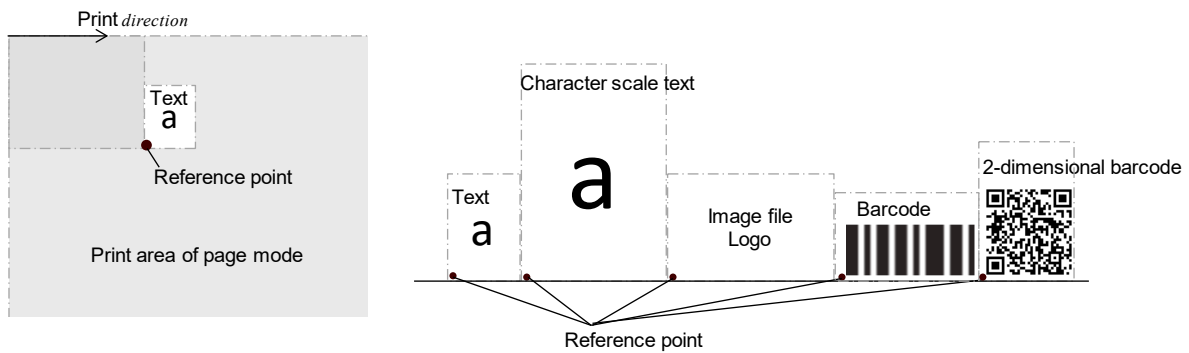


- Starting point: Upper left (A on the figure),
- Starting point: Left below (B on the figure),
- Starting point: Right below (C on the figure),
- Starting point: Upper right (D on the figure),

- Print direction: Left to Right
- Print direction: Below to Upper
- Print direction: Right to Left
- Print direction: Upper to Below

(3) Reference point

The relation between the reference point for mapping data and each print element (text, image file, logo, and barcode, etc.) is shown in the figures below.



(NOTE) The reference point cannot be specified out of the print area of page mode.

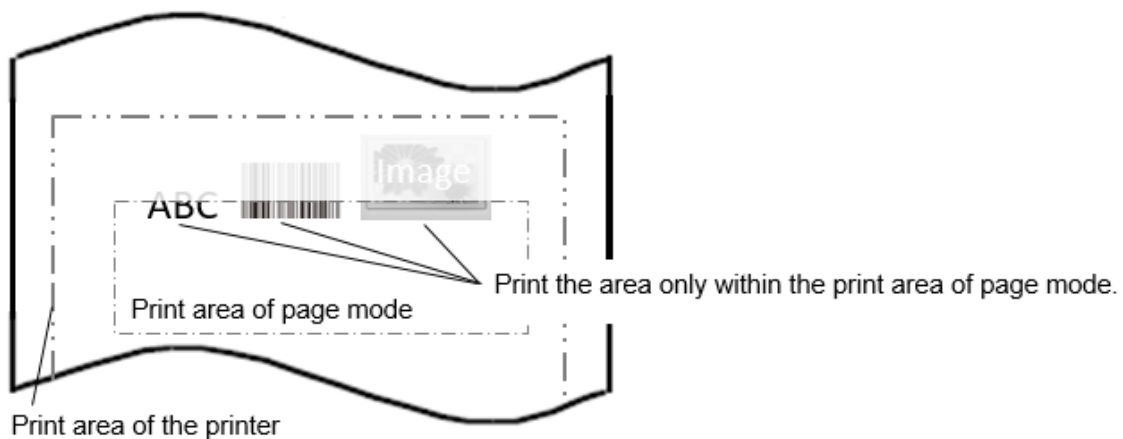
4.1.4 Print Data Process at Out of Print Area of Page Mode

This section describes the process when mapped data is to be mapped on out of the print area of page mode.

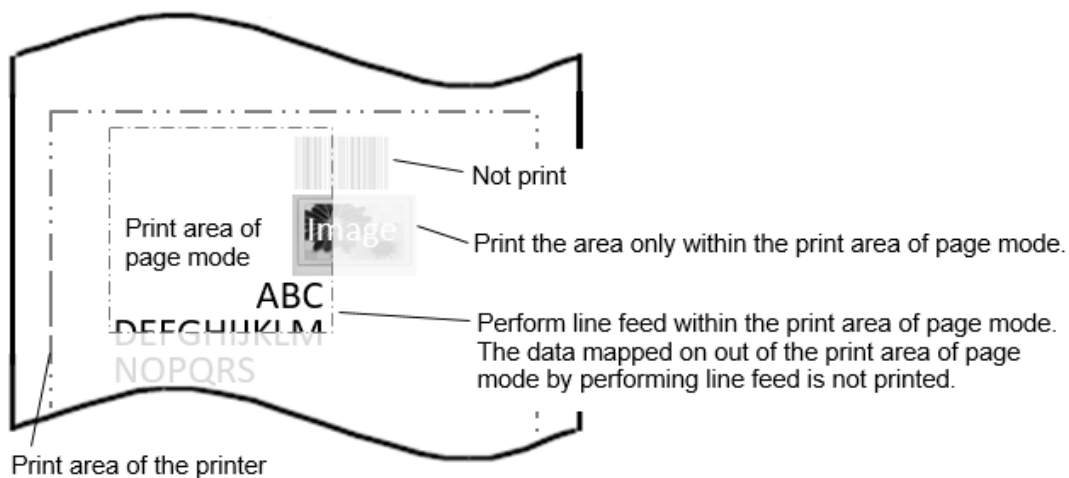
Type of Print Data

Text	Barcode, 2-dimensional Barcode	Image File, Logo, Rectangle, Ruled Line
ABC		

(a) The print data is mapped on the upper of the print area of page mode.



(b) The print data is mapped on the right of print area of page mode.



(NOTE) Read error or incorrect reading may occur when the part of mapped barcode data is on out of the print area of page mode.

4.2 Log File Output Function

The logs can be retrieved and the log files can be output using the library.

4.2.1 How to Set Log Output

Log output settings can be configured by adding the config.ini file with the following content to the specific directory of the Android application that incorporates the library (e.g. internal shared storage \Android\data\<package name>\files).

```
config.ini  
  
LOGLEVEL=x  
LOGSIZEMAX=xMB  
LOGOUTPUT=x
```

Reference: See "4.2.2 Log Output Settings" for details on the settings for x.

4.2.2 Log Output Settings

Item	Description	Settings
LOGLEVEL	Log level	0 : Not record the log. 1 : Records an error log when PrinterException is thrown. 2 : Records API execution history.
LOGSIZEMAX	Log file maximum size	1MB : Log file maximum size is 1 MB 5MB : Log file maximum size is 5 MB 10MB : Log file maximum size is 10 MB 50MB : Log file maximum size is 50 MB
LOGOUTPUT	Logcat output enabled/disabled	0 : Logcat output is disabled 1 : Logcat output is enabled

4.2.3 Log File

Log files are saved as local files in the Android application that incorporates the library.

Log file name : PrinterManagerX.log (range of X is 0 to 4)

The 1st log file is created as PrinterManager0.log. If the log file maximum size is exceeded, changes the file name to PrinterManager1.log and creates a new PrinterManager0.log.

Up to 5 log files can be created.

4.3 Package of Library

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

Class Name	Description
PrinterManager	Class that provides the API used for communication with the printer and printing.
PrinterEvent	Class that provides API to obtain the event type proceeded when printer searching is completed.
PrinterListener	Interface that obtains the complete event of printer searching.
PrinterInfo	Class that stores the printer information searched by printer searching method.
PrinterException	Exception class that is thrown at API call.
CallbackFunctionListener	Interface for getting the change event of printer status.
BarcodeScannerListener	Interface for getting barcode scanner connection or barcode scanner disconnection, or received barcode data.
SmartLabelManager	Provides the API to specify label files or replace data.

See "4.4 API Reference" for more details about APIs for each class.

4.4 API Reference

This manual describes API in each class contained in this library as follows.

Class Name	Description
PrinterManager	See "4.4.1 PrinterManager Class".
PrinterEvent	See "4.4.2 PrinterEvent Class".
PrinterListener	See "4.4.3 PrinterListener Interface".
PrinterInfo	See "4.4.4 PrinterInfo Class".
PrinterException	See "4.4.5 PrinterException Class".
CallbackFunctionListener	See "4.4.6 CallbackFunctionListener Interface".
BarcodeScannerListener	See "4.4.7 BarcodeScannerListenerPrinterException Class".
SmartLabelManager	See "4.4.8 SmartLabelManager Class".

(NOTE) Mobile printer and POS printer do not support the APIs relating to Display, the barcode scanners, or label printing function.

4.4.1 PrinterManager Class

(1) Method List

Methods provided by the **PrinterManager** class are shown in the following table.
"Standard mode" or "Page mode" can be selected in the **PrinterManager** class.
Available method differs depending on the target printer: Mobile printer or POS printer.

Method	Description
Common method to standard mode and page mode	The valid methods in standard mode and page mode. See "4.4.1(1)(a) Common method to standard mode and page mode" for the methods.
Dedicated method for standard mode	The valid methods in standard mode. See "4.4.1(1)(b) Dedicated method for standard mode" for the methods.
Dedicated method for page mode	The valid methods in page mode. See "4.4.1(1)(c) Dedicated method for page mode" for the methods.

(a) Common method to standard mode and page mode

Methods provided by the common method to standard mode and page mode are shown in the following table.

See "4.4.1(4)(a) Common method to standard mode and page mode" for details of the common methods.

**Table 4-1 Common Method to Standard Mode and Page Mode
in PrinterManager Class**

Method	Function Summary	Target	
		Mobile	POS
PrinterManager	Constructor	Supported	Supported
connect	Start communicating with a printer (Bluetooth)	Supported	Supported
connect	Start communicating with a printer (USB)	Supported	Supported
connect	Start communicating with a printer (TCP/IP)	Not supported	Supported
disconnect	Disconnect a printer	Supported	Supported
setBarcodeScannerListener	Start/End callback of barcode scanner	Not supported	Not supported
openDrawer	Open cash drawer	Not supported	Supported
buzzer	Sound buzzer	Not supported	Supported
externalbuzzer	Sound external buzzer	Not supported	Not supported
getStatus	Obtain printer status	Supported	Supported
setCallbackFunctionListener	Start/End callback of printer status change	Supported	Supported
abort	Abort the waiting state of a printer	Supported	Supported
registerLogo	Register logo (image) to a printer	Supported* ¹	Supported* ¹
unregisterLogo	Delete specified logo (image) in a printer	Supported	Not Supported
unregisterLogo	Delete specified logo (image) in a printer	Not supported	Supported
registerStyleSheet	Register style sheet to a printer	Not supported	Supported
unregisterStyleSheet	Delete specified style sheet in a printer	Not supported	Supported
resetPrinter	Printer hardware reset	Supported	Supported
getPrinterResponse	Obtain various responses from a printer	Supported* ¹	Supported* ¹
startDiscoveryPrinter	Start printer search (Bluetooth)	Supported	Supported
startDiscoveryPrinter	Start printer search (USB)	Supported	Supported
startDiscoveryPrinter	Start printer search (TCP/IP)	Not supported	Supported
cancelDiscoveryPrinter	Cancel printer search	Supported	Supported
getFoundPrinter	Obtain searched printer information	Supported	Supported
getSendTimeout	Obtain send timeout period	Supported	Supported
setSendTimeout	Set send timeout period	Supported	Supported
getReceiveTimeout	Obtain receive timeout period	Supported	Supported
setReceiveTimeout	Set receive timeout period	Supported	Supported
getInternationalCharacter	Obtain international character set	Supported	Supported
setInternationalCharacter	Set international character set	Supported	Supported
getCodePage	Obtain codepage	Supported	Supported

Method	Function Summary	Target	
		Mobile	POS
setCodePage	Set codepage	Supported	Supported
getPrinterModel	Obtain printer model	Supported	Supported
getPortType	Obtain connection port type	Supported	Supported
isConnect	Verify connection state with a printer	Supported	Supported
getSocketKeepingTime	Obtain socket keeping time	Not supported	Supported
setSocketKeepingTime	Set socket keeping time	Not supported	Supported
getVersion	Get SDK version	Supported	Supported
controlTransaction	Start/Finish batch processing	Supported	Supported

*1: Provided function varies depending on the target printer.

(b) Dedicated method for standard mode

Methods provided by the dedicated method for standard mode are shown in the following table.

See "4.4.1(4)(b) Dedicated method for standard mode" for details of the dedicated methods.

**Table 4-2 Dedicated Method for Standard Mode
in PrinterManager Class**

Method	Function Summary	Target	
		Mobile	POS
sendText	Send text data	Supported	Supported
sendTextEx	Send format specified text data	Supported	Not supported
sendTextEx	Send format specified text data	Not supported	Supported
printBarcode	Print barcode	Supported	Supported
printPDF417	Print PDF417	Supported	Supported
printQRcode	Print QR code	Supported	Supported
printDataMatrix	Print Data Matrix	Supported	Supported
printMaxiCode	Print MaxiCode	Supported	Supported
printGS1DataBarStacked	Print GS1 Databar Stacked	Not supported	Not supported
printGS1DataBarStackedOmni directional	Print GS1 Databar Stacked Omni-directional	Not supported	Not supported
printGS1DataBarExpandedSta cked	Print GS1 Databar Expanded Stacked	Not supported	Not supported
printAztecCode	Print Aztec Code	Not supported	Not supported
cutPaper	Cut paper	Not supported	Supported
feedPosition	Paper form feed	Not supported	Not supported
sendBinary	Send binary data	Supported	Supported
sendDataFile	Send specified file	Supported*1	Supported*1
printLogo	Print specified logo (image) in printer	Supported	Not supported
printLogo	Print specified logo (image) in printer	Not supported	Supported

*1: Provided function varies depending on the target printer.

(c) Dedicated method for page mode

Methods provided by the dedicated method for page mode are shown in the following table.

See "4.4.1(4)(c) Dedicated method for page mode" for details of the specified methods.

**Table 4-3 Dedicated Method for Page Mode
in PrinterManager Class**

Method	Function Summary	Target	
		Mobile	POS
enterPageMode	Start page mode	Not supported	Supported
exitPageMode	End page mode	Not supported	Supported
setPageModeArea	Specify print area of page mode	Not supported	Supported
setPageModeDirection	Specify print direction of page mode	Not supported	Supported
setPageModeLineSpacing	Specify line spacing of page mode	Not supported	Supported
printPageMode	Print page mode	Not supported	Supported
printPageModeText	Send text data of page mode	Not supported	Supported
printPageModeTextEx	Send format specified text data of page mode	Not supported	Supported
printPageModeBarcode	Print barcode of page mode	Not supported	Supported
printPageModePDF417	Print PDF417 of page mode	Not supported	Supported
printPageModeQRcode	Print QR Code of page mode	Not supported	Supported
printPageModeDataMatrix	Print Data Matrix of page mode	Not supported	Supported
printPageModeMaxiCode	Print MaxiCode of page mode	Not supported	Supported
printPageModeGS1DataBarStacked	Print GS1 Databar Stacked of page mode	Not supported	Not supported
printPageModeGS1DataBarStackedOmnidirectional	Print GS1 Databar Stacked Omni-directional of page mode	Not supported	Not supported
printPageModeGS1DataBarExpandedStacked	Print GS1 Databar Expanded Stacked of page mode	Not supported	Not supported
printPageModeAztecCode	Print Aztec Code of page mode	Not supported	Not supported
sendPageModeBinary	Send binary data of page mode	Not supported	Supported
printPageModeImageFile	Draw image file of page mode	Not supported	Supported
printPageModeRectangle	Draw rectangle image of page mode	Not supported	Supported
printPageModeLine	Print ruled line of page mode	Not supported	Supported
printPageModeLogo	Print logo of page mode	Not supported	Supported

(2) Constant List

(a) Printer Model Constant

Constants used for obtaining printer model are shown in the following table.

Table 4-4 Printer Model Constant

Constant Name	Description	Value	Target	
			Mobile	POS
PRINTER_MODEL_DPU_S245	DPU-S245	284	Supported	Not supported
PRINTER_MODEL_DPU_S445	DPU-S445	281	Supported	Not supported
PRINTER_MODEL_RP_D10	RP-D10	295	Not supported	Supported
PRINTER_MODEL_RP_E10	RP-E10	291	Not supported	Supported
PRINTER_MODEL_DEFAULT	Printer model default	284	Supported	Supported

(b) Response Type Constant

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

Table 4-5 Response Type Constant

Constant Name	Description	Value	Target	
			Mobile	POS
PRINTER_RESPONSE_REQUEST	Execution response request	0	Supported	Supported
PRINTER_RESPONSE_USER_AREA	Send remaining capacity of user area	1	Supported	Supported
PRINTER_RESPONSE_ARRANGE_USER_AREA	Send remaining capacity of user area after defragment	2	Not supported	Supported
PRINTER_RESPONSE_NV_GRAPHICS	Send NV graphics memory capacity	3	Not supported	Supported
PRINTER_RESPONSE_KEY_CODE	Send key code list of defined NV graphics	4	Not supported	Supported
PRINTER_RESPONSE_BATTERY_STATUS	Battery voltage state	5	Supported	Not supported
PRINTER_RESPONSE_EXTERNAL_RAM	Send Remaining RAM response	6	Supported	Not supported

(c) International Character Set Constant

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

Table 4-6 International Character Set Constant

Constant Name	Description	Value	Target	
			Mobile	POS
COUNTRY_USA	USA	0	Supported	Supported
COUNTRY_FRANCE	France	1	Supported	Supported
COUNTRY_GERMANY	Germany	2	Supported	Supported
COUNTRY_ENGLAND	United Kingdom	3	Supported	Supported
COUNTRY_DENMARK_1	Denmark I	4	Supported	Supported
COUNTRY_SWEDEN	Sweden	5	Supported	Supported
COUNTRY_ITALY	Italy	6	Supported	Supported
COUNTRY_SPAIN	Spain I	7	Supported	Supported
COUNTRY_JAPAN	Japan	8	Supported	Supported
COUNTRY_NORWAY	Norway	9	Supported	Supported
COUNTRY_DENMARK_2	Denmark II	10	Supported	Supported
COUNTRY_SPAIN_2	Spain II	11	Supported	Supported
COUNTRY_LATIN_AMERICA	Latin America	12	Supported	Supported
COUNTRY_ARABIA	Arabia	17	Not supported	Supported

(d) Codepage Constant

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

Table 4-7 Codepage Constant

Constant Name	Description	Value	Target	
			Mobile	POS
CODE_PAGE_437	USA, Standard Europe (Code Page437)	0	Not supported	Supported
CODE_PAGE_KATAKANA	Katakana	1	Supported	Supported
CODE_PAGE_850	Multilingual (Code Page850)	2	Not supported	Supported
CODE_PAGE_860	Portuguese (Code Page860)	3	Not supported	Supported
CODE_PAGE_863	Canadian-French (Code Page863)	4	Not supported	Supported
CODE_PAGE_865	Nordic (Code Page865)	5	Not supported	Supported
CODE_PAGE_1252	Latin (Code Page1252)	16	Supported	Supported
CODE_PAGE_852	Eastern Europe (Code Page852)	18	Not supported	Supported
CODE_PAGE_858	Euro (Code Page858)	19	Not supported	Supported
CODE_PAGE_864*1	Arabic (Code Page864)	37	Not supported	Supported
CODE_PAGE_1250	Central European (Code Page1250)	45	Not supported	Supported

Constant Name	Description	Value	Target	
			Mobile	POS
CODE_PAGE_1251	Cyrillic (Code Page1251)	46	Not supported	Supported
CODE_PAGE_1253	Greek (Code Page1253)	47	Not supported	Supported
CODE_PAGE_1254	Turkish (Code Page1254)	48	Not supported	Supported

Note: This library does not support other than above codepage.

*1: When **CODE_PAGE_864** is specified, 20ACh of the Unicode cannot be printed.

(e) Port Type Constant

Constants used for obtaining connection port type are shown in the following table.

Table 4-8 Port Type Constant

Constant Name	Description	Value	Target	
			Mobile	POS
PRINTER_TYPE_BLUETOOTH	Bluetooth	0	Supported	Supported
PRINTER_TYPE_USB	USB	1	Supported	Supported
PRINTER_TYPE_TCP	TCP/IP	2	Not supported	Supported

(f) Constant for barcode or PDF417

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

Table 4-9 Constant for Barcode or PDF417

Constant Name	Description	Value	Target	
			Mobile	POS
BARCODE_HEIGHT_DEFAULT	Default value of barcode height	162	Supported	Supported
PDF417_MODULE_HEIGHT_DEFAULT	Default value of PDF417 height	10	Supported	Supported
PDF417_ROW_AUTO	Automatic selection of the number of rows	0	Supported	Supported
PDF417_COLUMN_AUTO	Automatic selection of the number of columns	0	Supported	Supported

(3) Constant List of Enumerated Type

(a) Drawer number (**DrawerNum**)

Enumerated type constants used for drawer number are shown in the following table.

Table 4-10 Drawer Number (DrawerNum)

Constant Name	Description	Target	
		Mobile	POS
DRAWER_1	Drawer 1	Not supported	Supported
DRAWER_2	Drawer 2	Not supported	Supported

(b) Activation pulse width (**PulseWidth**)

Enumerated type constants used for activation pulse width are shown in the following table.

Table 4-11 Activation Pulse Width (PulseWidth)

Constant Name	Description	Target	
		Mobile	POS
ON_OFF_TIME_100	ON/OFF time 100 millisecond	Not supported	Supported
ON_OFF_TIME_200	ON/OFF time 200 millisecond	Not supported	Supported
ON_OFF_TIME_300	ON/OFF time 300 millisecond	Not supported	Supported
ON_OFF_TIME_400	ON/OFF time 400 millisecond	Not supported	Supported
ON_OFF_TIME_500	ON/OFF time 500 millisecond	Not supported	Supported
ON_OFF_TIME_600	ON/OFF time 600 millisecond	Not supported	Supported
ON_OFF_TIME_700	ON/OFF time 700 millisecond	Not supported	Supported
ON_OFF_TIME_800	ON/OFF time 800 millisecond	Not supported	Supported

(c) Dithering (**Dithering**)

Enumerated type constants used for dithering are shown in the following table.

Table 4-12 Dithering (Dithering)

Constant Name	Description
DITHERING_DISABLE	Dithering is disabled
DITHERING_ERRORDIFFUSION	Dithering is enable

(d) Batch processing selection (**TransactionFunction**)

Enumerated type constants used for batch processing selection are shown in the following table.

Table 4-13 Batch Processing Selection (TransactionFunction)

Constant Name	Description
TRANSACTION_CLEAR	Release batch processing
TRANSACTION_START	Start batch processing
TRANSACTION_PRINT	Finish batch printing and batch processing

(e) Bold print (**CharacterBold**)

Enumerated type constants used for bold print are shown in the following table.

Table 4-14 Bold Print (CharacterBold)

Constant Name	Description	Target	
		Mobile	POS
BOLD_CANCEL	Release bold print	Supported	Supported
BOLD	Specify bold print	Supported	Supported

(f) Underline (**CharacterUnderline**)

Enumerated type constants used for underline are shown in the following table.

Table 4-15 Underline (CharacterUnderline)

Constant Name	Description	Target	
		Mobile	POS
UNDERLINE_CANCEL	Release underline print	Supported	Supported
UNDERLINE_1	Specify 1 dot width underline print	Supported	Supported
UNDERLINE_2	Specify 2 dots width underline print	Supported	Supported

(g) Reverse print (**CharacterReverse**)

Enumerated type constants used for reverse print are shown in the following table.

Table 4-16 Reverse Print (CharacterReverse)

Constant Name	Description	Target	
		Mobile	POS
REVERSE_CANCEL	Release reverse print	Not supported	Supported
REVERSE	Specify reverse print	Not supported	Supported

(h) Inversion print (**CharacterInversion**)

Enumerated type constants 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.

Table 4-17 Inversion Print (CharacterInversion)

Constant Name	Description	Target	
		Mobile	POS
INVERSION_CANCEL	Release inversion print	Not supported	Supported
INVERSION	Specify inversion print	Not supported	Supported

(i) Character font (**CharacterFont**)

Enumerated type constants used for Character font are shown in the following table.

Table 4-18 Character Font (CharacterFont)

Constant Name	Description	Target	
		Mobile	POS
FONT_A	Font A (24 × 12)	Supported	Supported
FONT_B	Font A (16 × 8)	Supported	Supported

(j) Character Scale (**CharacterScale**)

Enumerated type constants used for character scale are shown in the following table.

Table 4-19 Character Scale (CharacterScale)

Constant Name	Description	Target	
		Mobile	Mobile
VERTICAL_1_HORIZONTAL_1	Height × 1 and width × 1	Supported	Supported
VERTICAL_1_HORIZONTAL_2	Height × 1 and width × 2	Supported	Supported
VERTICAL_1_HORIZONTAL_3	Height × 1 and width × 3	Not supported	Supported
VERTICAL_1_HORIZONTAL_4	Height × 1 and width × 4	Not supported	Supported
VERTICAL_2_HORIZONTAL_1	Height × 2 and width × 1	Supported	Supported
VERTICAL_2_HORIZONTAL_2	Height × 2 and width × 2	Supported	Supported
VERTICAL_2_HORIZONTAL_3	Height × 2 and width × 3	Not supported	Supported
VERTICAL_2_HORIZONTAL_4	Height × 2 and width × 4	Not supported	Supported
VERTICAL_2_HORIZONTAL_6	Height × 2 and width × 6	Not supported	Supported
VERTICAL_3_HORIZONTAL_1	Height × 3 and width × 1	Not supported	Supported
VERTICAL_3_HORIZONTAL_2	Height × 3 and width × 2	Not supported	Supported
VERTICAL_3_HORIZONTAL_3	Height × 3 and width × 3	Not supported	Supported
VERTICAL_3_HORIZONTAL_4	Height × 3 and width × 4	Not supported	Supported
VERTICAL_4_HORIZONTAL_1	Height × 4 and width × 1	Not supported	Supported
VERTICAL_4_HORIZONTAL_2	Height × 4 and width × 2	Not supported	Supported
VERTICAL_4_HORIZONTAL_3	Height × 4 and width × 3	Not supported	Supported

Constant Name	Description	Target	
		Mobile	Mobile
VERTICAL_4_HORIZONTAL_4	Height × 4 and width × 4	Not supported	Supported
VERTICAL_4_HORIZONTAL_6	Height × 4 and width × 6	Not supported	Supported
VERTICAL_4_HORIZONTAL_8	Height × 4 and width × 8	Not supported	Supported
VERTICAL_6_HORIZONTAL_2	Height × 6 and width × 2	Not supported	Supported
VERTICAL_6_HORIZONTAL_4	Height × 6 and width × 4	Not supported	Supported
VERTICAL_6_HORIZONTAL_6	Height × 6 and width × 6	Not supported	Supported
VERTICAL_6_HORIZONTAL_8	Height × 6 and width × 8	Not supported	Supported
VERTICAL_8_HORIZONTAL_4	Height × 8 and width × 4	Not supported	Supported
VERTICAL_8_HORIZONTAL_6	Height × 8 and width × 6	Not supported	Supported
VERTICAL_8_HORIZONTAL_8	Height × 8 and width × 8	Not supported	Supported

(k) Alignment (**PrintAlignment**)

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

Table 4-20 Alignment (PrintAlignment)

Constant Name	Description	Target	
		Mobile	POS
ALIGNMENT_LEFT	Align left	Supported	Supported
ALIGNMENT_CENTER	Centered	Supported	Supported
ALIGNMENT_RIGHT	Align right	Supported	Supported

(l) Pending data output specifying (**OutputPendingData**)

Enumerated type constants used for pending data output specifying are shown in the following table.

Table 4-21 Pending Data Output Specifying (OutputPendingData)

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

(m) Barcode symbol (**BarcodeSymbol**)

Enumerated type constants used for barcode symbol are shown in the following table.

Table 4-22 Barcode Symbol (BarcodeSymbol)

Constant Name	Description	Type	Target	
			Mobile	POS
BARCODE_SYMBOL_UPC_A	UPC-A	(a)	Supported	Supported
BARCODE_SYMBOL_UPC_E	UPC-E	(a)	Supported	Supported
BARCODE_SYMBOL_EAN13	EAN13	(a)	Supported	Supported
BARCODE_SYMBOL_JAN13	JAN13	(a)	Supported	Supported
BARCODE_SYMBOL_EAN8	EAN8	(a)	Supported	Supported
BARCODE_SYMBOL_JAN8	JAN8	(a)	Supported	Supported
BARCODE_SYMBOL_CODE39	CODE39	(a), (b)	Supported	Supported
BARCODE_SYMBOL_CODE93	CODE93	(c)	Not supported	Supported
BARCODE_SYMBOL_CODE128	CODE128	(c)	Supported	Supported
BARCODE_SYMBOL_ITF	ITF	(a), (b)	Supported	Supported
BARCODE_SYMBOL_CODABAR	CODABAR	(a), (b)	Supported	Supported
BARCODE_SYMBOL_EAN13_ADDON	EAN13 add-on	(a)	Not supported	Supported
BARCODE_SYMBOL_JAN13_ADDON	JAN13 add-on	(a)	Not supported	Supported

See **printBarcode** or **printPageModeBarcode** for the type.

(n) Module size (**ModuleSize**)

Enumerated type constants used for module size are shown in the following table.

Table 4-23 Module Size (ModuleSize)

Constant Name	Description	Using Method	Target	
			Mobile*1	POS
BARCODE_MODULE_WIDTH_2	Fine element 2 dots Module width 0.250 mm	printBarcode printPageModeBarcode	Supported	Supported
BARCODE_MODULE_WIDTH_3	Fine element 3 dots Module width 0.375 mm		Supported	Supported
BARCODE_MODULE_WIDTH_4	Fine element 4 dots Module width 0.500 mm		Supported	Supported
BARCODE_MODULE_WIDTH_5	Fine element 5 dots Module width 0.625 mm		Not supported	Supported
BARCODE_MODULE_WIDTH_6	Fine element 6 dots Module width 0.750 mm		Not supported	Supported

Constant Name	Description	Using Method	Target	
			Mobile*1	POS
PDF417_MODULE_WIDTH_2	Nominal fine element width 2 dots	printPDF417 printPageModePDF417	Supported	Supported
PDF417_MODULE_WIDTH_3	Nominal fine element width 3 dots		Supported	Supported
PDF417_MODULE_WIDTH_4	Nominal fine element width 4 dots		Supported	Supported
PDF417_MODULE_WIDTH_5	Nominal fine element width 5 dots		Supported	Not supported
PDF417_MODULE_WIDTH_6	Nominal fine element width 6 dots		Supported	Not supported
PDF417_MODULE_WIDTH_7	Nominal fine element width 7 dots		Supported	Not supported
PDF417_MODULE_WIDTH_8	Nominal fine element width 8 dots		Supported	Not supported
QR_MODULE_SIZE_2	2 dots	printQRcode printPageModeQRcode	Supported	Supported
QR_MODULE_SIZE_3	3 dots		Supported	Supported
QR_MODULE_SIZE_4	4 dots		Supported	Supported
QR_MODULE_SIZE_5	5 dots		Supported	Supported
QR_MODULE_SIZE_6	6 dots		Supported	Supported
QR_MODULE_SIZE_7	7 dots		Supported	Supported
QR_MODULE_SIZE_8	8 dots		Supported	Supported
QR_MODULE_SIZE_9	9 dots		Supported	Supported
QR_MODULE_SIZE_10	10 dots		Supported	Supported
QR_MODULE_SIZE_11	11 dots		Supported	Supported
DATAMATRIX_MODULE_SIZE_2	2 dots	printDataMatrix printPageModeDataMatrix	Supported	Supported
DATAMATRIX_MODULE_SIZE_3	3 dots		Supported	Supported
DATAMATRIX_MODULE_SIZE_4	4 dots		Supported	Supported
DATAMATRIX_MODULE_SIZE_5	5 dots		Supported	Supported
DATAMATRIX_MODULE_SIZE_6	6 dots		Supported	Supported
DATAMATRIX_MODULE_SIZE_7	7 dots		Supported	Supported
DATAMATRIX_MODULE_SIZE_8	8 dots		Supported	Supported
DATAMATRIX_MODULE_SIZE_9	9 dots		Supported	Supported
DATAMATRIX_MODULE_SIZE_10	10 dots		Supported	Supported
DATAMATRIX_MODULE_SIZE_11	11 dots		Supported	Supported

*1: The dedicated method for page mode is not supported by Mobile printer.

(o) HRI character print position (**HriPosition**)

Enumerated type constants used for HRI character print position are shown in the following table.

Table 4-24 HRI Character Print Position (HriPosition)

Constant Name	Description	Target	
		Mobile	POS
HRI_NONE	Do not print	Supported	Supported
HRI_POSITION_ABOVE	Above barcode	Supported	Supported
HRI_POSITION_BELOW	Below barcode	Supported	Supported
HRI_POSITION_ABOVE_BELOW	Above and below barcode (both)	Supported	Supported

(p) N:W ratio (**NwRatio**)

Enumerated type constants used for N:W ratio are shown in the following table.

Table 4-25 N:W Ratio (NwRatio)

Constant Name	Description	Target	
		Mobile	POS
WIDE_WIDTH_1	Wide width type 1	Supported	Not supported
WIDE_WIDTH_2	Wide width type 2	Supported	Not supported
WIDE_WIDTH_3	Wide width type 3	Supported	Not supported
WIDE_WIDTH_4	Wide width type 4	Supported	Not supported
NWRATIO_1TO2	1:2	Not supported	Supported
NWRATIO_1TO2_5	1:2.5	Not supported	Supported
NWRATIO_1TO3	1:3	Not supported	Supported

(q) Error correction level (**ErrorCorrection**)

Enumerated type constants used for error correction level are shown in the following table.

Table 4-26 Error Correction Level (ErrorCorrection)

Constant Name	Description	Using Method	Target	
			Mobile*1	POS
PDF417_ERROR_CORRECTION_0	Error correction level 0	printPDF417 printPageModePDF417	Supported	Supported
PDF417_ERROR_CORRECTION_1	Error correction level 1		Supported	Supported
PDF417_ERROR_CORRECTION_2	Error correction level 2		Supported	Supported
PDF417_ERROR_CORRECTION_3	Error correction level 3		Supported	Supported
PDF417_ERROR_CORRECTION_4	Error correction level 4		Supported	Supported
PDF417_ERROR_CORRECTION_5	Error correction level 5		Supported	Supported
PDF417_ERROR_CORRECTION_6	Error correction level 6		Supported	Supported
PDF417_ERROR_CORRECTION_7	Error correction level 7		Supported	Supported
PDF417_ERROR_CORRECTION_8	Error correction level 8		Supported	Supported
QR_ERROR_CORRECTION_L	Error correction level L	printQRcode printPageModeQRcode	Supported	Supported
QR_ERROR_CORRECTION_M	Error correction level M		Supported	Supported
QR_ERROR_CORRECTION_H	Error correction level H		Supported	Supported
QR_ERROR_CORRECTION_Q	Error correction level Q		Supported	Supported

*1: The dedicated method for page mode is not supported by Mobile printer.

(r) PDF417 symbol (**Pdf417Symbol**)

Enumerated type constants used for PDF417 symbol are shown in the following table.

Table 4-27 PDF417 Symbol (Pdf417Symbol)

Constant Name	Description	Target	
		Mobile	POS
PDF417_STANDARD	Standard PDF417	Supported	Supported
PDF417_COMPACT	Compact PDF417	Supported	Supported

(s) QR code model (**QrModel**)

Enumerated type constants used for QR code model symbol are shown in the following table.

Table 4-28 QR Code Model (QrModel)

Constant Name	Description	Target	
		Mobile	POS
QR_MODEL_1	QR code model 1	Supported	Supported
QR_MODEL_2	QR code model 2	Supported	Supported

(t) Data Matrix modules (**DataMatrixModule**)

Enumerated type constants used for Data Matrix module are shown in the following table.

Table 4-29 Data Matrix modules (DataMatrixModule)

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

Constant Name	Description
DATA_MATRIX_8_32	Module numbers: 8 × 32
DATA_MATRIX_12_26	Module numbers: 12 × 26
DATA_MATRIX_12_36	Module numbers: 12 × 36
DATA_MATRIX_16_36	Module numbers: 16 × 36
DATA_MATRIX_16_48	Module numbers: 16 × 48

(u) MaxiCode Mode (**MaxiCodeMode**)

Enumerated type constants used for MaxiCode mode are shown in the following table.

Table 4-30 MaxiCode Mode (MaxiCodeMode)

Constant Name	Description
MAXI_CODE_2	Mode2
MAXI_CODE_3	Mode3
MAXI_CODE_4	Mode4
MAXI_CODE_5	Mode5

(v) Cutting method (**CuttingMethod**)

Enumerated type constants used for cutting method are shown in the following table.

Table 4-31 Cutting Method (CuttingMethod)

Constant Name	Description		Target	
	Paper Feed to Cut Position	Cutting Method	Mobile	POS
CUT_FULL	Enabled	Full cut	Not supported	Supported
CUT_FULL_NO_FEED	Disabled		Not supported	Supported
CUT_PARTIAL	Enabled	Partial cut	Not supported	Supported
CUT_PARTIAL_NO_FEED	Disabled		Not supported	Supported
CUT_NONE *1	Disabled	No cut	Not supported	Supported

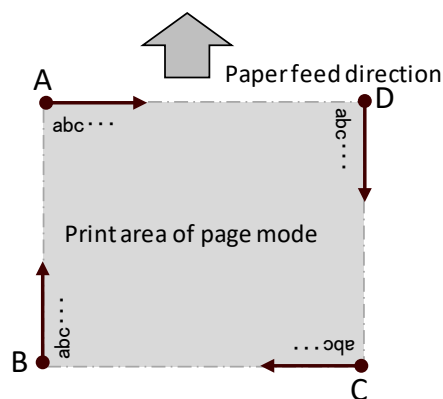
*1: Supported only by **printPageMode**.

(w) Print direction (**Direction**)

Constants of enumerated type used for print direction in page mode are shown in the following table.

Table 4-32 Print direction (Direction)

Constant Name	Description
DIRECTION_LEFT_TO_RIGHT	Starting point: Upper left (A on the figure), Print direction: Left to Right
DIRECTION_BOTTOM_TO_TOP	Starting point: Left below (B on the figure), Print direction: Below to Upper
DIRECTION_RIGHT_TO_LEFT	Starting point: Right below (C on the figure), Print direction: Right to Left
DIRECTION_TOP_TO_BOTTOM	Starting point: Upper right (D on the figure), Print direction: Upper to Below



(x) Line style (**LineStyle**)

Constants of enumerated type used for line style in page mode are shown in the following table.

Table 4-33 Line style (LineStyle)

Constant Name	Description
LINestyle_THIN	Thin solid line (2 dots)
LINestyle_MEDIUM	Medium solid line (4 dots)
LINestyle_THICK	Thick solid line (8 dots)

(4) Method Details

(a) Common method to standard mode and page mode

The following methods are valid in standard mode and page mode. Standard mode is set immediately after **connect** method is executed.

PrinterManager		Constructor
Target	Mobile printer / POS printer	
Syntax	(a) public PrinterManager (Context <i>context</i>) (b) public PrinterManager ()	
Parameter	<i>context</i>	Specify application context to call this method. Example: MainActivity.this
Note	Use the syntax (a) when this method is used newly. Syntax (b) is a method that will be unsupported in the future. Also, syntax (b) does not support the log function.	

connect		Start communicating with a printer (Bluetooth)
Target	Mobile printer / POS printer	
Syntax	(a) public void connect (int <i>printerModel</i> , String <i>address</i>) throws PrinterException (b) public void connect (int <i>printerModel</i> , String <i>address</i> , boolean <i>secure</i>) throws PrinterException	
Parameter	<i>printerModel</i> <i>address</i> <i>secure</i>	Printer model constant for Bluetooth connection Bluetooth address Example: "00:11:22:AA:BB:CC" true Connect to a printer in secure mode false Connect to a printer in insecure mode
Description	<p>This method starts communication between Android device and a printer through Bluetooth connection. Call this method before using other methods of this class.</p> <p>This method connects to the Bluetooth address specified by <i>address</i> parameter. Also, printer default settings are executed based on <i>printerModel</i> parameter specified at the connection. See Table 4-4 Printer Model Constant for available printer model constant.</p> <p>The method in syntax (a) always connects to a printer in secure mode. The method in syntax (b) connects to a printer by specifying secure mode or insecure mode based on the value of <i>secure</i> parameter. Normally, it is recommended that the connection in secure mode be used.</p> <p>Monitoring of the printer status is started with this method. The latest printer status can be retrieved from getStatus method.</p> <p>Changes of the printer status can be notified as events by onStatusChanged method and setCallbackFunctionListener method.</p>	
Error	PrinterException may be thrown when the method is called.	

connect		Start communicating with a printer (USB)
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Target	Mobile printer / POS printer	
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> <i>context</i>	Printer model constant for USB connection Specify application context to call this method. Example: MainActivity.this
Description	<p>This method starts communication between Android device and a printer through USB connection. Call this method before using other methods of this class.</p> <p>This method connects to a printer specified by <i>printerModel</i> parameter. Also, printer default settings are executed based on <i>printerModel</i> parameter specified at the connection. See Table 4-4 Printer Model Constant for available printer model constant.</p> <p>Monitoring of the printer status is started with this method. The latest printer status can be retrieved from getStatus method.</p> <p>Changes of the printer status can be notified as events by onStatusChanged method and setCallbackFunctionListener method.</p>	
Error	PrinterException may be thrown when the method is called.	
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 a printer (TCP/IP)
---------	--	---------------------------------------------

Target	POS printer	
Syntax	public void connect (int <i>printerModel</i> , String <i>address</i>) throws PrinterException	
Parameter	<i>printerModel</i> <i>address</i>	Printer model constant for Ethernet connection IP address Example: "192.168.0.190"
Description	<p>This method is valid only for POS printer. This method starts communication between Android device and a printer connected to the same network through TCP/IP connection. Call this method before using other methods of this class.</p> <p>This method connects to the IP address specified by <i>address</i> parameter. TCP port number 9100 and 26100 are used for communication. Also, printer default settings are executed based on <i>printerModel</i> parameter specified at the connection. See Table 4-4 Printer Model Constant for available printer model constant.</p> <p>Monitoring of the printer status is started with this method. The latest printer status can be retrieved from getStatus method.</p> <p>Changes of the printer status can be notified as events by onStatusChanged method and setCallbackFunctionListener method.</p> <p><Creating/discarding of socket in TCP/IP connection of the library></p> <p>After connect method, the library retains the created socket until disconnect method. And connecting to the same printer from other applications is not possible until disconnect method.</p>	

Based on the completion of data transmission to the printer, the socket is once discarded after elapsing the socket keeping time set by **setSocketKeepingTime** method. Then the new socket is created immediately and used for the next connection.

Error **PrinterException** may be thrown when the method is called.

disconnect Disconnect a printer

Target Mobile printer / POS printer

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

Description This method disconnects communication with a printer.
This method discards the print data kept by **controlTransaction** method.
The instance of **CallbackFunctionListener** interface kept by **setCallbackFunctionListener** method is discarded and the callback is stopped.

Error **PrinterException** may be thrown when the method is called.

Note Execute this method after transmitting the data.
If executing this method before data transmission is completed, a part of the data may be deleted.
To verify data transmission completion, it is recommended to obtain execution response by **PRINTER_RESPONSE_REQUEST** of **getPrinterResponse** method before executing this method.
When this method is executed without executing **getPrinterResponse** method in your program, evaluate your program to confirm no problems arise.

setBarcodeScannerListener Start/End callback of barcode scanner

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

Target Mobile printer / POS printer

Syntax public void **setBarcodeScannerListener**(BarcodeScannerListener *listener*)
throws **PrinterException**

openDrawer Open cash drawer

Target POS printer

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

Parameter *drawerNum* Drawer number
onOffTime pulse width

Description This method is valid only for POS printer. This method opens the specified cash drawer.

See Table 4-10 Drawer Number (DrawerNum) for available setting in *drawerNum* parameter.

See Table 4-11 Activation Pulse Width (PulseWidth) for available setting in *onOffTime* parameter.

Error **PrinterException** may be thrown when this method is called. The printer may be disconnected when **PrinterException** is thrown during data sending.
See **isConnect** method for verifying connection state.

buzzer	Sound buzzer
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Target	POS printer
Syntax	public void buzzer (int <i>onTime</i> , int <i>offTime</i>) throws PrinterException
Parameter	<i>onTime</i> Buzzer On time (millisecond) <i>offTime</i> Buzzer Off time (millisecond)
Description	<p>This method is valid only for POS printer. This method sounds the buzzer.</p> <p>The valid range of <i>onTime</i> and <i>offTime</i> parameter is from 0 to 510.</p>
Error	PrinterException may be thrown when this method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.

externalBuzzer	Sound external buzzer
----------------	-----------------------

This method is not supported. When executing this method, PrinterException is thrown.	
Target	Mobile printer / POS printer
Syntax	public void externalbuzzer (BuzzerPattern <i>buzzer pattern</i> , int <i>buzzerCount</i>) throws PrinterException

getStatus	Obtain printer status
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Target	Mobile printer / POS printer
Syntax	(a) public int getStatus () throws PrinterException (b) public void getStatus (int [] <i>buf</i>) throws PrinterException
Parameter	<i>buf</i> Status obtained from a printer
Description	<p>This method obtains printer status. The method of syntax (a) returns status retrieved from the printer with return value. The method of syntax (b) stores status retrieved from the printer in an array of int type.</p> <p>Contents of status vary between Mobile printer and POS printer.</p> <p>When <i>printerModel</i> parameter specified while executing connect method is PRINTER_MODEL_DPU_S245 or PRINTER_MODEL_DPU_S445, see contents of the Mobile printer status.</p> <p>When <i>printerModel</i> parameter is PRINTER_MODEL_RP-D10 or PRINTER_MODEL_RP-E10, see the POS printer status.</p>

The Mobile printer status is shown in the following table.
When the connection failed, the Mobile printer status is shown in 0x00000000.

Table 4-34 Printer Status (Mobile Printer)

Bit	Function	Value	
		0	1
0	Out-of-paper error	OK	Error
1	Head up error	OK	Error
2	V _P voltage malfunction	OK	Error
3	Thermal head temperature error	OK	Error
4	Function Setting error	OK	Error
5	Battery voltage state	See table below	
6			
7	Reserved	-	Fixed
8 to 31	Reserved	Fixed	-

Bit 6	Bit 5	Battery Voltage State
0	0	8.0 V or higher
0	1	7.5 or higher to lower than 8.0 V
1	0	7.0 or higher to lower than 7.5 V
1	1	Lower than 7.0 V

The status of POS printer is shown in the following table.
When the connection failed, the POS printer status is shown in 0x80000000.

Table 4-35 Printer Status (POS Printer)

Bit	Function	Value	
		0	1
0	VP voltage error	OK	Error
1	Hardware error	OK	Error
2	Head temperature error	OK	Error
3	Autocutter error	OK	Error
4	Out-of-paper error	OK	Error
5	Paper-near-end sensor error ^{*1}	OK	Error
6	Paper jam error while detecting mark ^{*1}	OK	Error
7	Cover open error	OK	Error
8	FEED Switch status	OFF	ON
9	Reserved	Fixed	-
10	Paper feed status	Stop	Operating
11	Return-waiting status	No	Yes
12	Reserved	Fixed	-
13	Reserved	-	Fixed
14	Reserved	-	Fixed

Bit	Function	Value	
		0	1
15	Drawer switch input status	Low	High
16	FLASH memory rewriting	No	Yes
17	Peripheral device selection	Printer	Other
18 to 31	Reserved	-	Fixed

*1: Supported only in RP-E10. In RP-D10, it is always OK (value: 0).

Error **PrinterException** may be thrown when the method is called. The printer may be disconnected when **PrinterException** is thrown during data sending or receiving. See **isConnect** method for verifying connection state.

setCallbackFunctionListener Start/End callback of printer status change

Target Mobile printer / POS printer

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

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

Description Register the process executed by callback with **onStatusChanged** method. When the instance of **CallbackFunctionListener** interface is specified in *listener* parameter and this method is executed, the callback is started. When null is specified in listener parameter and this method is executed, the callback is finished.

The instance kept by **CallbackFunctionLister** interface is discarded by any of the following:

- Execute this method specifying null in *listener* parameter
- Execute **disconnect** method

This call of the method can be used when connect is executed and **isConnect** is true.

Error **PrinterException** may be thrown when the method is called. The printer may be disconnected when **PrinterException** is thrown during data sending. See **isConnect** method for verifying connection state.

abort Abort the waiting state of a printer

Target Mobile printer / POS printer

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

Description When sending of image file by **sendDataFile** method is aborted, a printer does not accept other processes until specified image file is received completely. (Method or sent data are misinterpreted and recognized as part of the image file.) To solve this situation, use this method to abort the waiting state of a printer. Note that when executing this method, a part of unprocessed image file may be printed.

Error **PrinterException** may be thrown when the method is called. The printer may be disconnected when **PrinterException** is thrown during data sending. See **isConnect** method for verifying connection state.

Parameter	<i>fileName</i>	File path of image file to register as logo The formats that can be entered are described below. <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.
	<i>id</i>	Logo ID to register
	<i>dithering</i>	Dithering
Description	<p>This method is valid only for POS printer. This method registers image file specified by <i>fileName</i> parameter to a printer as a logo.</p> <p>The method of syntax (a) is fixed to Dithering disable. The method of syntax (b) specifies Dithering.</p> <p>File extension for image file supported by <i>fileName</i> parameter is .bmp, .jpg, or .jpeg. The valid range of id parameter is 2 characters. Subsequent characters are ignored. 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').</p> <p>See Table 4-12 Dithering (Dithering) for details about available constants for <i>dithering</i> parameter.</p>	
Error	<p>PrinterException may be thrown when the method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.</p>	

unregisterLogo		Delete specified logo (image) in a printer
Target	Mobile printer	
Syntax	public void unregisterLogo (int <i>id</i>) throws PrinterException	
Parameter	<i>id</i>	Logo ID to delete
Description	<p>This method is valid only for Mobile printer. This method deletes the logo (image) registered by registerLogo method (for Mobile printer). Specify the registered logo ID for <i>id</i> parameter. The valid range of <i>id</i> parameter is from 0 to 127.</p>	
Error	<p>PrinterException may be thrown when the method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.</p>	

unregisterLogo

Delete specified logo (image) in a printer

Target	POS printer
Syntax	public void unregisterLogo (String <i>id</i>) throws PrinterException
Parameter	<i>id</i> Logo ID to delete
Description	<p>This method is valid only for POS printer.</p> <p>This method deletes the logo (image) registered by registerLogo method (for POS printer). Specify the registered logo ID for <i>id</i> parameter.</p> <p>The valid range of <i>id</i> parameter is 2 characters. Subsequent characters are ignored. 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').</p>
Error	PrinterException may be thrown when the method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.

registerStyleSheet

Register style sheet to a printer

Target	POS printer
Syntax	public void registerStyleSheet (String <i>fileName</i> , int <i>num</i>) throws PrinterException
Parameter	<i>fileName</i> CSS file path to register as style sheet The formats that can be entered are described below. <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. <i>num</i> Style sheet number to register
Description	<p>This method is valid only for POS printer. This method registers CSS file specified by <i>fileName</i> parameter to a printer. Maximum number of registerable style sheet is four.</p> <p>Style sheet supported by <i>fileName</i> parameter is that style sheet language is written in CSS (cascading style sheets), and that file extension is .css. Maximum number of style registerable to one CSS file is 64. The valid range of <i>num</i> parameter is from 1 to 4.</p> <p>See "6.5.13 Tag Processing Mode" in "RP-D10 SERIES THERMAL PRINTER TECHNICAL REFERENCE" or "RP-E10 SERIES THERMAL PRINTER TECHNICAL REFERENCE" for more details about style sheet.</p>
Error	PrinterException may be thrown when the method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.

unregisterStyleSheet	Delete specified style sheet in a printer
----------------------	-------------------------------------------

Target	POS printer
Syntax	public void unregisterStyleSheet (int <i>num</i>) throws PrinterException
Parameter	<i>num</i> Style sheet number to delete
Description	This method is valid only for POS printer. This method deletes the style sheet registered by registerStyleSheet method. Specify the registered style sheet number for <i>num</i> parameter. The valid range of <i>num</i> parameter is from 1 to 4.
Error	PrinterException may be thrown when the method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.

resetPrinter	Printer hardware reset
--------------	------------------------

Target	Mobile printer / POS printer
Syntax	public void resetPrinter () throws PrinterException
Description	The available connecting method varies between Mobile printer and POS printer. For Mobile printer, this method is valid only when a printer communication is conducted through USB connection. For POS printer, this method is valid when a printer communication is conducted through any of Bluetooth connection, USB connection, or TCP/IP connection. When Bluetooth connection is used, this method resets a connected printer by using printer command. When USB connection is used, this method resets a connected printer by using the SOFT_RESET function in USB printer class. When TCP/IP connection is used, this method resets a connected printer by using the SII original command (reset command) to TCP port number 26100. After executing this method, however, connection to a printer will be maintained.
Error	PrinterException may be thrown when the method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.

getPrinterResponse	Obtain various responses from a printer
--------------------	-----------------------------------------

Target	Mobile printer / POS printer
Syntax	public void getPrinterResponse (int <i>id</i> , Object <i>buf</i>) throws PrinterException
Parameter	<i>id</i> Response type constant <i>buf</i> Buffer that stores obtained response data (Buffer type varies depending on a response type constant.)
Description	This method stores the response data specified by <i>id</i> parameter to the object specified by <i>buf</i> parameter. See Table 4-5 Response Type Constant for details about available constants for <i>id</i> parameter. Contents of obtainable response from a printer vary between Mobile printer and POS printer.

When *printerModel* parameter specified at **connect** method execution is **PRINTER_MODEL_DPU_S245** or **PRINTER_MODEL_DPU_S445**, see contents of obtained response for Mobile printer. When the specified *printerModel* parameter is **PRINTER_MODEL_RP-D10** or **PRINTER_MODEL_RP-E10**, see contents of obtained response for POS printer.

Contents of obtained response for Mobile printer are shown in the following table.

Table 4-36 Contents of Obtained Response (Mobile Printer)

Constant Name	Description
PRINTER_RESPONSE_REQUEST	Obtains "Execution response request". For <i>buf</i> parameter, specify integer array whose length is 1. Specify 0 to 15 (00h to 0Fh) for <i>buf[0]</i> . When responses are obtained successfully, 80 to 95 (50h to 5Fh) are stored to <i>buf[0]</i> .
PRINTER_RESPONSE_EXTERNAL_RAM	Obtains "Send Remaining RAM Response". For <i>buf</i> parameter, specify integer array whose length is 1. When responses are obtained successfully, remaining RAM capacity is stored to <i>buf[0]</i> in byte value.
PRINTER_RESPONSE_USER_AREA	Obtains "Send remaining capacity of user area". For <i>buf</i> parameter, specify integer array whose length is 1. When responses are obtained successfully, remaining user area is stored to <i>buf[0]</i> in byte value.
PRINTER_RESPONSE_BATTERY_STATUS	Obtains "Battery voltage state". For <i>buf</i> parameter, specify integer array whose length is 1. When responses are obtained successfully, the battery status value is stored to <i>buf[0]</i> . Meanings of battery status values are as follows.

Battery Status Value	Battery Voltage State
0	8.0 V or higher
1	7.5 or higher to lower than 8.0 V
2	7.0 or higher to lower than 7.5 V
3	Lower than 7.0 V

Contents of obtained responses for POS printer are shown in the following table.

Table 4-37 Contents of Obtained Response (POS Printer)

Constant Name	Description
PRINTER_RESPONSE_REQUEST	Obtains "Execution response request". For <i>buf</i> parameter, specify integer array whose length is 1. Specify 0 to 15 (00h to 0Fh) for <i>buf[0]</i> . When responses are obtained successfully, 128 to 143 (80h to 8Fh) are stored to <i>buf[0]</i> .
PRINTER_RESPONSE_USER_AREA	Obtains "Send remaining capacity of user area". For <i>buf</i> parameter, specify integer array whose length is 1. When responses are obtained successfully, remaining user area is stored to <i>buf[0]</i> in byte value.
PRINTER_RESPONSE_ARRANGE_USER_AREA	Obtains "Send remaining capacity of user area after defragment". For <i>buf</i> parameter, specify integer array whose length is 1. When responses are obtained successfully, remaining memory after user area defragment is stored to <i>buf[0]</i> in byte value.
PRINTER_RESPONSE_NV_GRAPHICS	Obtains "Send NV graphics memory capacity". For <i>buf</i> parameter, specify integer array whose length is 1. When responses are obtained successfully, NV graphics memory capacity is stored to <i>buf[0]</i> in byte value.
PRINTER_RESPONSE_KEY_CODE	Obtains "Send key code list of defined NV graphics". For <i>buf</i> parameter, specify ArrayList<String> type array. When responses are obtained successfully, the key code of NV graphics is stored to <i>buf</i> parameter 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.

Error **PrinterException** may be thrown when the method is called. The printer may be disconnected when **PrinterException** is thrown during data sending or receiving. See **isConnect** method for verifying connection state.

startDiscoveryPrinter		Start printer search (Bluetooth)
Target	Mobile printer / POS printer	
Syntax	(a) public void startDiscoveryPrinter (PrinterListener <i>listener</i>) throws PrinterException (b) public void startDiscoveryPrinter (PrinterListener <i>listener</i> , Context <i>context</i>) throws PrinterException	
Parameter	<i>listener</i> <i>context</i>	PrinterListener Instance described in the following Context of application
Description	This method searches the printer connected to Bluetooth. The method of syntax (a) specifies instance of PrinterListener . The method of syntax (b) specifies instance of PrinterListener and specifies context to call application.	

Completion or cancellation of the printer search is notified to user application as an event by **finishEvent** method through instance specified in *listener* parameter. This method may discover other printers besides SII printer. In addition, the printers established the Bluetooth connection by this library or other applications are not searched.

Do not call this method from main thread of application.

Error **PrinterException** may be thrown when this method is called.

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

startDiscoveryPrinter Start printer search (USB)

Target Mobile printer / POS printer

Syntax public void **startDiscoveryPrinter**(PrinterListener *listener*, int *deviceType*)
throws **PrinterException**

Parameter *listener* PrinterListener Instance described in the following
deviceType Port type

Description This method searches the printer connected to USB.

Completion of the printer search or cancellation by **cancelDiscoveryPrinter** method is notified to the user application as an event by **finishEvent** method through the instance specified in the *listener* parameter.
Specify **PRINTER_TYPE_USB** in the *deviceType* parameter.

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

Error **PrinterException** may be thrown when this method is called.

startDiscoveryPrinter Start printer search (TCP/IP)

Target POS printer

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

Parameter *listener* **PrinterListener** Instance described in the following
retry The number of retries.
timeout Search timeout period.

Description This method is valid only for POS printer. This method sends local broadcast packet and searches SII printers connecting to the same network. Completion or cancellation of the printer search is notified to user application as an event by **finishEvent** through instance specified in *listener* parameter.
The valid range of *retry* parameter is 1 to 5. When the value below 1 is set, the value is set to 1. When the value exceeds 5 is set, the value is set to 5.
The valid range of *timeout* parameter is 3000 to 60000. When the value below 3000 is set, the value is set to 3000. When the value exceeds 60000 is set, the value is set to 60000.
The searched printer information is stored in **PrinterInfo** class described in the following.

Error **PrinterException** may be thrown when the method is called.

cancelDiscoveryPrinter**Cancel printer search**

Target	Mobile printer / POS printer
Syntax	public void cancelDiscoveryPrinter ()
Description	This method cancels startDiscoveryPrinter under execution. Cancel searching is notified to user application as event by finishEvent method through instance specified in the <i>listener</i> parameter of startDiscoveryPrinter method.

getFoundPrinter**Obtain searched printer information**

Target	Mobile printer / POS printer
Syntax	public ArrayList< PrinterInfo > getFoundPrinter ()
Description	This method obtains the printer information searched by the printer search in ArrayList of PrinterInfo class.
Return value	ArrayList of PrinterInfo class.

getSendTimeout**Obtain send timeout period**

Target	Mobile printer / POS printer
Syntax	public int getSendTimeout ()
Description	This method obtains the timeout period when data is sent. This method is obtainable whether a printer is connected or not. Obtained timeout period is expressed in msec (millisecond) value.
Return value	Send timeout period in msec (millisecond)

setSendTimeout**Set send timeout period**

Target	Mobile printer / POS printer
Syntax	public void setSendTimeout (int <i>sendTimeout</i>)
Parameter	<i>sendTimeout</i> Send timeout period
Description	This method sets the timeout period when data is sent in msec (millisecond). This method is configurable whether a printer is connected or not. However, it is not until sending data next time that the configured timeout period is enabled. Moreover, the default is set when values outside the scope of the valid range is configured.
Default	10000 msec (10 seconds)
Effective range	100 msec to 90000 msec (90 seconds)

getReceiveTimeout	Obtain receive timeout period
-------------------	-------------------------------

Target	Mobile printer / POS printer
Syntax	public int getReceiveTimeout ()
Description	This method obtains the timeout period when data is received. This method is obtainable whether a printer is connected or not. Obtained timeout period is expressed in msec (millisecond) value.
Return value	Receive timeout period in msec (millisecond)

setReceiveTimeout	Set receive timeout period
-------------------	----------------------------

Target	Mobile printer / POS printer
Syntax	public void setReceiveTimeout (int <i>receiveTimeout</i>)
Parameter	<i>receiveTimeout</i> Receive timeout period
Description	This method sets the timeout period when data is received in msec (millisecond). This method is configurable whether a printer is connected or not. However, it is not until receiving data next time that the configured timeout period is enabled. Moreover, the default is set when values outside the scope of the valid range is configured.
Default	10000 msec (10 seconds)
Effective range	100 msec to 90000 msec (90 seconds)

getInternationalCharacter	Obtain international character set
---------------------------	------------------------------------

Target	Mobile printer / POS printer
Syntax	public int getInternationalCharacter ()
Description	<p>This method obtains setting values of international character set. When the text data is sent by sendText method, sendTextEx method, sendDataFile method, printPageModeText method, or printPageModeTextEx method, the print result of the following character codes varies. See "Appendix A Character Sets (Character Code Table)" for details about characters to be printed.</p> <p>Character codes with the varying print result depending on the configuration of the international character set: 0x23, 0x24, 0x40, 0x5B, 0x5C, 0x5D, 0x5E, 0x60, 0x7B, 0x7C, 0x7D, 0x7E</p>
Return value	See Table 4-6 International Character Set Constant for details.

setInternationalCharacter	Set international character set
---------------------------	---------------------------------

Target	Mobile printer / POS printer
Syntax	public void setInternationalCharacter (int <i>internationalCharacter</i>)
Parameter	<i>internationalCharacter</i> International character set constant
Description	<p>This method sets international character set. See Table 4-6 International Character Set Constant for details about configurable values. When international character set is not configured, it is initialized to following state depending on a language setting of an Android device. Also, when an invalid value to <i>internationalCharacter</i> parameter is set, the following values are used as well.</p> <p>When a language setting of an Android device is selected Japanese: COUNTRY_JAPAN</p> <p>When a language setting of an Android device is selected other languages than Japanese: COUNTRY_USA</p>

getCodePage	Obtain codepage
-------------	-----------------

Target	Mobile printer / POS printer
Syntax	public int getCodePage ()
Description	<p>This method obtains setting values of codepage. The encoder used for sending the text data by sendText method, sendTextEx method, sendDataFile method, printPageModeText method, or printPageModeTextEx is changed. See "Appendix A Character Sets (Character Code Table)" for details about characters to be printed.</p>
Return value	See Table 4-7 Codepage Constant for details.

setCodePage	Set codepage
-------------	--------------

Target	Mobile printer / POS printer
Syntax	public void setCodePage (int <i>codePage</i>)
Parameter	<i>codePage</i> Codepage constant
Description	<p>This method sets codepage. See Table 4-7 Codepage Constant for details about configurable values. When a codepage is not configured, it is initialized to following state depending on a language setting of an Android device. Also, when an invalid value to <i>codePage</i> parameter is set, it will be ignored.</p> <p>When a language setting of an Android device is selected Japanese: CODE_PAGE_KATAKANA</p> <p>When a language setting of an Android device is selected other languages than Japanese: CODE_PAGE_1252</p>

getPrinterModel	Obtain printer model
-----------------	----------------------

Target	Mobile printer / POS printer
Syntax	public int getPrinterModel()
Description	This method obtains a model value for the connected printer. When a printer is not connected, the default returns. Even though the printer is not connected, when connect method has been succeeded once, the printer model value successfully connected last time is returned.
Return value	See Table 4-4 Printer Model Constant for details.
Default	PRINTER_MODEL_DEFAULT

getPortType	Obtain connection port type
-------------	-----------------------------

Target	Mobile printer / POS printer
Syntax	public int getPortType()
Description	This method obtains the port type of connecting printer in use during connection with a printer. When a printer is not connected, the default returns. Even though the printer is not connected, when connect method has been succeeded once, the port type value successfully connected last time is returned.
Return value	See Table 4-8 Port Type Constant for details.
Default	PRINTER_TYPE_BLUETOOTH

isConnect	Verify connection state with a printer
-----------	----------------------------------------

Target	Mobile printer / POS printer				
Syntax	public boolean isConnect()				
Description	This method verifies connection state with a printer. Returns true when a printer is connected and false when the printer is disconnected. When PrinterException is thrown during data sending and is disconnected from the printer, the false is returned in this method. If false is returned, it is necessary to connect with the printer again in connect method.				
Return value	Following values are returned depending on the connection state with a printer. <table> <tr> <td>true</td><td>Connected to a printer</td></tr> <tr> <td>false</td><td>Disconnected to a printer</td></tr> </table>	true	Connected to a printer	false	Disconnected to a printer
true	Connected to a printer				
false	Disconnected to a printer				

getSocketKeepingTime	Obtain socket keeping time
----------------------	----------------------------

Target	POS printer
Syntax	public int getSocketKeepingTime ()
Description	This method is valid only for POS printer. This method obtains socket keeping time during TCP/IP connection. This method is obtainable whether a printer is connected or not. Obtained time is expressed in msec (millisecond) value.
Return value	Socket keeping time in msec (millisecond)

setSocketKeepingTime	Set socket keeping time
----------------------	-------------------------

Target	POS printer
Syntax	public void setSocketKeepingTime (int <i>socketKeepingTime</i>)
Parameter	<i>socketKeepingTime</i> Socket keeping time
Description	<p>This method is valid only for POS printer. This method obtains socket keeping time during TCP/IP connection. Obtained timeout period is expressed in msec (millisecond) value. For socket keeping time, set the same time as Network Printer Receive Timeout of the printer to be connected. The setting of Network Printer Receive Timeout can be changed in "SII RP Utility" with the Android app on Google Play.</p> <p>This method is configurable whether a printer is connected or not. However, it is not until executing connect method (TCP/IP) next time that the configured socket keeping time is enabled. Moreover, the default is set when you configure values outside the scope of the valid range.</p>
Default	300000msec (5 minutes)
Effective range	60000 to 300000msec (5 minutes)

getVersion	Get SDK version
------------	-----------------

Target	Mobile printer / POS printer
Syntax	public String getVersion ()
Return value	SDK version character string (Example: When the SDK version is Ver.1.0.0, the return value is "1.0.0")
Description	This method is configurable whether a printer is connected or not.

controlTransaction	Start/End batch processing
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Target	Mobile printer / POS printer
Syntax	public void controlTransaction (TransactionFunction <i>transactionFunction</i>) throws PrinterException
Parameter	<i>transactionFunction</i> Batch processing selection
Description	See Table 4-13 Batch Processing Selection (TransactionFunction) for available setting in <i>transactionFunction</i> parameter.

The procedure of batch processing is as follows:

(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** method

The batch processing target methods are as follows:

- **sendText**
- **sendTextEx**
- **printBarcode**
- **printPDF417**
- **printQRcode**
- **printDataMatrix**
- **printMaxiCode**
- **cutPaper**^{*1}
- **openDrawer**^{*1}
- **buzzer**^{*1}
- **sendBinary**
- **sendDataFile**
- **printLogo**^{*2}
- **enterPageMode**^{*1}
- **exitPageMode**^{*1}
- **setPageModeArea**^{*1}
- **setPageModeDirection**^{*1}
- **setPageModeLineSpacing**^{*1}
- **printPageMode**^{*1}
- **printPageModeText**^{*1}
- **printPageModeTextEx**^{*1}
- **printPageModeBarcode**^{*1}
- **printPageModePDF417**^{*1}
- **printPageModeQRcode**^{*1}
- **printPageModeDataMatrix**^{*1}
- **printPageModeMaxiCode**^{*1}
- **sendPageModeBinary**^{*1}
- **printPageModeImageFile**^{*1}
- **printPageModeRectangle**^{*1}
- **printPageModeLine**^{*1}
- **printPageModeLogo**^{*1*2}

*1: This method is not supported by Mobile printer.

*2: The method under batch processing does not notify the error even when the registered logo does not exist.

(b) Dedicated method for standard mode

The following methods are valid in standard mode. **PrinterException** is thrown when the dedicated method for standard mode are executed in page mode.

sendText		Send text data
Target	Mobile printer / POS printer	
Syntax	public void sendText (String <i>text</i>) throws PrinterException	
Parameter	<i>text</i>	Text data sent to a printer
Description	<p>This method sends the text data specified by <i>text</i> parameter to a printer. Data size that can be specified at a time is 16K bytes (16384 bytes).</p> <p>This method encodes the specified text data to printable text data based on the settings of setInternationalCharacter method and setCodePage method, and then sends it to a printer.</p> <p>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.</p>	
Error	PrinterException may be thrown when the method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.	

sendTextEx		Send format specified text data
Target	Mobile printer	
Syntax	public void sendTextEx (String <i>text</i> , CharacterBold <i>bold</i> , CharacterUnderline <i>underline</i> , CharacterFont <i>font</i> , CharacterScale <i>scale</i>) throws PrinterException	
Parameter	<i>text</i> <i>bold</i> <i>underline</i> <i>font</i> <i>scale</i>	Text data to send to a printer Bold print Underline Character font Character scale
Description	<p>This method is valid only for Mobile printer. This method encodes the specified text data to printable text data based on setInternationalCharacter method and setCodePage method, and then sends it to the printer. Data size that can be specified at one time is 16K bytes (16384 bytes).</p> <p>See Table 4-14 Bold Print (CharacterBold) for available setting in <i>bold</i> parameter.</p> <p>See Table 4-15 Underline (CharacterUnderline) for available setting in <i>underline</i> parameter.</p> <p>See Table 4-18 Character Font (CharacterFont) for available setting in <i>font</i> parameter.</p> <p>See Table 4-19 Character Scale (CharacterScale) for available setting in <i>scale</i> parameter.</p> <p>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.</p>	

Error **PrinterException** may be thrown when this method is called. The printer may be disconnected when **PrinterException** is thrown during data sending.
See **isConnect** method for verifying connection state.

sendTextEx		Send format specified text data
Target	POS printer	
Syntax	<p>(a) public void sendTextEx(String <i>text</i>, CharacterBold <i>bold</i>, CharacterUnderline <i>underline</i>, CharacterReverse <i>reverse</i>, CharacterFont <i>font</i>, CharacterScale <i>scale</i>, PrintAlignment <i>alignment</i>) throws PrinterException</p> <p>(b) public void sendTextEx(String <i>text</i>, CharacterBold <i>bold</i>, CharacterUnderline <i>underline</i>, CharacterReverse <i>reverse</i>, CharacterFont <i>font</i>, CharacterScale <i>scale</i>, PrintAlignment <i>alignment</i>, OutputPendingData <i>output</i>) throws PrinterException</p> <p>(c) public void sendTextEx(String <i>text</i>, CharacterBold <i>bold</i>, CharacterUnderline <i>underline</i>, CharacterReverse <i>reverse</i>, CharacterInversion <i>inversion</i>, CharacterFont <i>font</i>, CharacterScale <i>scale</i>, PrintAlignment <i>alignment</i>) throws PrinterException</p>	
Parameter	<i>text</i> <i>bold</i> <i>underline</i> <i>reverse</i> <i>inversion</i> <i>font</i> <i>scale</i> <i>alignment</i> <i>output</i>	Text data to send to a printer Bold print Underline Reverse print Inversion print Character font Character scale Alignment Pending data output specifying
Description	<p>This method is valid only for POS printer. This method encodes the specified text data to printable text data based on setInternationalCharacter method and setCodePage method, and then sends it to the printer. Data size that can be specified at one time is 16K bytes (16384 bytes).</p> <p>See Table 4-14 Bold Print (CharacterBold) for available setting in <i>bold</i> parameter.</p> <p>See Table 4-15 Underline (CharacterUnderline) for available setting in <i>underline</i> parameter.</p> <p>See Table 4-16 Reverse Print (CharacterReverse) for available setting in <i>reverse</i> parameter.</p> <p>See Table 4-17 Inversion Print (CharacterInversion) for available setting in <i>inversion</i> parameter.</p> <p>See Table 4-18 Character Font (CharacterFont) for available setting in <i>font</i> parameter.</p>	

See Table 4-19 Character Scale (CharacterScale) for available setting in *scale* parameter.

See Table 4-20 Alignment (PrintAlignment) for available setting in *alignment* parameter.

See Table 4-21 Pending Data Output Specifying (OutputPendingData) for available setting in *output* parameter.

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

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

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

When **PENDING_DATA_OUTPUT_TOGETHER** is specified at *output* in the method of syntax (b), 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.

Error **PrinterException** may be thrown when this method is called. The printer may be disconnected when **PrinterException** is thrown during data sending.
See **isConnect** method for verifying connection state.

printBarcode		Print barcode
Target	Mobile printer / POS printer Syntax (d) is not supported.	
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> <p>(d) public void printBarcode(BarcodeSymbol <i>barcodeSymbol</i>, String <i>text</i>, ModuleSize <i>moduleSize</i>, PrintAlignment <i>alignment</i>) throws PrinterException</p>	

Parameter	<i>barcodeSymbol</i>	Barcode symbol
	<i>text(data)</i>	Barcode data to send to the printer
	<i>moduleSize</i>	Barcode width
	<i>moduleHeight</i>	Barcode height (dot)
	<i>hriPosition</i>	HRI character print position
	<i>hriFont</i>	HRI character font
	<i>alignment</i>	Alignment
	<i>nwRatio</i>	N:W ratio

Description This method executes barcode print.

See Table 4-22 Barcode Symbol (BarcodeSymbol) for available setting in *barcodeSymbol* parameter.

The input conditions for barcode that can be used with the parameter *text(data)* are as follows. See Table 4-38 Barcode Input Conditions for Mobile Printer for Mobile printer, and Table 4-39 Barcode Input Conditions for POS Printer for POS printer.

Table 4-38 Barcode Input Conditions for Mobile Printer

Barcode	Number of Data	Inputtable Data Character String (Data)	Remarks
UPC-A	11 characters	'0' to '9'	
UPC-E	11 characters	'0' to '9'	
EAN13 JAN13	12 characters	'0' to '9'	
EAN8 JAN8	7 characters	'0' to '9'	
CODE39	1 to 254 characters	'0' to '9' 'A' to 'Z' ' ', '\$', '%', '+', '-', ':', '/'	Start code and stop code ('*') are automatically added.
CODE128	2 to 255 bytes	(0x00 to 0x66)	Input data with 0x67 or more at the end.
ITF	2 to 254 characters (However, an even number)	'0' to '9'	
CODABAR	1 to 254 characters	'0' to '9' '\$', '+', '-', ':', '/', '	It is needed to specify one of 'A' to 'D' at the beginning and end.

Table 4-39 Barcode Input Conditions for POS Printer

Barcode	Number of Data	Inputtable Data Character String (Data)	Remarks
UPC-A	11 to 12 characters	'0' to '9'	
UPC-E	11 to 12 characters	'0' to '9'	
EAN13 JAN13	12 to 13 characters	'0' to '9'	
EAN8 JAN8	7 to 8 characters	'0' to '9'	
CODE39	1 to 150 characters	'0' to '9' 'A' to 'Z' ' ', '\$', '%', '+', '-', ':', '/'	Start code and stop code ('*') are automatically added.

Barcode	Number of Data	Inputtable Data Character String (Data)	Remarks
CODE93	1 to 150 bytes	(0x00 to 0x2E)	Input data with 0x2F or more at the end.
CODE128	2 to 150 bytes	(0x00 to 0x66)	When inputting the start code (0x67 to 0x69) of the CODE128 code set. Input data with 0x67 or more at the end.
		(0x00 to 0x7F)	When starting with a CODE128 special code start code ("A", "B", "C").
ITF	2 to 150 characters (However, an even number)	'0' to '9'	
CODABAR	1 to 150 characters	'0' to '9' '\$', '+', '-', '.', '/', ':'	It is needed to specify one of 'A' to 'D' at the beginning and end.
EAN13 add-on JAN13 add-on	Add-on 2: 14 to 15 characters Add-on 5: 17 to 18 characters	'0' to '9'	

See Table 4-23 Module Size (ModuleSize) for available setting in *moduleSize* parameter.

The valid range of *moduleHeight* parameter is from 1 to 255.

See Table 4-24 HRI Character Print Position (HriPosition) for available setting in *hriPosition* parameter.

See Table 4-18 Character Font (CharacterFont) for available setting in *hriFont* parameter.

See Table 4-20 Alignment (PrintAlignment) for available setting in *alignment* parameter.

See Table 4-25 N:W Ratio (NwRatio) for available setting in *nwRatio* parameter.

Depending on the relationship between *moduleSize* parameter and *nwRatio* parameter, the wide element width is set in the following tables. See Table 4-40 N:W Ratio for Mobile Printer for Mobile printer, and Table 4-41 N:W Ratio for POS Printer for POS printer.

Table 4-40 N:W Ratio for Mobile Printer

<i>moduleSize</i>	<i>nwRatio</i>			
	WIDE_WIDTH_1	WIDE_WIDTH_2	WIDE_WIDTH_3	WIDE_WIDTH_4
BARCODE_MODULE_WIDTH_2	0.625 mm (5 dots)	0.750 mm (6 dots)	0.750 mm (6 dots)	0.750 mm (6 dots)
BARCODE_MODULE_WIDTH_3	0.875 mm (7 dots)	1.000 mm (8 dots)	1.125 mm (9 dots)	1.125 mm (9 dots)
BARCODE_MODULE_WIDTH_4	1.125 mm (9 dots)	1.250 mm (10 dots)	1.375 mm (11 dots)	1.500 mm (12 dots)

Table 4-41 N:W Ratio for POS Printer

<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)

Error **PrinterException** may be thrown when this method is called. The printer may be disconnected when **PrinterException** is thrown during data sending.
See **isConnect** method for verifying connection state.

Reference See "Appendix B Barcode Size List" for details of the barcode size.

printPDF417

Print PDF417

Target Mobile printer / POS printer

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 a printer
	<i>errorCorrection</i>	Error correction level
	<i>row</i>	The number of row
	<i>column</i>	The number of columns in data area
	<i>moduleSize</i>	Nominal fine element width
	<i>moduleHeight</i>	Module height (dot)
	<i>alignment</i>	Alignment
	<i>pdf417Symbol</i>	Symbol of PDF417

Description	This method prints PDF417. <i>pdf417Symbol</i> parameter for syntax (b) is fixed to standard PDF417.
-------------	------------------------------------------------------------------------------------------------------

See Table 4-26 Error Correction Level (*ErrorCorrection*) for available setting in *errorCorrection* parameter.

The valid range of *row* parameter is from 0, 3 to 90. When 0 is specified, the number of row is automatically set.

The valid range of *column* parameter is from 0 to 30. When 0 is specified, the number of column in the data area is automatically set.

See Table 4-23 Module Size (*ModuleSize*) for available setting in *moduleSize* parameter.

The valid range of *moduleHeight* parameter is from 2 to 127. When the module height is set smaller, some barcode scanners may not read it. Specify 3 or more for normal use.

See Table 4-20 Alignment (*PrintAlignment*) for available setting in *alignment* parameter.

See Table 4-27 PDF417 Symbol (*Pdf417Symbol*) for available setting in *pdf417Symbol* parameter.

Error **PrinterException** may be thrown when this method is called. The printer may be disconnected when **PrinterException** is thrown during data sending. See **isConnect** method for verifying connection state.

Reference See "Appendix B Barcode Size List" for details of the barcode size.

printQRcode	Print QR code
-------------	---------------

Target Mobile printer / POS printer

Syntax

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

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

Parameter	<i>text</i>	Barcode data to send a printer
	<i>errorCorrection</i>	Error correction level
	<i>moduleSize</i>	Module Size
	<i>alignment</i>	Alignment
	<i>model</i>	QR code model

Description This method prints QR code. The type (a) is a QR code model 2 fixed.

Also the version for either type (a) or (b) is automatically set depends on the number of data specified in *text* parameter.

See Table 4-26 Error Correction Level (*ErrorCorrection*) for available setting in *errorCorrection* parameter.

See Table 4-23 Module Size (*ModuleSize*) for available setting in *moduleSize* parameter.

See Table 4-20 Alignment (*PrintAlignment*) for available setting in *alignment* parameter.

See Table 4-28 QR Code Model (*QrModel*) for available setting in *model* parameter.

Error	PrinterException may be thrown when this method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

printDataMatrix	Print Data Matrix
------------------------	--------------------------

Target	Mobile printer / POS printer
Syntax	public void printDataMatrix (String <i>text</i> , DataMatrixModule <i>dataMatrixModule</i> , ModuleSize <i>moduleSize</i> , PrintAlignment <i>alignment</i>) throws PrinterException
Parameter	<div><i>text</i> Barcode data to send to the printer</div> <div><i>dataMatrixModule</i> The number of Data Matrix modules</div> <div><i>moduleSize</i> Module size</div> <div><i>alignment</i> Alignment</div>
Description	<p>This method prints Data Matrix.</p> <p>See Table 4-29 Data Matrix modules (DataMatrixModule) for available setting in <i>dataMatrixModule</i> parameter.</p> <p>See Table 4-23 Module Size (ModuleSize) for available setting in <i>moduleSize</i> parameter.</p> <p>See Table 4-20 Alignment (PrintAlignment) for available setting in <i>alignment</i> parameter.</p>
Error	PrinterException may be thrown when this method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

printMaxiCode	Print MaxiCode
----------------------	-----------------------

Target	Mobile printer / POS printer
Syntax	public void printMaxiCode (String <i>text</i> , MaxiCodeMode <i>maxiCodeMode</i> , PrintAlignment <i>alignment</i>) throws PrinterException
Parameter	<div><i>text</i> Barcode data to send to the printer</div> <div> <ul style="list-style-type: none"> When <i>maxiCodeMode</i> parameter is MAXI_CODE_2 Add the service class (3 digits), the country code (3 digits), and the postal code (9 digits) in the beginning of the data. When <i>maxiCodeMode</i> parameter is MAXI_CODE_3 Add the service class (3 digits), the country code (3 digits), and the postal code (6 digits) in the beginning of the data. </div> <div><i>maxiCodeMode</i> MaxiCode mode</div> <div><i>alignment</i> Alignment</div>

Description	<p>This method prints MaxiCode.</p> <p>See Table 4-30 MaxiCode Mode (MaxiCodeMode) for available setting in <i>maxiCodeMode</i> parameter.</p> <p>See Table 4-20 Alignment (PrintAlignment) for available setting in <i>alignment</i> parameter.</p>
Error	<p>PrinterException may be thrown when this method is called. The printer may be disconnected when PrinterException is thrown during data sending.</p> <p>See isConnect method for verifying connection state.</p>
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

printGS1DataBarStacked

Print GS1 Databar Stacked

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

Target Mobile printer / POS printer

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

printGS1DataBarStackedOmnidirectional

Print GS1 Databar Stacked Omni-directional

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

Target Mobile printer / POS printer

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

printGS1DataBarExpandedStacked

Print GS1 Databar Expanded Stacked

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

Target Mobile printer / POS printer

Syntax public void **printGS1DataBarExpandedStacked**(String *text*,
int *column*,
ModuleSize *moduleSize*,
PrintAlignment *alignment*) throws **PrinterException**

Print Aztec Code

Target Mobile printer / POS printer

Syntax	<pre> public void printAztecCode(String <i>text</i>, int <i>layer</i>, int <i>errorCorrection</i>, ModuleSize <i>moduleSize</i>, AztecSymbol <i>aztecSymbol</i>, PrintAlignment <i>alignment</i>) throws PrinterException </pre>
--------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Cut paper

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

Description	This method is valid only for POS printer. Selects enabled/disabled of the paper feed to the cut position and cuts the paper.
-------------	-------------------------------------------------------------------------------------------------------------------------------

Error **PrinterException** may be thrown when this method is called. The printer may be disconnected when **PrinterException** is thrown during data sending.
See **isConnect** method for verifying connection state.

Paper form feed

Target Mobile printer / POS printer

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

Send binary data

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

Description	This method sends the binary data specified by <i>binary</i> parameter to a printer. Data size that can be specified at a time is 16K bytes (16384 bytes).
-------------	------------------------------------------------------------------------------------------------------------------------------------------------------------

By sending printer command 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 obtain responses from a printer.

Error **PrinterException** may be thrown when the method is called. The printer may be disconnected when **PrinterException** is thrown during data sending.
See **isConnect** method for verifying connection state.

sendDataFile		Send specified file
Target	Mobile printer / POS printer	
Syntax	<p>(a) public void sendDataFile(String <i>fileName</i>) throws PrinterException</p> <p>(b) public void sendDataFile(String <i>fileName</i>, Dithering <i>dithering</i>) throws PrinterException</p> <p>(c) public void sendDataFile(String <i>fileName</i>, PrintAlignment <i>alignment</i>) throws PrinterException</p> <p>(d) public void sendDataFile(String <i>fileName</i>, PrintAlignment <i>alignment</i>, Dithering <i>dithering</i>) throws PrinterException</p>	
Parameter	<i>fileName</i>	<p>File path of the data to send to a 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.
	<i>alignment</i>	Alignment
	<i>dithering</i>	Dithering
Description	<p>This method determines data format based on the file extension specified by <i>fileName</i> parameter, convert it to printer-enabled data format, and send it to a printer. The maximum file size that can be specified is 1M byte (1048576 bytes).</p> <p>The method of syntax (a) specifies the sending file. The method of syntax (b) specifies the sending file and Dithering. The method of syntax (c) is available for only POS printer and specifies Alignment to the sending file. The method of syntax (d) is available for only POS printer and specifies Alignment to the sending file and Dithering.</p> <p>The file extensions capable of sending by <i>fileName</i> parameter and sending the file are describes below.</p> <ul style="list-style-type: none"> • .bmp, .jpg, .jpeg, or .png: Send data to a printer as image file. When that image file is colored one, it is converted to monochrome image by binarization, and sent to a printer. 	

- .txt:
Send data to a printer as text data. Text data format supports UTF-8. Just like **sendText** method, encodes the data to printable text data based on **setInternationalCharacter** method and **setCodePage** method, and then sends it to a printer. Also, in this method, the line spacing code is not added to the end of text data.
- .bin or .dat:
Data is sent to a printer as binary data without conversion.
- .htm or .html:
Only valid for POS printer. Data is sent to a printer as html data without conversion.

alignment parameter is valid only when the file extension specified on *fileName* parameter is .bmp, .jpg, .jpeg, .png or .txt. See Table 4-20 Alignment (PrintAlignment) for available setting.

dithering parameter is valid only when the file extension specified on *fileName* parameter is .bmp, .jpg, .jpeg, or .png. See Table 4-12 Dithering (Dithering) for available setting.

Error **PrinterException** may be thrown when the method is called. The printer may be disconnected when **PrinterException** is thrown during data sending. See **isConnect** method for verifying connection state.

printLogo Print specified logo (image) in printer

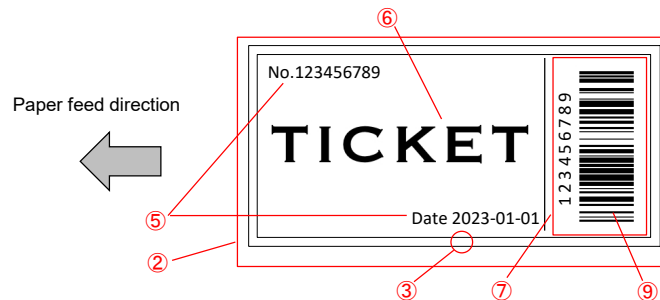
Target	Mobile printer
Syntax	public void printLogo (int <i>id</i>) throws PrinterException
Parameter	<i>id</i> Logo ID to print
Description	This method is valid only for Mobile printer. This method print the logo (image) registered by registerLogo method. Specify registered logo ID in <i>id</i> parameter. The valid range of <i>id</i> parameter is from 0 to 127.
Error	PrinterException may be thrown when this method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.

printLogo Print specified logo (image) in printer

Target	POS printer
Syntax	public void printLogo (String <i>id</i> , PrintAlignment <i>alignment</i>) throws PrinterException
Parameter	<i>id</i> Logo ID to print <i>alignment</i> Alignment
Description	This method is valid only for POS printer. This method print the logo (image) registered by registerLogo method. Specify registered logo ID in <i>id</i> parameter. The valid range of <i>id</i> parameter is 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'). See Table 4-20 Alignment (PrintAlignment) for available setting in <i>alignment</i> parameter.
Error	PrinterException may be thrown when this method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.

(c) Dedicated method for page mode

The following methods are dedicated methods to use page mode. An example for the print process in page mode is shown below.



① Start page mode

```
mPrinterManager.enterPageMode();
```

② Specify print area of page mode

```
mPrinterManager.setPageModeArea(0, 0, 355, 576);
```

③ Specify a rectangle and a ruled line

```
mPrinterManager.printPageModeRectangle(0, 0, 344, 575, LineStyle.LINESTYLE_THIN);  
mPrinterManager.printPageModeRectangle(7, 7, 336, 567, LineStyle.LINESTYLE_THIN);  
mPrinterManager.printPageModeLine(11, 404, 334, 404, LineStyle.LINESTYLE_THIN);
```

④ Specify print direction of page mode

```
mPrinterManager.setPageModeDirection(Direction.DIRECTION_TOP_TO_BOTTOM );
```

⑤ Specify a character

```
mPrinterManager.printPageModeText(21, 47, "NO.123456789");  
mPrinterManager.printPageModeText(212, 340, "Date 2023-01-01");
```

⑥ Specify an image file

```
mPrinterManager.printPageModeImageFile(  
    10,  
    222,  
    Environment.getExternalStorageDirectory().getPath() + "/TicketImage.jpg",  
    Dithering.DITHERING_DISABLE);
```

⑦ Specify print area of page mode

```
mPrinterManager.setPageModeArea(0, 404, 345, 163);
```

⑧ Specify print direction

```
mPrinterManager.setPageModeDirection(Direction.DIRECTION_LEFT_TO_RIGHT);
```

⑨ Specify a barcode

```
mPrinterManager.printPageModeBarcode(  
    20,  
    132,  
    BarcodeSymbol.BARCODE_SYMBOL_CODE128,  
    new byte[]{0x67, 0x11, 0x12, 0x13, 0x14, 0x15, 0x16, 0x17, 0x18, 0x19x, 0x68},  
    ModuleSize.BARCODE_MODULE_WIDTH_2,  
    80,  
    HriPosition.HRI_POSITION_ABOVE,  
    CharacterFont.FONT_A);
```

⑩ Print in page mode

```
mPrinterManager.printPageMode(CuttingMethod.CUT_PARTIAL);
```

⑪ Ends page mode

```
mPrinterManager.exitPageMode();
```

enterPageMode**Start page mode**

Target	POS printer
Syntax	public void enterPageMode() throws PrinterException
Description	<p>This method starts page mode. The dedicated method for page mode and common methods to standard mode and page mode can be used after this method execution.</p> <p>Executing exitPageMode method discards the print data kept in the page data buffer and changes the mode to standard mode.</p> <p>Executing printPageMode method prints the print data kept in the page data buffer.</p>
Error	PrinterException may be thrown when the method is called.

exitPageMode**End page mode**

Target	POS printer
Syntax	public void exitPageMode() throws PrinterException
Description	Discards the print data kept in the page data buffer and changes the mode to standard mode.
Error	PrinterException may be thrown when the method is called.

setPageModeArea**Specify print area of page mode**

Target	POS printer								
Syntax	public void setPageModeArea (int <i>x</i> , int <i>y</i> , int <i>width</i> , int <i>height</i>) throws PrinterException								
Parameter	<table><tr><td><i>x</i></td><td>The horizontal origin (dot) of the print area of page mode 0 represents the left edge on the print area of the printer.</td></tr><tr><td><i>y</i></td><td>The vertical origin (dot) of the print area of page mode The valid range is 0 to 2399. 0 represents the position where paper feed has not been performed.</td></tr><tr><td><i>width</i></td><td>The print area width (dot) of page mode</td></tr><tr><td><i>height</i></td><td>The print area height (dot) of page mode The valid range is 1 to (2400-<i>y</i>).</td></tr></table>	<i>x</i>	The horizontal origin (dot) of the print area of page mode 0 represents the left edge on the print area of the printer.	<i>y</i>	The vertical origin (dot) of the print area of page mode The valid range is 0 to 2399. 0 represents the position where paper feed has not been performed.	<i>width</i>	The print area width (dot) of page mode	<i>height</i>	The print area height (dot) of page mode The valid range is 1 to (2400- <i>y</i>).
<i>x</i>	The horizontal origin (dot) of the print area of page mode 0 represents the left edge on the print area of the printer.								
<i>y</i>	The vertical origin (dot) of the print area of page mode The valid range is 0 to 2399. 0 represents the position where paper feed has not been performed.								
<i>width</i>	The print area width (dot) of page mode								
<i>height</i>	The print area height (dot) of page mode The valid range is 1 to (2400- <i>y</i>).								

The valid range of x and $width$ are shown in figure below.

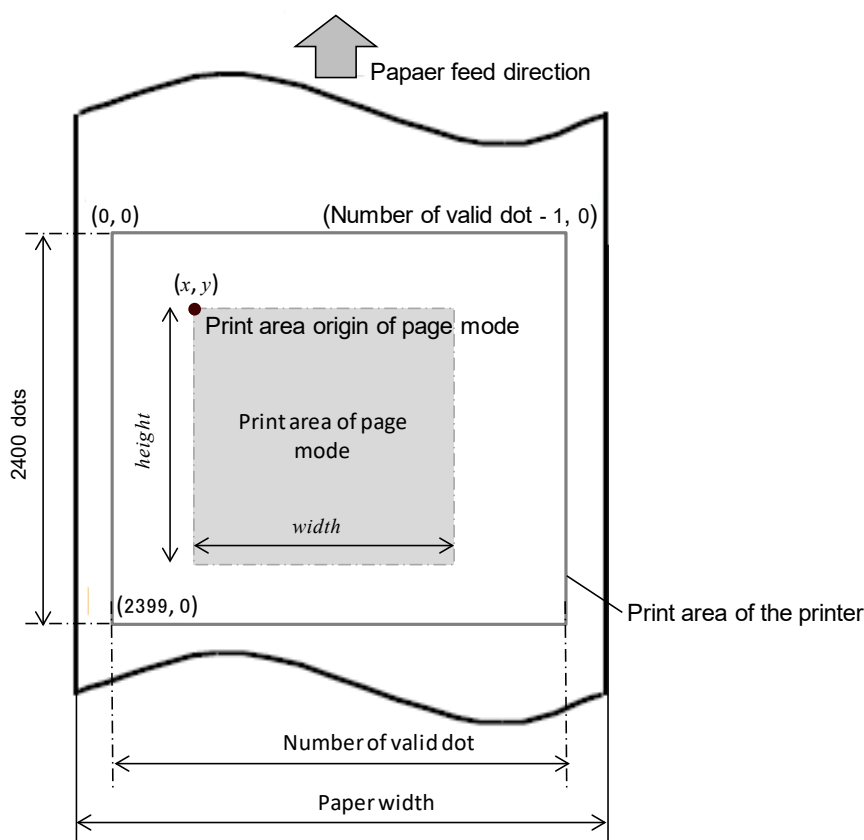


Table 4-42 Valid Range of x and $width$ (POS printer)

Memory Switch Setting of Printer		Number of Valid Dot	setPageModeArea	
MS4-4 (Paper Width)	MS4-5 (Number of Effective Dots)		x	$width$
80 mm	576	576	0 to 575	1 to (576 - x)
	512	512	0 to 511	1 to (512 - x)
58 mm	432	432	0 to 431	1 to (432 - x)
	360	360	0 to 359	1 to (360 - x)

Number of valid dot varies depending on the memory switch setting of the printer.
See the technical reference of POS printer for details about function settings.

Description This method specifies the print area of page mode.

Start page mode by **enterPageMode** method before executing this method.

The print area of page mode can be specified when page mode is started by **enterPageMode** method and then this method is executed after executing the dedicated method for page mode. The data that has been mapped is kept.

The data of the dedicated method for page mode is mapped to the print area of page mode added by this method after executing this method.

The print area of page mode is $x = 0$, $y = 0$, $width$ = number of a valid dot, $height = 2400$ after executing **enterPageMode** method.

Error **PrinterException** may be thrown when the method is called.

setPageModeDirection	Specify print direction of page mode
----------------------	--------------------------------------

Target	POS printer
Syntax	public void setPageModeDirection (Direction <i>direction</i>) throws PrinterException
Parameter	<i>direction</i> Print direction See Table 4-32 Print direction (Direction) for available constants.
Description	This method specifies print direction of page mode. Start page mode by enterPageMode method before executing this method. The print direction is left to right after executing enterPageMode method.
Error	PrinterException may be thrown when the method is called.

setPageModeLineSpacing	Specify line spacing of page mode
------------------------	-----------------------------------

Target	POS printer
Syntax	public void setPageModeLineSpacing (int <i>lineSpacing</i>) throws PrinterException
Parameter	<i>linespacing</i> Line spacing (dot) of page mode The valid range is 0 to 255.
Description	This method specifies line spacing of page mode. Start page mode by enterPageMode method before executing this method. The line spacing is 34 dots after executing enterPageMode method.
Error	PrinterException may be thrown when the method is called.

printPageMode	Print page mode
---------------	-----------------

Target	POS printer
Syntax	public void printPageMode (CuttingMethod <i>cuttingMethod</i>) throws PrinterException
Parameter	<i>cuttingMethod</i> Cutting method See Table 4-31 Cutting Method (CuttingMethod) for available constants.
Description	This method prints the print data kept in page data buffer. The print data is kept after printing. The print data is discarded at the timing of the following: <ul style="list-style-type: none"> •Execute enterPageMode method •Execute disconnect method •Execute exitPageMode method
Error	PrinterException may be thrown when this method is called. The printer may be disconnected when PrinterException is thrown during data sending. See isConnect method for verifying connection state.

printPageModeText	Send text data of page mode
-------------------	-----------------------------

Target	POS printer
Syntax	public void printPageModeText (int <i>startX</i> , int <i>startY</i> , String <i>text</i>) throws PrinterException
Parameter	<i>startX</i> The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>startY</i> The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>text</i> Text data Data size that can be specified at 1 time is 16 KB (16384 bytes).
Description	This method encodes the specified text data to printable text data based on setInternationalCharacter method and setCodePage method. Start page mode by enterPageMode method before executing this method.
Error	PrinterException may be thrown when the method is called.

printPageModeTextEx	Send format specified text data of page mode
---------------------	----------------------------------------------

Target	POS printer
Syntax	public void printPageModeTextEx (int <i>startX</i> , int <i>startY</i> , String <i>text</i> , CharacterBold <i>bold</i> , CharacterUnderline <i>underline</i> , CharacterReverse <i>reverse</i> , CharacterFont <i>font</i> , CharacterScale <i>scale</i>) throws PrinterException
Parameter	<i>startX</i> The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>startY</i> The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>text</i> Text data Data size that can be specified at 1 time is 16 KB (16384 bytes).
	<i>bold</i> Bold print See Table 4-14 Bold Print (CharacterBold) for available constants.
	<i>underline</i> Underline See Table 4-15 Underline (CharacterUnderline) for available constants.
	<i>reverse</i> Reverse print See Table 4-16 Reverse Print (CharacterReverse) for available constants.
	<i>font</i> Font See Table 4-18 Character Font (CharacterFont) for available constants.

<i>scale</i>	Character scale See Table 4-19 Character Scale (CharacterScale) for available constants.
Description	This method encodes the specified text data to printable text data based on setInternationalCharacter method and setCodePage method. Start page mode by enterPageMode before executing this method.
Error	PrinterException may be thrown when the method is called.

printPageModeBarcode	Print barcode of page mode
----------------------	----------------------------

Target	POS printer
Syntax	<p>(a) public void printPageModeBarcode(int <i>startX</i>, int <i>startY</i>, BarcodeSymbol <i>barcodeSymbol</i>, String <i>text</i>, ModuleSize <i>moduleSize</i>, int <i>moduleHeight</i>, HriPosition <i>hriPosition</i>, CharacterFont <i>hriFont</i>) throws PrinterException</p> <p>(b) public void printPageModeBarcode(int <i>startX</i>, int <i>startY</i>, BarcodeSymbol <i>barcodeSymbol</i>, String <i>text</i>, ModuleSize <i>moduleSize</i>, int <i>moduleHeight</i>, HriPosition <i>hriPosition</i>, CharacterFont <i>hriFont</i>, NwRatio <i>nwRatio</i>) throws PrinterException</p> <p>(c) public void printPageModeBarcodeint <i>startX</i>, int <i>startY</i>, BarcodeSymbol <i>barcodeSymbol</i>, byte[] <i>data</i>, ModuleSize <i>moduleSize</i>, int <i>moduleHeight</i>, HriPosition <i>hriPosition</i>, CharacterFont <i>hriFont</i>) throws PrinterException</p> <p>(d) public void printPageModeBarcode(int <i>startX</i>, int <i>startY</i>, BarcodeSymbol <i>barcodeSymbol</i>, String <i>text</i>, ModuleSize <i>moduleSize</i>) throws PrinterException</p>
Parameter	<p><i>startX</i> The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.</p> <p><i>startY</i> The vertical reference point (dot) from the starting point The valid range is 0 to 2399.</p> <p><i>barcodeSymbol</i> BarcodeSymbol See Table 4-22 Barcode Symbol (BarcodeSymbol) for available constants and correspondent syntax.</p>

text(data)

Barcode data to send to the printer
See Table 4-43 Barcode Input Conditions.

Table 4-43 Barcode Input Conditions

Barcode	Number of Data	Inputtable Data Character String (Data)	Remarks
UPC-A	11 to 12 characters	'0' to '9'	
UPC-E	11 to 12 characters	'0' to '9'	
EAN13 JAN13	12 to 13 characters	'0' to '9'	
EAN8 JAN8	7 to 8 characters	'0' to '9'	
CODE39	1 to 150 characters	'0' to '9' 'A' to 'Z' ' ', '\$', '%', '+', '-', '.', '/'	Start code and stop code (**) are automatically added.
CODE93	1 to 150 bytes	(0x00 to 0x2E)	Input data with 0x2F or more at the end.
CODE128	2 to 150 bytes	(0x00 to 0x66)	When inputting the start code (0x67 to 0x69) of the CODE128 code set. Input data with 0x67 or more at the end.
		(0x00 to 0x7F)	When starting with a CODE128 special code start code ("A", "B", "C").
ITF	2 to 150 characters (However, an even number)	'0' to '9'	
CODABAR	1 to 150 characters	'0' to '9' '\$', '+', '-', '.', '/', ':'	It is needed to specify one of 'A' to 'D' at the beginning and end.
EAN13 add-on JAN13 add-on	Add-on 2: 14 to 15 characters Add-on 5: 17 to 18 characters	'0' to '9'	

moduleSize

Barcode width
See Table 4-23 Module Size (ModuleSize) for available constants.

moduleHeight

Barcode height (dot)

hriPosition

HRI character print position
See Table 4-24 HRI Character Print Position (HriPosition) for available
constants.

hriFont

HRI character font
See Table 4-18 Character Font (CharacterFont) for available constants.

nwRatio

N:W ratio
See Table 4-25 N:W Ratio (NwRatio) for available constants.
Depending on specified *nwRatio* and *moduleSize*, the wide element width
is set as shown in the following table.

Table 4-44 NW Ratio

<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)

Description This method maps the barcode on the print area of page mode.
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 N:W ratio of the barcode.
The method of syntax (c) specifies the barcode data by the array of bytes.
The method of syntax (d) is not supported.

Start page mode by **enterPageMode** method before executing this method.

Error **PrinterException** may be thrown when the method is called.

Note Map the print data of the barcode not to overlap the other print data.

Reference See "Appendix B Barcode Size List" for details of the barcode size.

printPageModePDF417

Print PDF417 of page mode

Target POS printer

Syntax (a) public void **printPageModePDF417**(int *startX*,
int *startY*,
String *text*,
ErrorCorrection *ErrorCorrection*,
int *row*,
int *column*,
ModuleSize *moduleSize*,
int *moduleHeight*,
Pdf417Symbol *pdf417Symbol*) throws **PrinterException**

(b) public void **printPageModePDF417**(int *startX*,
int *startY*,
String *text*,
ErrorCorrection *ErrorCorrection*,
int *row*,
int *column*,
ModuleSize *moduleSize*,
int *moduleHeight*) throws **PrinterException**

Parameter *startX* The horizontal reference point (dot) from the starting point
The valid range is 0 to 2399.

<i>startY</i>	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
<i>text</i>	Barcode data
<i>errorCorrection</i>	Error correction level See Table 4-26 Error Correction Level (ErrorCorrection) for available constants.
<i>row</i>	The number of rows (row) The valid range is 0, 3 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 Table 4-23 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>pdf417Symbol</i>	Symbol of PDF417 See Table 4-27 PDF417 Symbol (Pdf417Symbol) for available constants.
Description	This method maps PDF417 on the print area of page mode. The method of syntax (a) specifies PDF417 symbol. The method of syntax (b) is fixed to standard PDF417. Start page mode by enterPageMode method before executing this method.
Error	PrinterException may be thrown when the method is called.
Note	Map the print data of the barcode not to overlap the other print data.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

printPageModeQRcode	Print QR Code of page mode
---------------------	----------------------------

Target	POS printer
Syntax	(a) public void printPageModeQRcode (int <i>startX</i> , int <i>startY</i> , String <i>text</i> , ErrorCorrection <i>ErrorCorrection</i> , ModuleSize <i>moduleSize</i>) throws PrinterException (b) public void printPageModeQRcode (int <i>startX</i> , int <i>startY</i> , String <i>text</i> , ErrorCorrection <i>ErrorCorrection</i> , ModuleSize <i>moduleSize</i> , QrModel <i>model</i>) throws PrinterException
Parameter	<i>startX</i> The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.

<i>startY</i>	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
<i>text</i>	Barcode data The version for either syntax (a) or (b) is automatically set depending on the number of data specified on <i>text</i> .
<i>errorCorrection</i>	Error correction level See Table 4-26 Error Correction Level (ErrorCorrection) for available constants.
<i>moduleSize</i>	Module size See Table 4-23 Module Size (ModuleSize) for available constants.
<i>model</i>	QR Code Model See Table 4-28 QR Code Model (QrModel) for available constants.
Description	This method maps QR Code on the print area of page mode. The method of syntax (a) is fixed to QR Code Model 2. The method of syntax (b) specifies QR Code Model. Start page mode by enterPageMode method before executing this method.
Error	PrinterException may be thrown when the method is called.
Note	Map the print data of the barcode not to overlap the other print data.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

printPageModeDataMatrix	Print Data Matrix of page mode
-------------------------	--------------------------------

Target	POS printer
Syntax	public void printPageModeDataMatrix (int <i>startX</i> , int <i>startY</i> , String <i>text</i> , DataMatrixModule <i>dataMatrixModule</i> , ModuleSize <i>moduleSize</i>) throws PrinterException
Parameter	<div> <div><i>startX</i></div> <div>The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.</div> </div> <div> <div><i>startY</i></div> <div>The vertical reference point (dot) from the starting point The valid range is 0 to 2399.</div> </div> <div> <div><i>text</i></div> <div>Barcode data</div> </div> <div> <div><i>dataMatrixModule</i></div> <div>The number of Data Matrix modules See Table 4-23 Module Size (ModuleSize) for available constants.</div> </div> <div> <div><i>moduleSize</i></div> <div>Module size See Table 4-20 Alignment (PrintAlignment) for available constants.</div> </div>
Description	This method maps Data Matrix on the print area of page mode. Start page mode by enterPageMode method before executing this method.
Error	PrinterException may be thrown when the method is called.
Note	Map the print data of the barcode not to overlap the other print data.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

printPageModeMaxiCode**Print MaxiCode of page mode**

Target	POS printer	
Syntax	public void printPageModeMaxiCode (int <i>startX</i> , int <i>startY</i> , String <i>text</i> , MaxiCodeMode <i>maxiCodeMode</i>) throws PrinterException	
Parameter	<i>startX</i>	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>startY</i>	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>text</i>	Barcode data <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 Table 4-30 MaxiCode Mode (MaxiCodeMode) for available constants.
Description	This method maps MaxiCode on the print area of page mode.	
	Start page mode by enterPageMode method before executing this method.	
Error	PrinterException may be thrown when the method is called.	
Note	Map the print data of the barcode not to overlap the other print data.	
Reference	See "Appendix B Barcode Size List" for details of the barcode size.	

printPageModeGS1DataBarStacked**Print GS1 Databar Stacked of page mode**

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

Target	Mobile printer / POS printer	
Syntax	public void printPageModeGS1DataBarStacked (int <i>startX</i> , int <i>startY</i> , String <i>text</i> , ModuleSize <i>moduleSize</i>) throws PrinterException	

printPageModeGS1DataBarStackedOmnidirectional

Print GS1 Databar Stacked Omni-directional of page mode

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

Target Mobile printer / POS printer

Syntax public void **printPageModeGS1DataBarStackedOmnidirectional**(int *startX*,
int *startY*,
String *text*,
int *moduleHeight*,
ModuleSize *moduleSize*) throws **PrinterException**

printPageModeGS1DataBarExpandedStacked

Print GS1 Databar Expanded Stacked of page mode

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

Target Mobile printer / POS printer

Syntax public void **printPageModeGS1DataBarExpandedStacked**(int *startX*,
int *startY*,
String *text*,
int *column*,
ModuleSize *moduleSize*) throws **PrinterException**

printPageModeAztecCode

Print Aztec Code of page mode

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

Target Mobile printer / POS printer

Syntax public void **printPageModeAztecCode**(int *startX*,
int *startY*,
String *text*,
int *layer*,
int *errorCorrection*,
ModuleSize *moduleSize*,
AztecSymbol *aztecSymbol*) throws **PrinterException**

sendPageModeBinary

Send binary data of page mode

Target POS printer

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

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

Description This method maps binary data on the print area of page mode.

Start page mode by **enterPageMode** method before executing this method.

This method sends the specified binary data to the printer without conversion.

By sending printer commands as binary data with this method, printer functions which are not supported in the library become available.

Error **PrinterException** may be thrown when the method is called.

Note This method may execute unexpected performance depending on the data to send. Please ensure the performance with your actual device in advance.

printPageModelImageFile		Draw Image file of page mode
Target	POS printer	
Syntax	<pre>public void printPageModelImageFile(int <i>startX</i>, int <i>startY</i>, String <i>fileName</i>, Dithering <i>dithering</i>) throws PrinterException</pre>	
Parameter	<i>startX</i>	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>startY</i>	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>fileName</i>	File path of the data The formats that can be entered are described below. <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 image files that can be sent are .bmp, .jpg, .jpeg, .png. Colored image file is converted to monochrome image by binarization and registered.</p>
	<i>dithering</i>	Dithering See Table 4-12 Dithering (Dithering) for available constants.
Description	<p>This method maps the image file on the print area of page mode.</p> <p>Start page mode by enterPageMode method before executing this method.</p>	
Error	PrinterException may be thrown when the method is called.	

Target POS printer

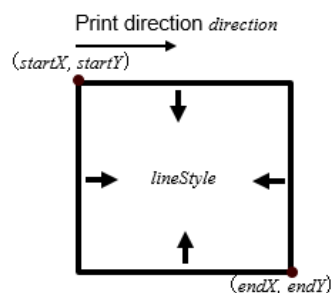
Syntax `public void printPageModeRectangle(int startX,
int startY,
int endX,
int endY,
LineStyle LineStyle)` throws **PrinterException**

Parameter	<i>startX</i>	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>startY</i>	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>endX</i>	The horizontal reference point (dot) from the ending point The valid range is 0 to 2399.
	<i>endY</i>	The vertical reference point (dot) from the ending point The valid range is 0 to 2399.
	<i>lineStyle</i>	Line style See Table 4-33 Line style (LineStyle) for available constants.

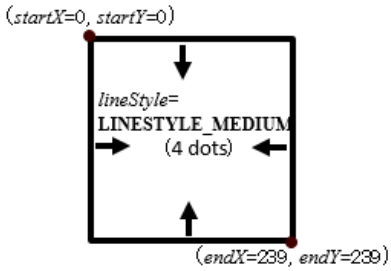
Description This method maps the rectangle image on the print area of page mode.

Start page mode by **enterPageMode** method before executing this method.

The rectangle is mapped to *direction* of **setPageModeDirection** method as shown in the figure below.



The example of the parameter setting to the image is shown below.
 Example: Draw a square with a medium solid line (4 dots) at 240 dots (30 mm) from the starting point.

Image	Parameter
 <p>The diagram illustrates a square drawn on a coordinate system. The starting point is labeled $(startX=0, startY=0)$ at the top-left corner. The ending point is labeled $(endX=239, endY=239)$ at the bottom-right corner. The square is drawn with a medium solid line, indicated by the text <code>lineStyle= LINESTYLE_MEDIUM (4 dots)</code> inside the square. Arrows point from the text to the corresponding corners of the square.</p>	<pre> startX 0 startY 0 endX 239 endY 239 lineStyle LINESTYLE_MEDIUM </pre>

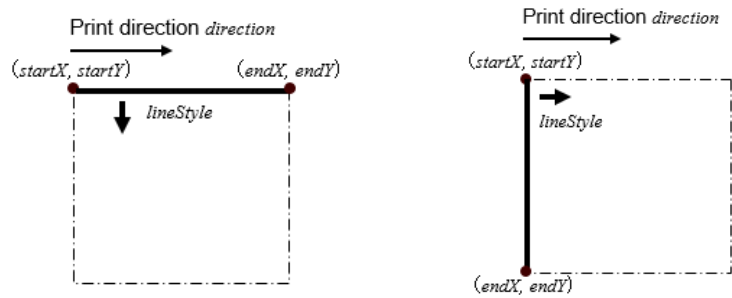
Error **PrinterException** may be thrown when the method is called.

printPageModeLine

Print ruled line of page mode

Target	POS printer
Syntax	<pre> public void printPageModeLine(int <i>startX</i>, int <i>startY</i>, int <i>endX</i>, int <i>endY</i>, LineStyle <i>LineStyle</i>) throws PrinterException </pre>
Parameter	<div> <div><i>startX</i></div> <div>The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.</div> </div> <div> <div><i>startY</i></div> <div>The vertical reference point (dot) from the starting point The valid range is 0 to 2399.</div> </div> <div> <div><i>endX</i></div> <div>The horizontal reference point (dot) from the ending point The valid range is 0 to 2399.</div> </div> <div> <div><i>endY</i></div> <div>The vertical reference point (dot) from the ending point The valid range is 0 to 2399.</div> </div> <div> <div><i>lineStyle</i></div> <div>Line style See Table 4-33 Line style (LineStyle) for available constants.</div> </div>
Description	<p>This method maps the ruled line on the print area of page mode.</p> <p>Start page mode by enterPageMode method before executing this method.</p> <p>A diagonal stroke cannot be drawn by this method.</p>

The ruled line is mapped to the *direction* of **setPageModeDirection** method as shown in the figure below.



Mapping direction of horizontal ruled line Mapping direction of vertical ruled line

The setting example of the parameter to the image is shown below.
Example: Draw a horizontal ruled line of a square with a medium solid line (4 dots) at 240 dots (30 mm) from the starting point.

Image	Parameter
<p>The diagram shows a square with two horizontal ruled lines. The top line is labeled ① and the bottom line is labeled ②. Both lines are drawn with a medium solid line (4 dots). The top line starts at (startX=0, startY=0) and ends at (endX=239, endY=0). The bottom line starts at (startX=0, startY=236) and ends at (endX=239, endY=236). Both lines are labeled 'lineStyle= LINESYLE_MEDIUM (4 dots)'.</p>	<p>①</p> <p>startX 0 startY 0 endX 239 endY 0 lineStyle LINESYLE_MEDIUM</p> <p>②</p> <p>startX 0 startY 236 endX 239 endY 236 lineStyle LINESYLE_MEDIUM</p>

Example: Draw a vertical ruled line of a square with a medium solid line (4 dots) at 240 dots (30 mm) from the starting point.

Image	Parameter
<p>The diagram shows a square with two vertical ruled lines. The left line is labeled ① and the right line is labeled ②. Both lines are drawn with a medium solid line (4 dots). The left line starts at (startX=0, startY=0) and ends at (endX=0, endY=239). The right line starts at (startX=236, startY=0) and ends at (endX=236, endY=239). Both lines are labeled 'lineStyle= LINESYLE_MEDIUM (4 dots)'.</p>	<p>①</p> <p>startX 0 startY 0 endX 0 endY 239 lineStyle LINESYLE_MEDIUM</p> <p>②</p> <p>startX 236 startY 0 endX 236 endY 239 lineStyle LINESYLE_MEDIUM</p>

Error **PrinterException** may be thrown when the method is called.

Target	POS printer	
Syntax	public void printPageModeLogo (int <i>startX</i> , int <i>startY</i> , String <i>id</i>) throws PrinterException	
Parameter	<i>startX</i>	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>startY</i>	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	<i>id</i>	Logo ID to print (key code) Specify the ID of the registered logo as a character string
Description	This method maps the registered logo on the print area of page mode.	
	Start page mode by enterPageMode before executing this method.	
Error	PrinterException may be thrown when the method is called.	

4.4.2 PrinterEvent Class

(1) Method List

This class obtains the event type proceeded when printer searching is completed. Methods provided by **PrintEvent** class are shown in the following table.

Table 4-45 Method of PrinterEvent Class

Method	Function Summary	Target	
		Mobile	POS
getEventType	Obtain event type	Supported	Supported

(2) Constant List

Constants used for obtaining event type are shown in the following table.

Table 4-46 Event Type Constant

Method	Function Summary	Value	Target	
			Mobile	POS
EVENT_FINISHED_DISCOVERY	Complete printer searching	1	Supported	Supported
EVENT_CANCELED_DISCOVERY	Cancel printer searching	2	Supported	Supported

(3) Method Details

getEventType		Obtain event type
Target	Mobile printer / POS printer	
Syntax	public int getEventType ()	
Description	This method obtains event class proceeded after the printer search completion. This method determines whether the printer search is completed or cancelled depending on the obtained event type. Even when the printer was not discovered, EVENT_FINISHED_DISCOVERY is returned.	
Return value	See Table 4-46 Event Type Constant for details.	

4.4.3 PrinterListener Interface

(1) Method List

This interface obtains the complete event of printer searching.
Methods of **PrinterListener** interface are shown in the following table.

Table 4-47 Method of PrinterListener Interface

Method	Function Summary	Target	
		Mobile	POS
finishEvent	Finish event of the printer search	Supported	Supported

(2) Method Details

finishEvent	Finish event of the printer search
--------------------	------------------------------------

Target Mobile printer / POS printer

Syntax public void **finishEvent**(PrinterEvent *event*)

Parameter *event* Printer event

Description This method is for interface with no implementation.
This method is called when the printer search is completed or cancelled.
Specify the above mentioned **PrinterEvent** class for *event* parameter. Implement this method to the user application for receiving notice of completion of printer search or cancelled event, and determine the completed event type by **getEventType** method of **PrinterEvent** class.

4.4.4 PrinterInfo Class

(1) Method List

This class stores the printer information searched by printer searching method.

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

The available method varies depending on the target printer either of Mobile printer or POS printer.

Table 4-48 Method of PrinterInfo Class

Method	Function Summary	Target	
		Mobile	POS
getPrinterModelName	Obtain printer model name	Supported	Supported
getBluetoothAddress	Obtain Bluetooth address	Supported	Supported
getMacAddress	Obtain MAC address	Not supported	Supported
getIpAddress	Obtain IP address	Not supported	Supported
getIsBonded	Obtain pairing status	Not supported	Supported
getDevicePath	Obtain device path	Supported	Supported

(2) Method Details

getPrinterModelName Obtain printer model name

Target Mobile printer / POS printer

Syntax public String **getPrinterModelName()**

Description This method obtains the character string of printer model name from the printer information searched by the printer searching.

Return value Printer model name

getBluetoothAddress Obtain Bluetooth address

Target Mobile printer / POS printer

Syntax public String **getBluetoothAddress()**

Description This method obtains the character string of Bluetooth address from the printer information searched by the printer search.

Return value Bluetooth address

getMacAddress Obtain MAC address

Target POS printer

Syntax public String **getMacAddress()**

Description This method is valid only for POS printer. This method obtains the character string of MAC address from the printer information searched by the printer search.

Return value MAC address

getIpAddress

Obtain IP address

Target POS printer

Syntax public String **getIpAddress()**

Description This method is valid only for POS printer. This method obtains the character string of IP address from printer information searched by the printer search.

Return value IP address

getIsBonded

Obtain pairing status

Target POS printer

Syntax public String **getIsBonded()**

Description This method is valid only for POS printer. This method obtains the status of pairing from printer information searched by the printer search.

Return value true Paired
 false Not paired

getDevicePath

Obtain device path

Target Mobile printer / POS printer

Syntax public String **getDevicePath()**

Description This method obtains the character string of the USB device file path from the printer information found by the printer search.

Return value Device path

4.4.5 PrinterException Class

(1) Method List

The list of methods provided by **PrinterException** class is shown in the following table.

Table 4-49 Method of the PrinterException Class

Method	Function Summary	Target	
		Mobile	POS
PrinterException	Constructor	Supported	Supported
getErrorCode	Obtain error codes	Supported	Supported

(2) Constant List

(a) Constants used for obtaining error codes are shown in the following table.

Table 4-50 Error Codes List

Constant Name	Description	Value	Target	
			Mobile	POS
ERROR_ACCESS_DENIED	Failed to obtain the handle.* ¹	-1	Supported	Supported
	Unavailable port specified.		Supported	Supported
ERROR_SHARING_VIOLATION	Already opened port specified.	-11	Supported	Supported
ERROR_PORT_NOT_OPENED	Port not opened.	-12	Supported	Supported
ERROR_DEVICE_NOT_CONNECTED	Specified Bluetooth address printer does not exist.	-21	Supported	Supported
	No printer having the specified printer model constants exist in USB connection.		Supported	Supported
	Specified IP address printer does not exist.		Not supported	Supported
ERROR_OFFLINE	Disconnected state or the printer is offline.	-22	Supported	Supported
ERROR_DEVICE_INITIALIZE_FAILED	Failed to modify the printer setting. It might have happened that data sending to the printer was not completed within send time out period or data reception from the printer was not completed within receive timeout period.	-31	Supported	Supported
ERROR_DATA_SIZE_ZERO	0-byte data specified.	-101	Supported	Supported
ERROR_OVER_MAX_DATA_SIZE	The data size exceeds the maximum value.	-102	Supported	Supported
ERROR_ENCODE_FAILED	Error occurred in encoding text data.* ¹	-111	Supported	Supported

Constant Name	Description	Value	Target	
			Mobile	POS
ERROR_TIMEOUT	Send timeout happened.	-201	Supported	Supported
	Receive timeout happened.		Supported	Supported
ERROR_FILE_NOT_FOUND	Specified file not found.	-301	Supported	Supported
ERROR_FILE_USED	The process cannot access the file because it is being used by another process.	-302	Supported	Supported
ERROR_FILE_INVALID	Invalid file specified.	-303	Supported	Supported
ERROR_LOW_MEMORY	Insufficient memory when loading image file file.	-311	Supported	Supported
ERROR_OVER_MAX_IMAGE	Either width or height of image file, or both of them exceed the number of printable maximum dots.	-312	Supported	Supported
ERROR_LOGO_NOT_DEFINED	The logo is not registered.	-313	Not supported	Supported
ERROR_LOW_USER_AREA	Insufficient remaining user area.	-401	Supported	Supported
ERROR_LOW_EXTERNAL_RAM	Insufficient remaining RAM capacity.	-402	Supported	Not supported
ERROR_INVALID_NO	The specified value for the style sheet number is invalid.	-501	Not supported	Supported
ERROR_OVER_STYLE_NUM	The number of style registered in the specified file exceeds rated value (64).	-502	Not supported	Supported
ERROR_PAGE_MODE_SPECIFIED	Page mode is specified.	-511	Not supported	Supported
ERROR_PAGE_MODE_NOT_SPECIFIED	Page mode is not specified.	-512	Not supported	Supported
ERROR_INVALID_PARAM	Invalid parameter specified.	-9999	Supported	Supported

*1 Abnormality processing might have happened.

(3) Method Details

PrinterException	Constructor
------------------	-------------

Target	Mobile printer / POS printer
Syntax	public PrinterException (int <i>code</i> , String <i>message</i>)
Description	Constructor for com.seikoinstruments.sdk.thermalprinter.PrinterException class.

PrinterException	Constructor
------------------	-------------

Target	Mobile printer / POS printer
Syntax	public PrinterException (int <i>code</i> , String <i>message</i> , String <i>detail</i>)
Description	Constructor for com.seikoinstruments.sdk.thermalprinter.PrinterException class.

getErrorCode	Obtain error codes
--------------	--------------------

Target	Mobile printer / POS printer
Syntax	public int getErrorCode ()
Description	This method obtains error code for thrown exception.
Return value	See Table 4-50 Error Codes List for details.

4.4.6 CallbackFunctionListener Interface

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

(1) Method List

Methods provided by **CallbackFunctionListener** interface are shown in the following table. Available method differs depending on the target printer: Mobile printer or POS printer.

Table 4-51 Method of CallbackFunctionListener Interface

Method	Function Summary	Target	
		Mobile	POS
onStatusChanged	Change event of printer status	Supported	Supported

(2) Method Details

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

Target Mobile printer / POS printer

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.

4.4.7 BarcodeScannerListener Interface

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

Mobile printer and POS printer do not support this interface.

4.4.8 SmartLabelManager Class

SmartLabelManager class provides the function to convert the label file (*.sl) created using Smart Label Creator into the printable data from the printer.

Mobile printer and POS printer do not support this class.

Chapter 5

Sample Program

This chapter describes the sample programs provided by the SDK.

5.1 Screen

The SDK includes the sample program with Android Studio project format. This chapter describes the screen of the sample program.

The screenshot shows the 'Sample' application interface. It features a title bar 'Sample' at the top. Below it, there's a 'Connection Type' dropdown menu set to 'Bluetooth' and a 'Search' button. An 'Address' field contains 'not selected.'. Below that is a 'Printer Model' dropdown menu set to 'XX-XXXX'. A checkbox labeled 'Enable Callback Function When Connecting' is checked. A 'Method Button' section contains several buttons: 'Connect', 'Disconnect', 'Standard Mode Sample', 'Page Mode Sample', 'Smart Label Sample', 'Display Sample', 'Send Data File', and 'Open Drawer'. Below these are 'Printer Status' and 'Barcode Scanner Status' fields, both showing '-'. A 'Scanned Data' field is also present, with a 'String' checkbox checked. At the bottom right, it says 'SDK Version: x.x.x'.

Labels and their corresponding UI elements:

- Connection Type: Connection Type dropdown menu
- Search Button: Search button
- Address: Address text field
- Printer Model: Printer Model dropdown menu
- Callback Function On/Off: Enable Callback Function When Connecting checkbox
- Method Button: Connect, Disconnect, Standard Mode Sample, Page Mode Sample, Smart Label Sample, Display Sample, Send Data File, Open Drawer buttons
- Printer Status: Printer Status text field
- Barcode Scanner Status: Barcode Scanner Status text field
- Barcode Data Encode On/Off: String checkbox
- Scanned Data: Scanned Data text field

Item	Description
Connection type	Selects the connection type to the printer.
Search Button	Starts searching for the type of printer specified in [Connection Type]. Transits to the printer search view. A list of the searched printers is displayed. The printer is selected by tapping the searched printer and returns to the main view.
Address	Displays the information about the selected printer.
Printer Model	Specifies the printer model.
Callback Function On/Off	Select whether to enable the callback function when connecting to the printer. On : Starts the callback function when connecting. Off : The callback function does not respond.
Method Button* ¹	In addition to the method buttons for executing connect and disconnect , the sample by the combination of some methods can be printed and checked for the operation of peripheral devices.
Printer Status	Displays the printer status. When [Callback Function On/Off] is On, the latest printer status is displayed.
Barcode Scanner Status	Displays the connection status of the barcode scanner. Mobile printer and POS printer do not support the barcode scanner.
Barcode Data Encode On/Off	Selects the conversion of barcode data read by the barcode scanner. Mobile printer and POS printer do not support the barcode scanner.
Scanned Data	Displays the barcode data read by the barcode scanner. Mobile printer and POS printer do not support the barcode scanner.

*1: Supported functions vary by model. Only supported functions can be operated.

5.2 Precaution

Sample programs are subject to change without notice.

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

Chapter 6

Disclaimer

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

Appendix A

Character Sets (Character Code Table)

A.1 Character Code Table (Codepage)

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.

- Mobile printer

	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	ツ	
B0	-	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-1 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	€	,	;	„	”	•	-	-	~	™	Š	<	Œ	Ž		
90																
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-2 CODE_PAGE_1252 (Latin)

- POS printer

	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	ï	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	í	í	½	¼	¡	«	»	
B0	☐	☐	☐													
C0	L	L	T	T	T	T	T	T	T	T	T	T	T	T	T	T
D0	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌
E0	α	β	Γ	π	Σ	σ	μ	τ	φ	θ	Ω	δ	∞	φ	ε	∩
F0	≡	±	≥	≤			÷	≈	°	•	•	√	n	2	■	

Figure A-3 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-4 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	ü	ÿ	Ö	Ü	ø	£	Ø	×	f
A0	á	í	ó	ú	ñ	Ñ	ä	ö	¿	®	¬	½	¼	¡	«	»
B0	☐	☐	☐			Á	Â	À	©	¶		¶	¶	¶	¶	¶
C0	L	L	T	T	T	T	ã	Ã	£	£	£	£	£	£	£	£
D0	ð	Ð	Ê	Ë	È	Í	Î	Ï								
E0	Ó	ß	Ô	Õ	Ö	µ	þ	þ	Ú	Û	Ü	Ý	Ý	Ý	Ý	Ý
F0	-	±	=	¾	¶	§	÷	,	°	°	°	°	°	°	°	°

Figure A-5 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	ä	Á	ç	ê	Ê	è	Í	Ô	ì	Ã	Â
90	É	À	È	ô	õ	ò	Ú	ù	Ì	Õ	Ü	φ	£	Ù	Þ	Ó
A0	á	í	ó	ú	ñ	Ñ	ä	ö	¿	Ò	¬	½	¼	¡	«	»
B0	☐	☐	☐													
C0	L	L	T	T	T	T	T	T	T	T	T	T	T	T	T	T
D0	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£
E0	α	β	Γ	π	Σ	σ	μ	τ	φ	θ	Ω	δ	∞	φ	ε	Π
F0	≡	±	≥	≤	∫	∫	÷	≈	°	°	°	√	n	2	■	■

Figure A-6 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	À	à	¶	ç	ê	ë	è	ï	î	≡	À	§
90	É	È	Ê	ô	Ë	Ï	û	ü	æ	Ô	Ü	¢	£	Ù	û	f
A0		´	ó	ú	¨	³	-	î	¬	½	¼	¾	«	»		
B0	▒	▒	▒		†	‡	§	¶	§	¶	§	¶	§	¶	§	¶
C0	L	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
D0	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
E0	α	β	Γ	π	Σ	σ	μ	τ	φ	θ	Ω	δ	∞	φ	ε	Π
F0	≡	±	≥	≤		J	÷	≈	°	•	•	√	n	²	■	

Figure A-7 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	ü	ÿ	Ö	Ü	ø	£	Ø	Pt	f
A0	á	í	ó	ú	ñ	Ñ	ä	ö	¿	¬	½	¼	¾	«	»	α
B0	▒	▒	▒		†	‡	§	¶	§	¶	§	¶	§	¶	§	¶
C0	L	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
D0	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
E0	α	β	Γ	π	Σ	σ	μ	τ	φ	θ	Ω	δ	∞	φ	ε	Π
F0	≡	±	≥	≤		J	÷	≈	°	•	•	√	n	²	■	

Figure A-8 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	€	‘	’	“	”	…	†	‡	^	‰	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	Ç	ü	é	â	ä	û	ç	ı	ë	Ö	ö	ı	ž	Ä	Ć	
90	É	Í	Í	ô	ö	Ł	ł	Ś	ś	Ö	Ü	Ť	ť	Ł	×	č
A0	á	í	ó	ú	Ą	ą	Ż	ż	Ę	ę	¬	ž	Č	š	«	»
B0	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł
C0	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł	Ł
D0	đ	Đ	Đ	Đ	đ	Ň	Ň	İ	İ	ě	ř	ř	ř	ř	ř	ř
E0	ó	ß	ô	Ň	ň	ň	š	š	ř	ú	ř	ú	ý	ý	ý	ý
F0	-	"	‘	’	”	”	Š	÷	„	°	¨	·	ú	Ř	ř	■

Figure A-10 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	ü	ÿ	Ö	Ü	ø	£	Ø	×	f
A0	á	í	ó	ú	ñ	Ñ	ä	ö	¿	®	¬	½	¼	¡	«	»
B0	☐	☐	☐			Á	Â	À	©	¶		¶	¶	¶	¥	₱
C0	L	⊥	⊥	⊥	⊥	⊥	ã	Ã	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	α
D0	ð	Ð	Ê	Ë	È	€	Í	Î	Ï	⌋	⌋	■	■	■	■	■
E0	ó	ß	ô	ò	õ	õ	μ	þ	þ	ú	û	ü	ý	ý	-	'
F0	-	±	=	¾	¶	§	÷	,	°	..	.	1	3	2	■	

Figure A-11 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	°	•	•	√	☐	-		+	+	⊥	⊥	⊥	⊥	⊥	⊥	⊥
90	β	∞	φ	±	½	¼	≈	«	»	لَا	لَا	لَا	لَا	لَا	لَا	لَا
A0	-	ل	ل	ل	ل	ل	ل	ل	ل	ل	ل	ل	ل	ل	ل	ل
B0	•	١	٢	٣	٤	٥	٦	٧	٨	٩	ف	؛	س	ص	ش	؟
C0	¢	ء	آ	أ	ؤ	ع	ئ	ب	ة	ت	ث	ج	ح	خ	د	ذ
D0	ز	ر	س	ش	ص	ض	ط	ظ	ع	غ	ف	ق	ك	م	ن	هـ
E0	-	ف	ق	ك	م	ن	هـ	و	ي	ض	ع	غ	ف	ق	ك	م
F0	-	ن	هـ	و	ي	ض	ع	غ	ف	ق	ك	م	ن	هـ	و	ي

Figure A-12 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	Š	Š	Š	Š	Š
90	‘	’	“	”	•	-	-	™	š	š	š	š	š	š	š	š
A0	˘	˘	Ł	ł	Ą	ą	Ś	ś	©	§	«	»	–	®	Ž	
B0	°	±	ı	ı	μ	¶	·	ª	§	»	Ł	”	ł	ž		
C0	Ř	Á	Ā	Ǽ	Ä	Á	Ć	Ç	Č	É	Ě	Ě	Ě	Í	Î	Ď
D0	Đ	Ń	Ň	Ó	Ô	Õ	Ö	×	Ř	Ů	Ú	Ú	Ú	Ý	Ť	ß
E0	ř	á	â	ǣ	ä	í	ć	ç	č	é	ě	ě	ě	í	î	ď
F0	đ	ń	ň	ó	ô	õ	ö	÷	ř	ů	ú	ú	ú	ý	ť	·

Figure A-13 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	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ
90	ђ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ	ѓ
A0	Ў	ў	Ј	ј	Г	г	Ѕ	ѕ	©	€	«	»	–	®	Ї	
B0	°	±	І	і	г	μ	¶	·	ё	№	е	»	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-14 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	€	‘	‚	“	”	…	†	‡	‰	™	<					
90		‚	“	”	•	-	-									
A0	“	À	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	-	
B0	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C0	í	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	Ϊ	Ϋ	ά	έ	ή	ί
E0	ΐ	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	ϊ	ϋ	ό	ύ	ώ	

Figure A-15 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	ø	£	¤	¥	¦	§	¨	©	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	Ý	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-16 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	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
COUNTRY_ITALY	#	\$	@	°	\	é	^	ù	à	ò	è	ì
COUNTRY_SPAIN	¢	\$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
COUNTRY_JAPAN	#	\$	@	[¥]	^	`	{		}	~
COUNTRY_NORWAY	#	¤	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	¡	Ñ	¿	é	`	í	ñ	ó	ú
COUNTRY_LATIN_AMERICA	#	\$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
COUNTRY_ARABIA	#	\$	@	[\]	^	`	{		}	~

Figure A-17 International Character Set

Appendix B

Barcode Size List

B.1 Barcode Size List

B.1.1 printBarcode, printPageModeBarcode



(1) Height of the barcode image

<i>hriFont</i>	<i>hriPosition</i>	Length from Top of Barcode to Reference Point	Height of Barcode Image
FONT_A	HRI_NONE	<i>moduleHeight</i>	<i>moduleHeight</i>
	HRI_POSITION_ABOVE	<i>moduleHeight</i> + 32	<i>moduleHeight</i> + 32
	HRI_POSITION_BELOW	<i>moduleHeight</i>	<i>moduleHeight</i> + 32
	HRI_POSITION_ABOVE_BELOW	<i>moduleHeight</i> + 64	<i>moduleHeight</i> + 64
FONT_B	HRI_NONE	<i>moduleHeight</i>	<i>moduleHeight</i>
	HRI_POSITION_ABOVE	<i>moduleHeight</i> + 24	<i>moduleHeight</i> + 24
	HRI_POSITION_BELOW	<i>moduleHeight</i>	<i>moduleHeight</i> + 24
	HRI_POSITION_ABOVE_BELOW	<i>moduleHeight</i> + 48	<i>moduleHeight</i> + 48

(2) Width of the barcode image

<i>barcodeSymbol</i>	<i>moduleSize</i>	Width of Barcode Image
BARCODE_UPC_A	BARCODE_MODULE_WIDTH_2	190
	BARCODE_MODULE_WIDTH_3	285
	BARCODE_MODULE_WIDTH_4	380
	BARCODE_MODULE_WIDTH_5	475
	BARCODE_MODULE_WIDTH_6	570
BARCODE_UPC_E	BARCODE_MODULE_WIDTH_2	102
	BARCODE_MODULE_WIDTH_3	153
	BARCODE_MODULE_WIDTH_4	204
	BARCODE_MODULE_WIDTH_5	255
	BARCODE_MODULE_WIDTH_6	306
BARCODE_EAN13	BARCODE_MODULE_WIDTH_2	190
	BARCODE_MODULE_WIDTH_3	285
	BARCODE_MODULE_WIDTH_4	380
	BARCODE_MODULE_WIDTH_5	475
	BARCODE_MODULE_WIDTH_6	570
BARCODE_JAN13	BARCODE_MODULE_WIDTH_2	190
	BARCODE_MODULE_WIDTH_3	285
	BARCODE_MODULE_WIDTH_4	380
	BARCODE_MODULE_WIDTH_5	475
	BARCODE_MODULE_WIDTH_6	570
BARCODE_EAN8	BARCODE_MODULE_WIDTH_2	134
	BARCODE_MODULE_WIDTH_3	201
	BARCODE_MODULE_WIDTH_4	268
	BARCODE_MODULE_WIDTH_5	335
	BARCODE_MODULE_WIDTH_6	402
BARCODE_JAN8	BARCODE_MODULE_WIDTH_2	134
	BARCODE_MODULE_WIDTH_3	201
	BARCODE_MODULE_WIDTH_4	268
	BARCODE_MODULE_WIDTH_5	335
	BARCODE_MODULE_WIDTH_6	402
BARCODE_CODE93	BARCODE_MODULE_WIDTH_2	18 × number of barcode data + 56
	BARCODE_MODULE_WIDTH_3	27 × number of barcode data + 84
	BARCODE_MODULE_WIDTH_4	36 × number of barcode data + 112
	BARCODE_MODULE_WIDTH_5	45 × number of barcode data + 140
	BARCODE_MODULE_WIDTH_6	54 × number of barcode data + 168

<i>barcodeSymbol</i>	<i>moduleSize</i>	Width of Barcode Image
BARCODE_CODE128	BARCODE_MODULE_WIDTH_2	22 × number of barcode data + 26
	BARCODE_MODULE_WIDTH_3	33 × number of barcode data + 39
	BARCODE_MODULE_WIDTH_4	44 × number of barcode data + 52
	BARCODE_MODULE_WIDTH_5	55 × number of barcode data + 65
	BARCODE_MODULE_WIDTH_6	66 × number of barcode data + 78
BARCODE_GS1_OMNI_DIRECTIONAL	BARCODE_MODULE_WIDTH_2	192
	BARCODE_MODULE_WIDTH_3	288
	BARCODE_MODULE_WIDTH_4	384
	BARCODE_MODULE_WIDTH_5	480
	BARCODE_MODULE_WIDTH_6	576
BARCODE_GS1_TRUNCATED	BARCODE_MODULE_WIDTH_2	192
	BARCODE_MODULE_WIDTH_3	288
	BARCODE_MODULE_WIDTH_4	384
	BARCODE_MODULE_WIDTH_5	480
	BARCODE_MODULE_WIDTH_6	576
BARCODE_GS1_LIMITED	BARCODE_MODULE_WIDTH_2	158
	BARCODE_MODULE_WIDTH_3	237
	BARCODE_MODULE_WIDTH_4	316
	BARCODE_MODULE_WIDTH_5	395
	BARCODE_MODULE_WIDTH_6	474
BARCODE_GS1_EXPANDED^{*1}	BARCODE_MODULE_WIDTH_2	number of barcode module × 2
	BARCODE_MODULE_WIDTH_3	number of barcode module × 3
	BARCODE_MODULE_WIDTH_4	number of barcode module × 4
	BARCODE_MODULE_WIDTH_5	number of barcode module × 5
	BARCODE_MODULE_WIDTH_6	number of barcode module × 6

*1: The number of barcode module is determined by the barcode data to be specified.

<i>barcodeSymbol</i>	<i>nwRatio</i>	<i>moduleSize</i>	Width of Barcode Image
BARCODE_CODE39	NWRATIO_1TO2	BARCODE_MODULE_WIDTH_2	26 × number of barcode data + 50
		BARCODE_MODULE_WIDTH_3	39 × number of barcode data + 75
		BARCODE_MODULE_WIDTH_4	52 × number of barcode data + 100
		BARCODE_MODULE_WIDTH_5	65 × number of barcode data + 125
		BARCODE_MODULE_WIDTH_6	78 × number of barcode data + 150
	NWRATIO_1TO2_5	BARCODE_MODULE_WIDTH_2	29 × number of barcode data + 56
		BARCODE_MODULE_WIDTH_3	45 × number of barcode data + 87
		BARCODE_MODULE_WIDTH_4	58 × number of barcode data + 112
		BARCODE_MODULE_WIDTH_5	74 × number of barcode data + 143
		BARCODE_MODULE_WIDTH_6	87 × number of barcode data + 168
	NWRATIO_1TO3	BARCODE_MODULE_WIDTH_2	32 × number of barcode data + 62
		BARCODE_MODULE_WIDTH_3	48 × number of barcode data + 93
		BARCODE_MODULE_WIDTH_4	64 × number of barcode data + 124
		BARCODE_MODULE_WIDTH_5	80 × number of barcode data + 155
		BARCODE_MODULE_WIDTH_6	96 × number of barcode data + 186
BARCODE_ITF	NWRATIO_1TO2	BARCODE_MODULE_WIDTH_2	14 × number of barcode data + 16
		BARCODE_MODULE_WIDTH_3	21 × number of barcode data + 24
		BARCODE_MODULE_WIDTH_4	28 × number of barcode data + 32
		BARCODE_MODULE_WIDTH_5	35 × number of barcode data + 40
		BARCODE_MODULE_WIDTH_6	42 × number of barcode data + 48
	NWRATIO_1TO2_5	BARCODE_MODULE_WIDTH_2	16 × number of barcode data + 17
		BARCODE_MODULE_WIDTH_3	25 × number of barcode data + 26
		BARCODE_MODULE_WIDTH_4	32 × number of barcode data + 34

<i>barcodeSymbol</i>	<i>nwRatio</i>	<i>moduleSize</i>	Width of Barcode Image
PM_BARCODE_ITF	NWRATIO_1TO2_5	BARCODE_MODULE_WIDTH_5	41 × number of barcode data + 43
		BARCODE_MODULE_WIDTH_6	48 × number of barcode data + 51
	NWRATIO_1TO3	BARCODE_MODULE_WIDTH_2	18 × number of barcode data + 18
		BARCODE_MODULE_WIDTH_3	27 × number of barcode data + 27
		BARCODE_MODULE_WIDTH_4	36 × number of barcode data + 36
		BARCODE_MODULE_WIDTH_5	45 × number of barcode data + 45
BARCODE_CODABAR*1	NWRATIO_1TO2	BARCODE_MODULE_WIDTH_2	20 × number of data + 2 × (2 + number of wide data) - 2
		BARCODE_MODULE_WIDTH_3	30 × number of data + 3 × (2 + number of wide data) - 3
		BARCODE_MODULE_WIDTH_4	40 × number of data + 4 × (2 + number of wide data) - 4
		BARCODE_MODULE_WIDTH_5	50 × number of data + 5 × (2 + number of wide data) - 5
		BARCODE_MODULE_WIDTH_6	60 × number of data + 6 × (2 + number of wide data) - 6
	NWRATIO_1TO2_5	BARCODE_MODULE_WIDTH_2	22 × number of data + 3 × (2 + number of wide data) - 2
		BARCODE_MODULE_WIDTH_3	34 × number of data + 5 × (2 + number of wide data) - 3
		BARCODE_MODULE_WIDTH_4	44 × number of data + 6 × (2 + number of wide data) - 4
		BARCODE_MODULE_WIDTH_5	56 × number of data + 8 × (2 + number of wide data) - 5
		BARCODE_MODULE_WIDTH_6	66 × number of data + 9 × (2 + number of wide data) - 6
	NWRATIO_1TO3	BARCODE_MODULE_WIDTH_2	24 × number of data + 4 × (2 + number of wide data) - 2
		BARCODE_MODULE_WIDTH_3	36 × number of data + 6 × (2 + number of wide data) - 3
		BARCODE_MODULE_WIDTH_4	48 × number of data + 8 × (2 + number of wide data) - 4
		BARCODE_MODULE_WIDTH_5	60 × number of data + 10 × (2 + number of wide data) - 5
		BARCODE_MODULE_WIDTH_6	72 × number of data + 12 × (2 + number of wide data) - 6

*1: The number of data is the number of all characters except for the start and stop characters.
The wide data is the number of " : / . + ".

<i>barcodeSymbol</i>	Number of Data	<i>moduleSize</i>	Width of Barcode Image
BARCODE_EAN13_ADDON	14 or 15	BARCODE_MODULE_WIDTH_2	244
		BARCODE_MODULE_WIDTH_3	366
		BARCODE_MODULE_WIDTH_4	488
		BARCODE_MODULE_WIDTH_5	610
		BARCODE_MODULE_WIDTH_6	732
	17 or 18	BARCODE_MODULE_WIDTH_2	298
		BARCODE_MODULE_WIDTH_3	447
		BARCODE_MODULE_WIDTH_4	596
		BARCODE_MODULE_WIDTH_5	745
		BARCODE_MODULE_WIDTH_6	894
BARCODE_JAN13_ADDON	14 or 15	BARCODE_MODULE_WIDTH_2	244
		BARCODE_MODULE_WIDTH_3	366
		BARCODE_MODULE_WIDTH_4	488
		BARCODE_MODULE_WIDTH_5	610
		BARCODE_MODULE_WIDTH_6	732
	17 or 18	BARCODE_MODULE_WIDTH_2	298
		BARCODE_MODULE_WIDTH_3	447
		BARCODE_MODULE_WIDTH_4	596
		BARCODE_MODULE_WIDTH_5	745
		BARCODE_MODULE_WIDTH_6	894

B.1.2 printPDF417, printPageModePDF417



(1) Height of the barcode image

$$\text{Height of the barcode image}^{*1} = \text{moduleHeight} \times \text{row}^{*2}$$

*1: Height of the barcode image = Length from the top of the barcode to the reference point

*2: $\text{row} \neq 0$

(2) Width of the barcode image

When *pdf417Symbol* is **PDF417_STANDARD**:

$$\text{Width of the barcode image} = (17 \times \text{column}^{*1} + 69) \times \text{module size value}$$

*1: $\text{column} \neq 0$

When *pdf417Symbol* is **PDF417_COMPACT**:

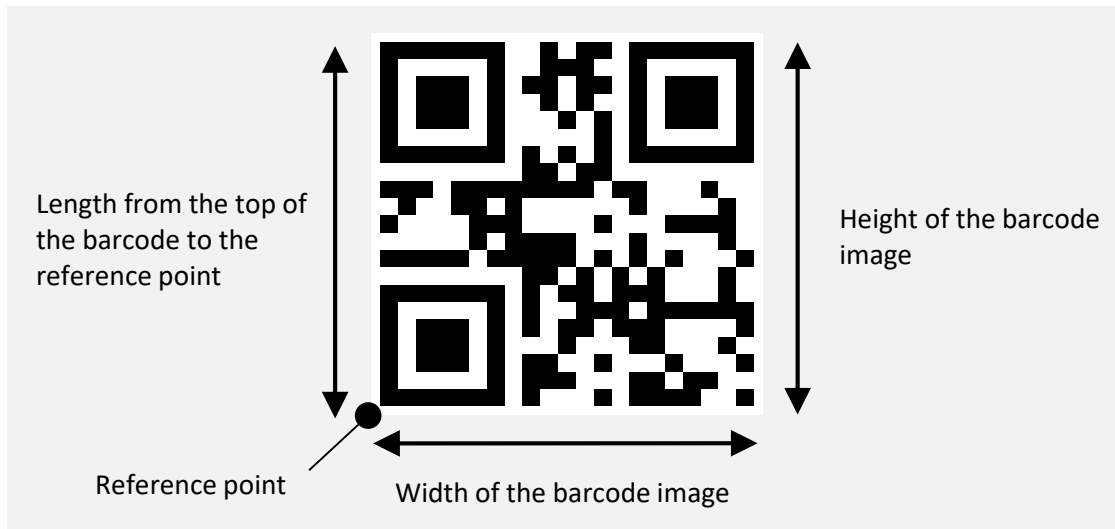
$$\text{Width of the barcode image} = (17 \times \text{column}^{*1} + 35) \times \text{module size value}$$

*1: $\text{column} \neq 0$

Module Size Value

<i>moduleSize</i>	Module Size Value
PDF417_MODULE_WIDTH_2	2
PDF417_MODULE_WIDTH_3	3
PDF417_MODULE_WIDTH_4	4
PDF417_MODULE_WIDTH_5	5
PDF417_MODULE_WIDTH_6	6
PDF417_MODULE_WIDTH_7	7
PDF417_MODULE_WIDTH_8	8

B.1.3 printQRCode, printPageModeQRCode



(1) Height and width of the barcode image

Height*¹ and width of the barcode image = $(4 \times \text{version}^{*2} + 17) \times \text{module size value}$

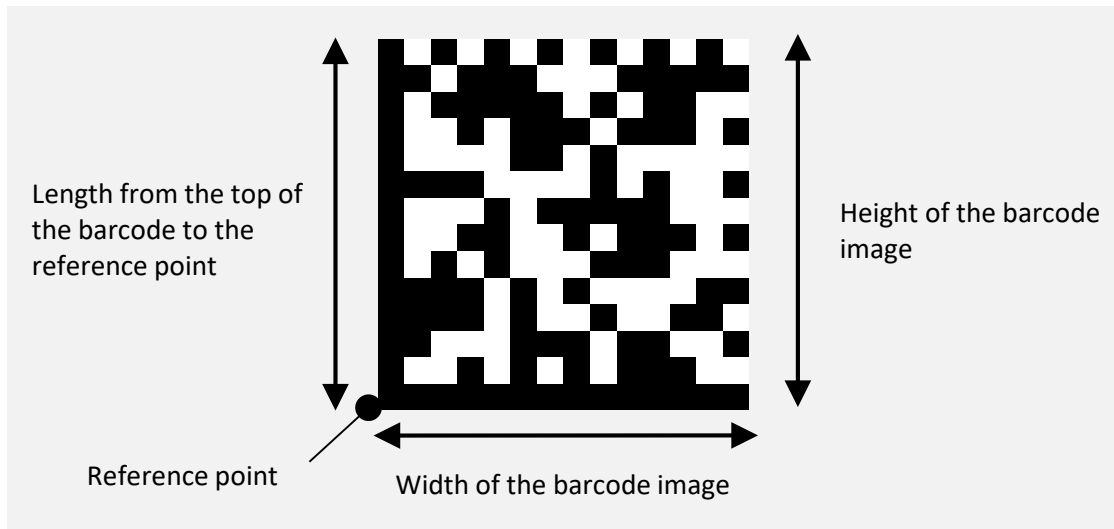
*1: Height of the barcode image = Length from the top of the barcode to the reference point

*2: The version is determined by the content of the barcode data and the error correction level.

Module Size Value

<i>moduleSize</i>	Module Size Value
QR_MODULE_SIZE_2	2
QR_MODULE_SIZE_3	3
QR_MODULE_SIZE_4	4
QR_MODULE_SIZE_5	5
QR_MODULE_SIZE_6	6
QR_MODULE_SIZE_7	7
QR_MODULE_SIZE_8	8
QR_MODULE_SIZE_9	9
QR_MODULE_SIZE_10	10
QR_MODULE_SIZE_11	11
QR_MODULE_SIZE_12	12
QR_MODULE_SIZE_13	13
QR_MODULE_SIZE_14	14
QR_MODULE_SIZE_15	15
QR_MODULE_SIZE_16	16

B.1.4 printDataMatrix , printPageModeDataMatrix



(1) Height and width of the barcode image

Height of the barcode image = number of vertical module × module size value

Width of the barcode image = number of horizontal module × module size value

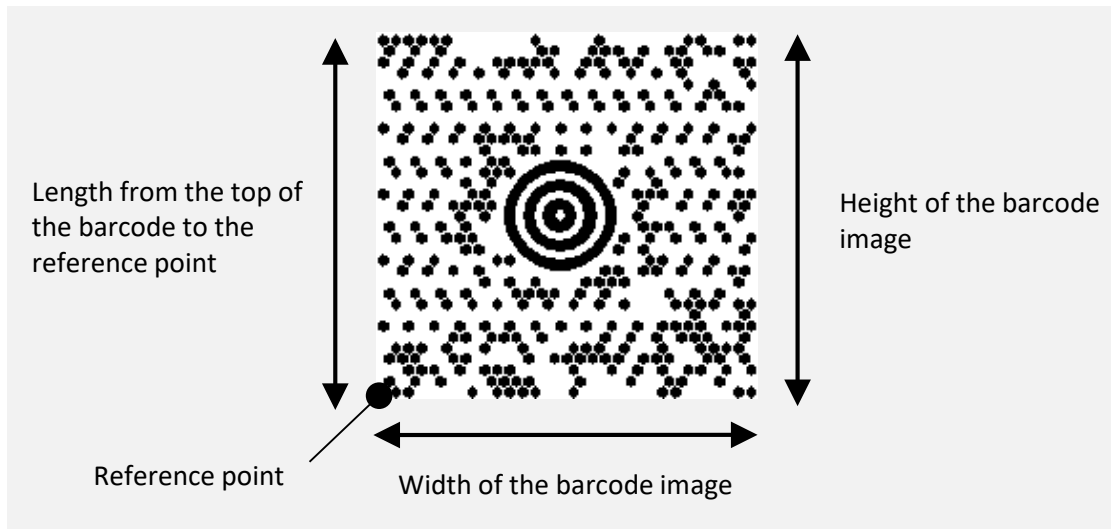
<i>dataMatrixModule</i>	Number of Vertical Module	Number of Horizontal Module
DATA_MATRIX_10_10	10	10
DATA_MATRIX_12_12	12	12
DATA_MATRIX_14_14	14	14
DATA_MATRIX_16_16	16	16
DATA_MATRIX_18_18	18	18
DATA_MATRIX_20_20	20	20
DATA_MATRIX_22_22	22	22
DATA_MATRIX_24_24	23	23
DATA_MATRIX_26_26	26	26
DATA_MATRIX_32_32	32	32
DATA_MATRIX_36_36	36	36
DATA_MATRIX_40_40	40	40
DATA_MATRIX_44_44	44	44
DATA_MATRIX_48_48	48	48
DATA_MATRIX_52_52	52	52
DATA_MATRIX_64_64	64	64
DATA_MATRIX_72_72	72	72
DATA_MATRIX_80_80	80	80
DATA_MATRIX_88_88	88	88
DATA_MATRIX_96_96	96	96
DATA_MATRIX_104_104	104	104
DATA_MATRIX_120_120	120	120

<i>dataMatrixModule</i>	Number of Vertical Module	Number of Horizontal Module
DATA_MATRIX_132_132	132	132
DATA_MATRIX_144_144	144	144
DATA_MATRIX_8_18	8	18
DATA_MATRIX_8_32	8	32
DATA_MATRIX_12_26	12	26
DATA_MATRIX_12_36	12	36
DATA_MATRIX_16_36	16	36
DATA_MATRIX_16_48	16	48

Module Size Value

<i>moduleSize</i>	Module Size Value
DATAMATRIX_MODULE_SIZE_2	2
DATAMATRIX_MODULE_SIZE_3	3
DATAMATRIX_MODULE_SIZE_4	4
DATAMATRIX_MODULE_SIZE_5	5
DATAMATRIX_MODULE_SIZE_6	6
DATAMATRIX_MODULE_SIZE_7	7
DATAMATRIX_MODULE_SIZE_8	8
DATAMATRIX_MODULE_SIZE_9	9
DATAMATRIX_MODULE_SIZE_10	10
DATAMATRIX_MODULE_SIZE_11	11
DATAMATRIX_MODULE_SIZE_12	12
DATAMATRIX_MODULE_SIZE_13	13
DATAMATRIX_MODULE_SIZE_14	14
DATAMATRIX_MODULE_SIZE_15	15
DATAMATRIX_MODULE_SIZE_16	16

B.1.5 printMaxicode, printPageModeMaxicode



(1) Height of the barcode image

Height of the barcode image*1 = 200

*1: Height of the barcode image = Length from the top of the barcode to the reference point

(2) Width of the barcode image

Width of the barcode image = 210

B.1.6 printGS1DataBarStacked, printPageModeGS1DataBarStacked



(1) Height and width of the barcode image

Height of the barcode image^{*1} = 13 × module size value

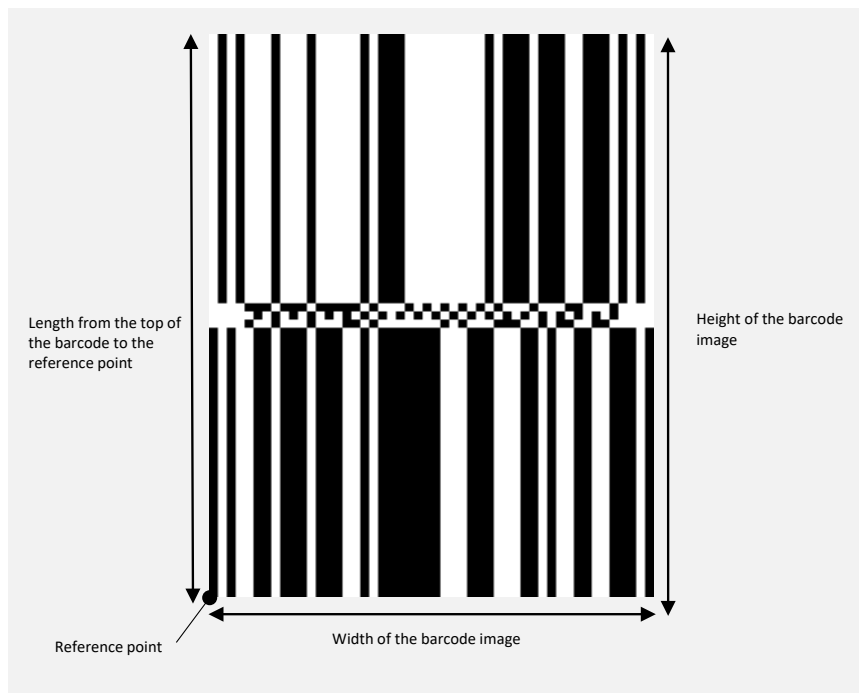
^{*1}: Height of the barcode image = Length from the top of the barcode to the reference point

Width of the barcode image = 50 × module size value

Module Size Value

<i>moduleSize</i>	Module Size Value
GSIDATABAR_MODULE_SIZE_2	2
GSIDATABAR_MODULE_SIZE_3	3
GSIDATABAR_MODULE_SIZE_4	4
GSIDATABAR_MODULE_SIZE_5	5
GSIDATABAR_MODULE_SIZE_6	6
GSIDATABAR_MODULE_SIZE_7	7
GSIDATABAR_MODULE_SIZE_8	8
GSIDATABAR_MODULE_SIZE_9	9
GSIDATABAR_MODULE_SIZE_10	10
GSIDATABAR_MODULE_SIZE_11	11
GSIDATABAR_MODULE_SIZE_12	12
GSIDATABAR_MODULE_SIZE_13	13
GSIDATABAR_MODULE_SIZE_14	14
GSIDATABAR_MODULE_SIZE_15	15
GSIDATABAR_MODULE_SIZE_16	16

**B.1.7 printGS1DataBarStackedOmnidirectional ,
printPageModeGS1DataBarStackedOmnidirectional**



(1) Height and width of the barcode image

Height of the barcode image^{*1} = $(moduleHeight \times 2 + 3) \times \text{module size value}$

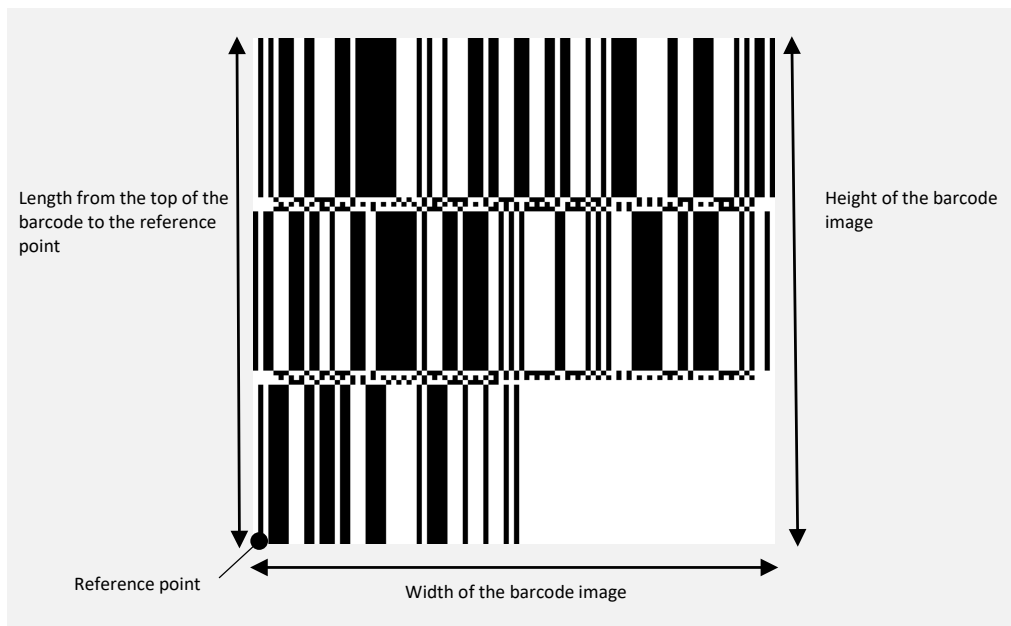
^{*1}: Height of the barcode image = Length from the top of the barcode to the reference point

Width of the barcode image = $50 \times \text{module size value}$

Module Size Value

<i>moduleSize</i>	Module Size Value
GS1DATABAR_MODULE_SIZE_2	2
GS1DATABAR_MODULE_SIZE_3	3
GS1DATABAR_MODULE_SIZE_4	4
GS1DATABAR_MODULE_SIZE_5	5
GS1DATABAR_MODULE_SIZE_6	6
GS1DATABAR_MODULE_SIZE_7	7
GS1DATABAR_MODULE_SIZE_8	8
GS1DATABAR_MODULE_SIZE_9	9
GS1DATABAR_MODULE_SIZE_10	10
GS1DATABAR_MODULE_SIZE_11	11
GS1DATABAR_MODULE_SIZE_12	12
GS1DATABAR_MODULE_SIZE_13	13
GS1DATABAR_MODULE_SIZE_14	14
GS1DATABAR_MODULE_SIZE_15	15
GS1DATABAR_MODULE_SIZE_16	16

B.1.8 printGS1DataBarExpandedStacked , printPageModeGS1DataBarExpandedStacked



(1) Height and width of the barcode image

Height of the barcode image^{*1} = $((34 + 3) \times \text{number of row}^{\text{*2}} + 34) \times \text{module size value}$

*1: Height of the barcode image = Length from the top of the barcode to the reference point

*2: The number of row is determined by the barcode data.

Width of the barcode image = $(4 + 49 \times \text{column} / 2) \times \text{module size value}$

Module Size Value

<i>moduleSize</i>	Module Size Value
GS1DATABAR_MODULE_SIZE_2	2
GS1DATABAR_MODULE_SIZE_3	3
GS1DATABAR_MODULE_SIZE_4	4
GS1DATABAR_MODULE_SIZE_5	5
GS1DATABAR_MODULE_SIZE_6	6
GS1DATABAR_MODULE_SIZE_7	7
GS1DATABAR_MODULE_SIZE_8	8
GS1DATABAR_MODULE_SIZE_9	9
GS1DATABAR_MODULE_SIZE_10	10
GS1DATABAR_MODULE_SIZE_11	11
GS1DATABAR_MODULE_SIZE_12	12
GS1DATABAR_MODULE_SIZE_13	13
GS1DATABAR_MODULE_SIZE_14	14
GS1DATABAR_MODULE_SIZE_15	15
GS1DATABAR_MODULE_SIZE_16	16