



SII Print Class Library for iOS Application Programmer's Guide

Rev.07

[Products]

MP-B30 Series

MP-B30L Series

Seiko Instruments Inc.

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INTRODUCTION

This manual describes "SII Print Class Library for iOS" (hereinafter referred to as "SII print class library") provided by Seiko Instruments Inc. (hereinafter referred to as "SII").

Target Printers

The printers supported by SII print class library are listed below.

Printer	Interface
MP-B30 Series	Bluetooth
	TCP/IP
MP-B30L Series	Bluetooth
	TCP/IP

Terms

The terms used in this manual are described below.

Term	Description
Technical Reference	Technical References shown as follows: ·MP-B30 SERIES THERMAL PRINTER TECHNICAL REFERENCE ·MP-B30L SERIES THERMAL PRINTER TECHNICAL REFERENCE
Printer command	Command for controlling the printer described in "Technical Reference".
User's Guide	User's Guide shown as follows: ·MP-B30 SERIES THERMAL PRINTER USER'S GUIDE ·MP-B30L SERIES THERMAL PRINTER USER'S GUIDE

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openDrawer	Open cash drawer
buzzer	Sound buzzer
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Chapter 1

Product Overview

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

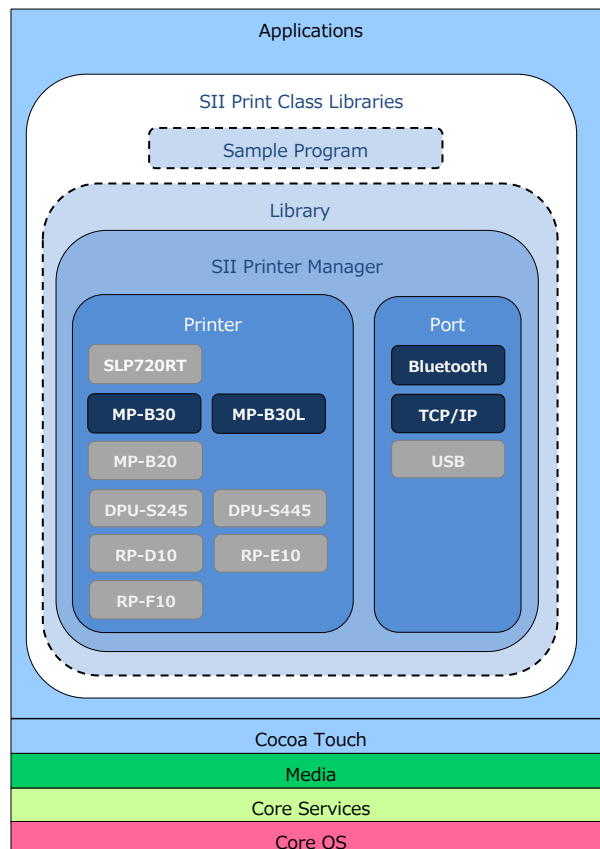
1.1 Functions Provided by SII Print Class Library

The SII print class library including the library and the sample program provides the functions to use SII printer MP-B30/MP-B30L Series (hereinafter referred to as "printer") in iOS applications. Moreover, the SII print class library provides the library sample program in Xcode project.

1.2 SII Print Class Library Overview

1.2.1 SII Print Class Library Configuration

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



1.2.2 Functions Provided by Library

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

The library provides the following functions:

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

*1: Commands that read the response from the printer are not supported.

In order to read responses from the printer, use `getStatus` or `getPrinterResponse`.

(NOTE) MP-B30/MP-B30L does not support the APIs of Display or the barcode scanner.

1.2.3 Development of Application that Performs Bluetooth Communication with SII Printer

When registering an application that performs Bluetooth communication with a printer to App Store, advance application from SII to Apple is necessary. For details, please contact SII.

Chapter 2

Product Specifications

This chapter describes the product specifications of the library.

2.1 Operating Environment

2.1.1 Applicable iOS Devices

Applicable iOS devices for the library are shown in the following list.

(1) MP-B30

iPhone models

- iPhone XR
- iPhone XS
- iPhone XS Max
- iPhone X
- iPhone 8
- iPhone 8 Plus
- iPhone 7
- iPhone 7 Plus
- iPhone SE
- iPhone 6s
- iPhone 6s Plus

iPad models

- iPad Pro 11-inch
- iPad Pro 12.9-inch (3rd generation)
- iPad (6th generation)
- iPad Pro 12.9-inch (2nd generation)
- iPad Pro 10.5-inch
- iPad (5th generation)
- iPad Pro 9.7-inch
- iPad Pro 12.9-inch (1st generation)
- iPad mini 4

iPod models

- iPod touch (6th generation)

(2) MP-B30L

iPhone models

- iPhone 12
- iPhone 12 Pro
- iPhone 12 Pro Max
- iPhone 12 mini
- iPhone SE (2nd generation)
- iPhone 11
- iPhone 11 Pro
- iPhone 11 Pro Max
- iPhone XR
- iPhone XS
- iPhone XS Max
- iPhone X
- iPhone 8
- iPhone 8 Plus
- iPhone 7
- iPhone 7 Plus
- iPhone SE
- iPhone 6s
- iPhone 6s Plus

iPad models

- iPad (8th generation)
- iPad Pro 11-inch (2nd generation)
- iPad Pro 12.9-inch (4th generation)
- iPad (7th generation)
- iPad Pro 11-inch
- iPad Pro 12.9-inch (3rd generation)
- iPad (6th generation)
- iPad Pro 12.9-inch (2nd generation)
- iPad Pro 10.5-inch
- iPad (5th generation)
- iPad Pro 9.7-inch
- iPad Pro 12.9-inch (1st generation)
- iPad mini (5th generation)
- iPad mini 4

iPod models

- iPod touch (7th generation)
- iPod touch (6th generation)

2.1.2 Applicable iOS Versions

Applicable iOS versions for the library are shown in the following list.

- iOS 13.0 to 13.7
- iOS 14.0 to 14.8
- iOS 15.0 to 15.2
- iPadOS 13.1 to 13.7
- iPadOS 14.0 to 14.8
- iPadOS 15.0 to 15.2

2.2 Printer Settings

Set the memory switches and the Bluetooth communication setting of the printer to [Value] in the following table when using the library.

The printer memory switches and Bluetooth communication settings can be set in the iOS app "SII Printer Utility" on the App Store.

See "User's Guide" for details about the memory switches and the factory default settings.

- MP-B30

Memory Switch

MS	Function	Value
1-1	Interface Selection (Interface)	1: USB/Wireless
1-2	Mark Mode Selection (Mark Mode)	1: Disable ^{*1}
1-6	Data Discard Selection When Error Occurs (Error Through)	0: Enable
1-8	Data Discard Selection When Output Buffer Full Occurs (Response Data Discarding)	1: Disable
2-2	Realtime Command Selection (Realtime Command)	0: Enable
9-1	Automatic Status Response Selection (Auto Status Back)	0: Enable
9-2	Initialized Response Selection (Init. Response)	0: Enable

^{*1}: Select "Disable" when using `cutPaper`.

Bluetooth Communication Setting

Function	Value
iOS Auto Connection	Enable ^{*1} Disable

^{*1}: Select "Enable" when using `resetPrinter`.

- MP-B30L

Memory Switch

MS	Function	Value
1-1	Interface Selection (Interface)	1: USB/Wireless
1-2	Mark/Gap Mode Selection (Mark/Gap Mode)	1: Disable ^{*1} 0: Enable ^{*2}
1-3 to 1-5	Command System Selection (Command System)	000B: ESC/POS
1-6	Data Discard Selection When Error Occurs (Error Through)	0: Enable
1-8	Data Discard Selection When Output Buffer Full Occurs (Response Data Discarding)	1: Disable
2-2	Realtime Command Selection (Realtime Command)	0: Enable
9-1	Automatic Status Response Selection (Auto Status Back)	0: Enable
9-2	Initialized Response Selection (Init. Response)	0: Enable

*1: Select "Disable" when using `cutPaper`.

*2: Select "Enable" when using `feedPosition`.

Bluetooth Communication Setting

Function	Value
iOS Auto Connection	Enable ^{*1} Disable

*1: Select "Enable" when using `resetPrinter`.

2.3 Precaution

This library is not thread safe. When this library is used on multiple threads, abnormal termination may occur.

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

When using TCP/IP connection, wireless LAN access point to which the iOS device is connected and the printer need to be connected to the same network.

A concurrent connection from multiple apps to one printer is not supported when multiple apps are worked simultaneously by Multitasking on iPad with iPadOS.

Chapter 3

How to Use Library

This chapter describes the development environment of iOS application and how to use the library.

3.1 iOS Application Development Environment

In order to develop iOS applications, the following tools are required.

- Xcode 9.0 or later

The description in and after this chapter is on the premise that the environment where each tool is available is prepared.

3.2 Provided Files

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

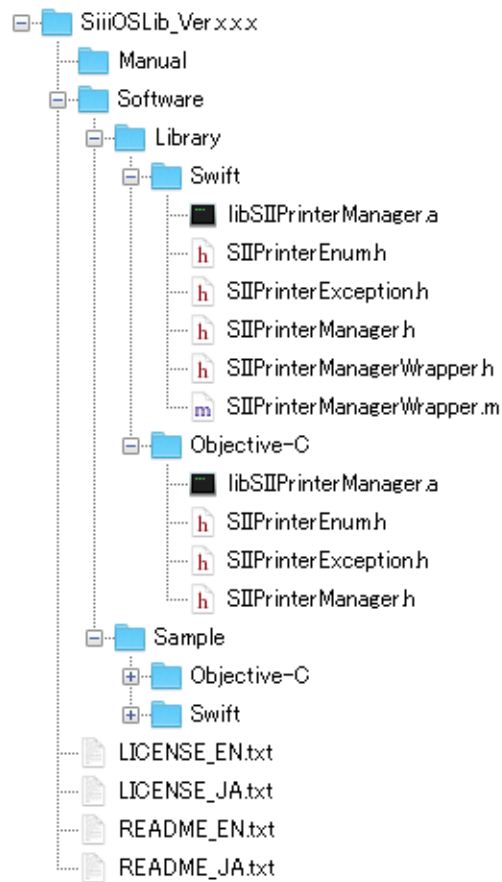


Figure 3-1

The file format of the library is Static Library. The file name of the library is `libSIIPrinterManager.a`.

3.3 Build the Library into Xcode Project

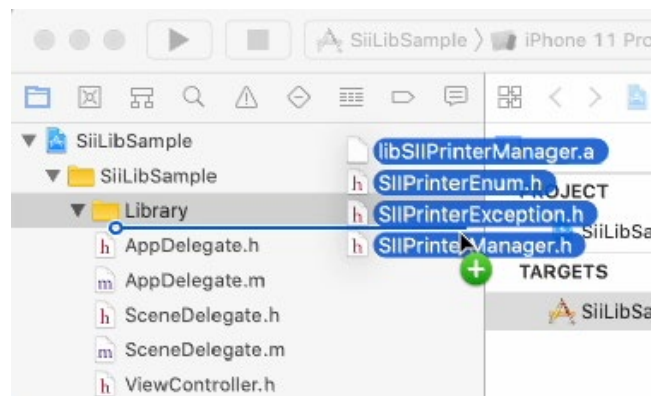
Using the project of the sample program (SiiLibSample) included in the SII print class library as an example, this section describes by development language how to build the library into the project.

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

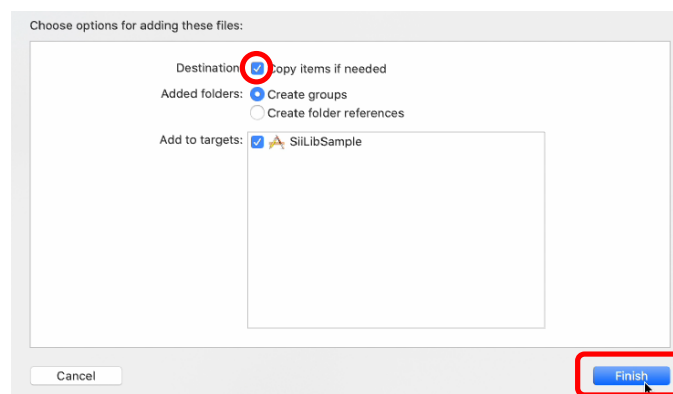
Development Language	Description
Objective-C	See "3.3.1 Objective-C" for details to build the library as Objective-C.
Swift	See "3.3.2 Swift" for details to build the library as Swift.

3.3.1 Objective-C

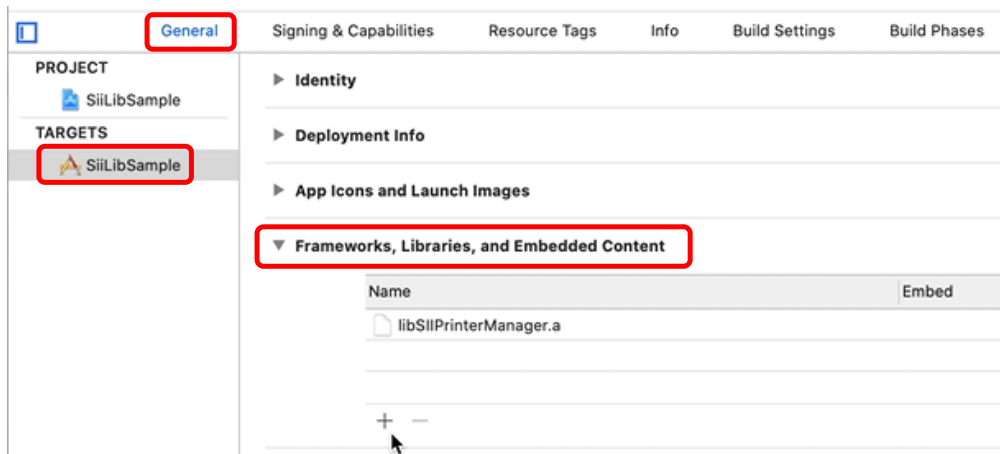
- (1) Open the Xcode project.
- (2) Drag the following files to any hierarchy in the target project in [Project Navigator] of the navigator window.
 - libSiiPrinterManager.a
 - SiiPrinterEnum.h
 - SiiPrinterException.h
 - SiiPrinterManager.h



- (3) Check the box [Copy items if needed], and click the [Finish] button.



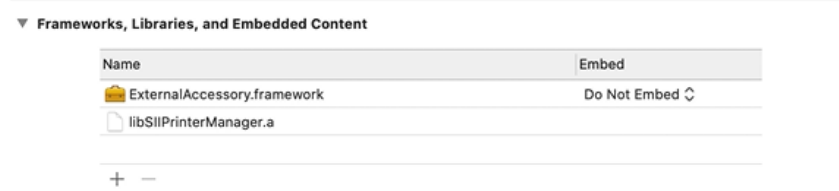
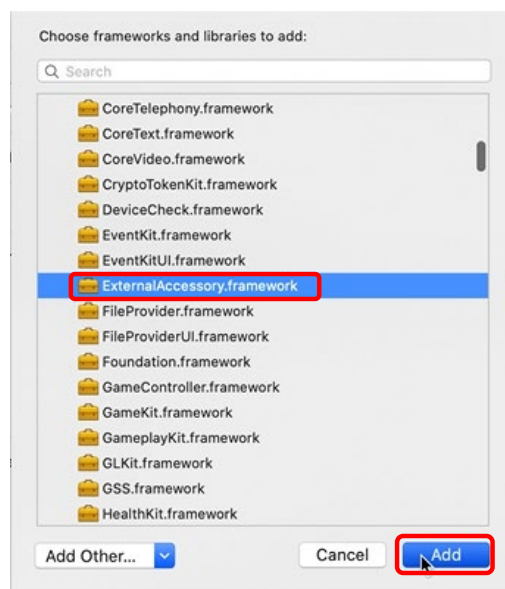
- (4) Build the ExternalAccessory.framework into the project.
Select the target project in the [TARGETS], and open the [General] - [Frameworks, Libraries and Embedded Content].



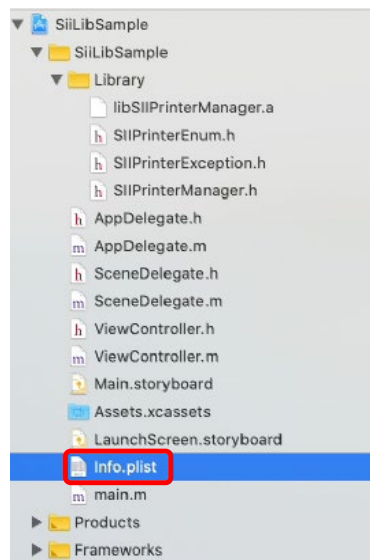
- (5) Click the [+] button opened the [Frameworks, Libraries and Embedded Content].



- (6) Select the ExternalAccessory.framework from the list and click the [Add] button.



- (7) Set the protocol name to use in the ExternalAccessory.framework. Select xxxx.plist in the [Project Navigator].



- (8) Select the [Information Property List] - ⊕.

Key	Type	Value
Information Property List	Dictionary	(15 items)
Localization native development re...	String	\$(DEVELOPMENT_LANGUAGE)
Executable file	String	\$(EXECUTABLE_NAME)
Bundle identifier	String	\$(PRODUCT_BUNDLE_IDENTIFIER)
InfoDictionary version	String	6.0

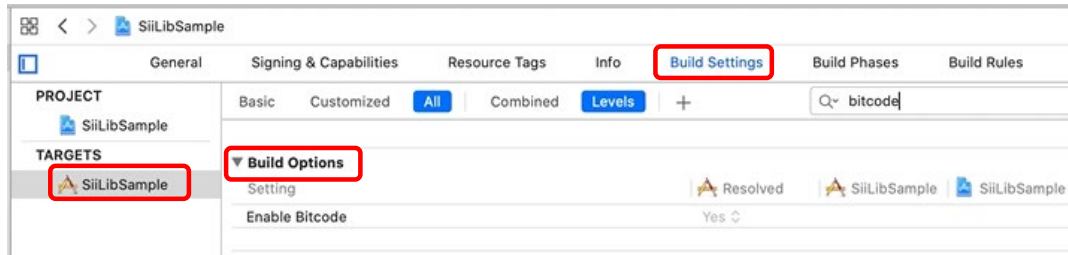
- (9) Select the [Supported external accessory protocols] from the list.

Key	Type	Value
Information Property List	Dictionary	(16 items)
App Category	String	
Supported external accessory p...	String	\$(DEVELOPMENT_LANGUAGE)
Supported interface orientations	String	\$(EXECUTABLE_NAME)
Supported interface orientation...	String	\$(PRODUCT_BUNDLE_IDENTIFIER)
Supported interface orientation...	String	6.0
Supports Automatic Graphics S...	String	\$(PRODUCT_NAME)
Supports Controller User Intera...	String	\$(PRODUCT_BUNDLE_PACKAGE_TYPE)
Supports Document Browser	String	1.0
Supports HDR color mode	String	1

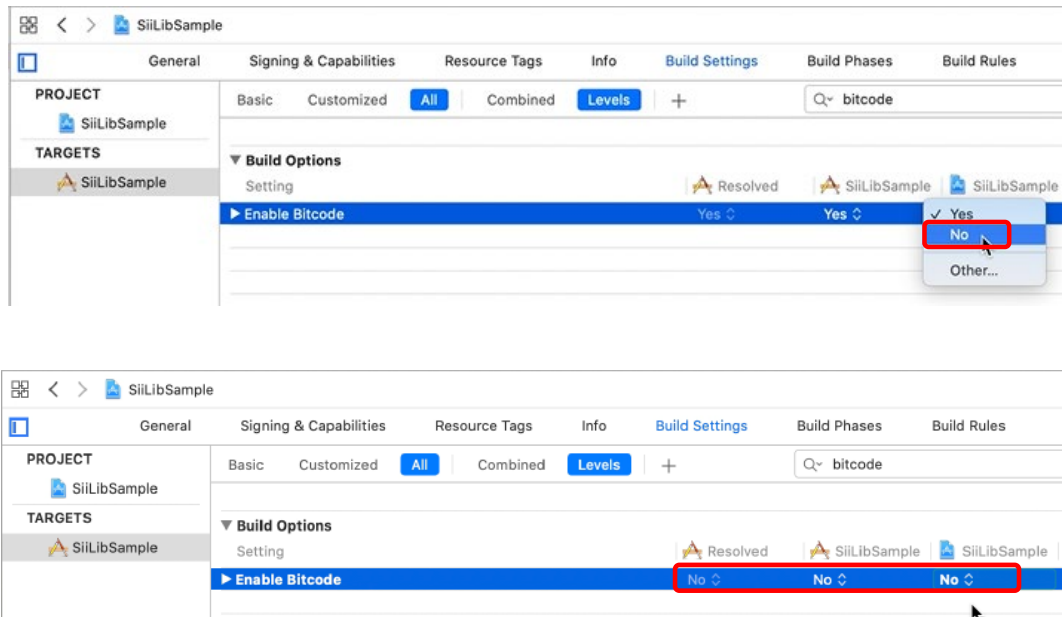
- (10) Open the added [Supported external accessory protocols].
The [Item 0] displayed in the opened [Supported external accessory protocols], enter com.sii-ps.sieap as the Value.

Key	Type	Value
Information Property List	Dictionary	(16 items)
Supported external accessory prot...	Array	(1 item)
Item 0	String	com.sii-ps.sieap
Localization native development re...	String	\$(DEVELOPMENT_LANGUAGE)
Executable file	String	\$(EXECUTABLE_NAME)
Bundle identifier	String	\$(PRODUCT_BUNDLE_IDENTIFIER)
InfoDictionary version	String	6.0

(11) Select the target project in the [TARGETS], and open the [Build Settings] - [Build Options].



(12) Select the Enable Bitcode in the opened [Build Options], and select the No in the menu.

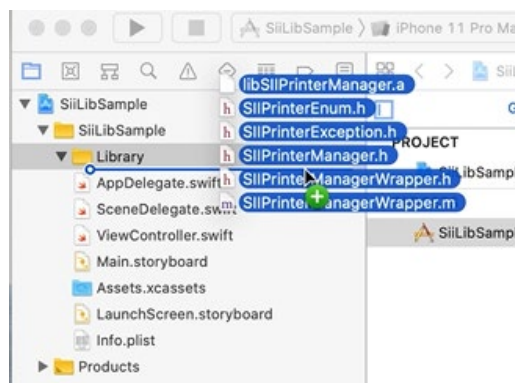


By completing these procedures, the library function becomes available.

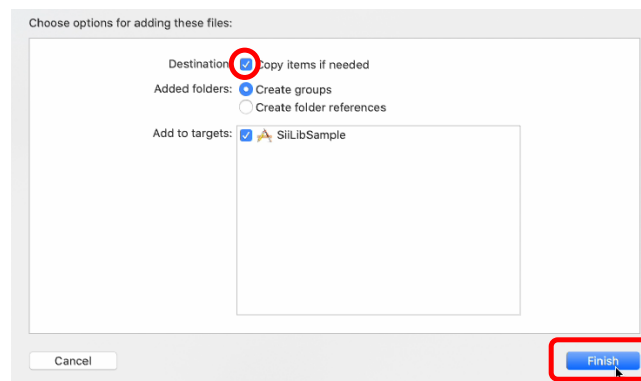
3.3.2 Swift

- (1) Open the Xcode project.
- (2) Drag the following files to any hierarchy in the target project in [Project Navigator] of the navigator window.

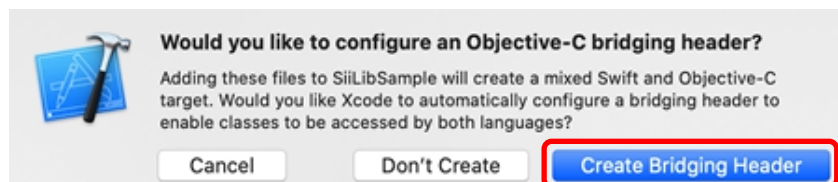
- libSiiPrinterManager.a
- SiiPrinterEnum.h
- SiiPrinterException.h
- SiiPrinterManager.h
- SiiPrinterManagerWrapper.h
- SiiPrinterManagerWrapper.m



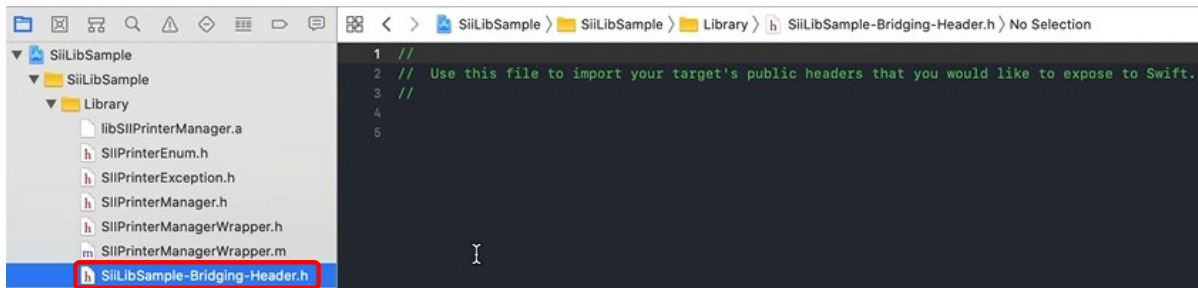
- (3) Check the box [Copy items if needed], click the [Finish] button.



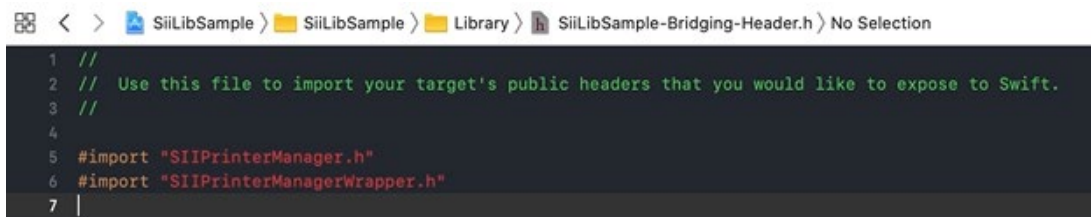
- (4) The dialog is displayed. Select the [Create Bridging Header] button and create xxxxxxxx-Bridging-Header.h.



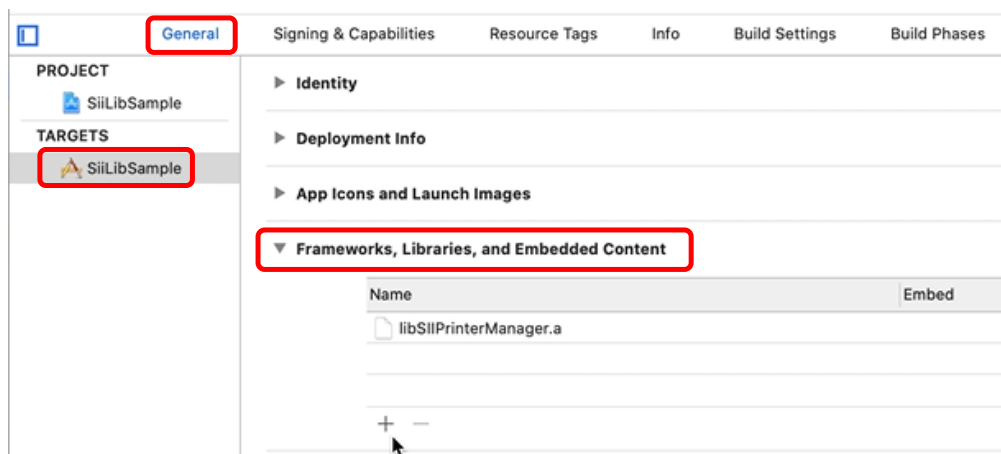
- (5) Select the created xxxxxxxx-Bridging-Header.h.



- (6) Import the SiiPrinterManager.h and the SiiPrinterManagerWrapper.h into the xxxxxxxx-Bridging-Header.h.



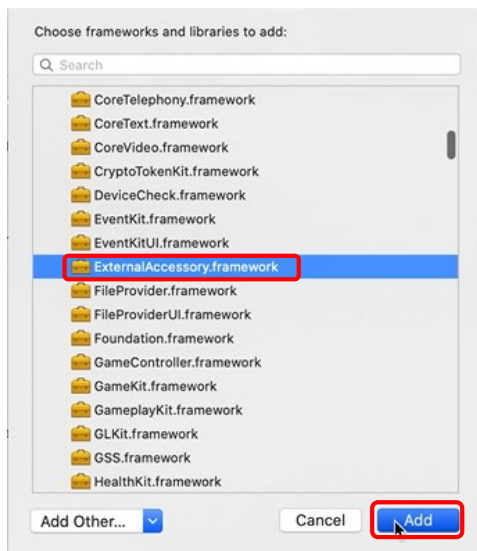
- (7) Build the ExternalAccessory.framework.
Select the target project in the [TARGETS], and open the [General] - [Frameworks, Libraries and Embedded Content].



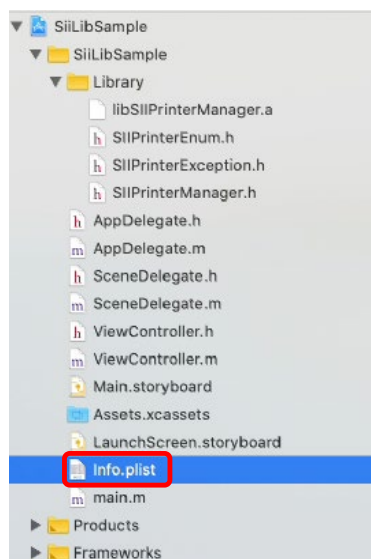
- (8) Click the [+] button opened the [Frameworks, Libraries and Embedded Content].



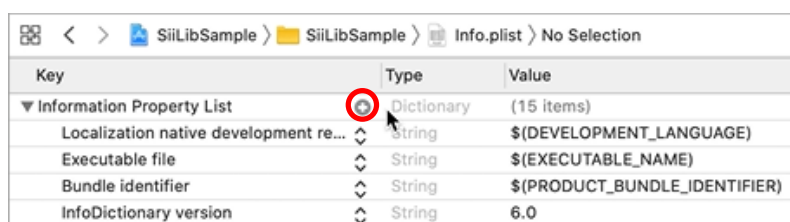
- (9) Select the ExternalAccessory.framework from the list and click the [Add] button.



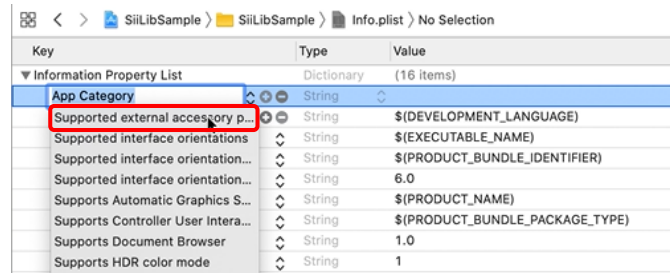
- (10) Set the protocol name to use in the ExternalAccessory.framework. Select xxxx.plist in the [Project Navigator].



- (11) Select the [Information Property List] - ⊕.

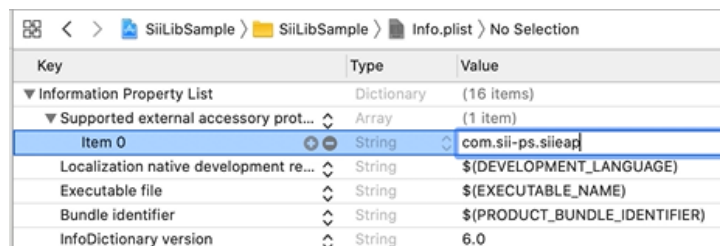


(12) Select the [Supported external accessory protocols] from the list.



Key	Type	Value
App Category	String	
Supported external accessory protocols	String	\$(DEVELOPMENT_LANGUAGE)
Supported interface orientations	String	\$(EXECUTABLE_NAME)
Supported interface orientation...	String	\$(PRODUCT_BUNDLE_IDENTIFIER)
Supported interface orientation...	String	6.0
Supports Automatic Graphics S...	String	\$(PRODUCT_NAME)
Supports Controller User Intera...	String	\$(PRODUCT_BUNDLE_PACKAGE_TYPE)
Supports Document Browser	String	1.0
Supports HDR color mode	String	1

(13) Open the added [Supported external accessory protocols].
The [Item 0] displayed in the opened [Supported external accessory protocols], enter com.sii-ps.sieap as the Value.

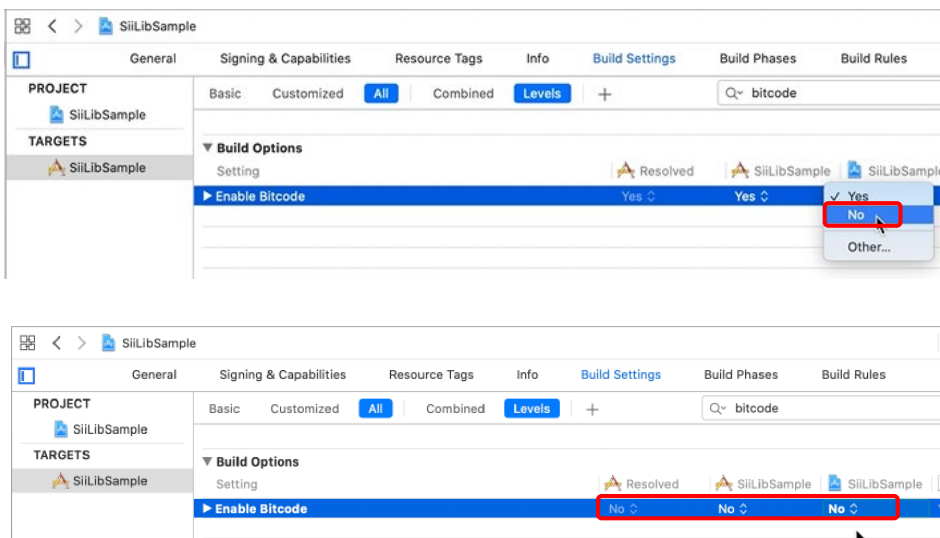


Key	Type	Value
Information Property List	Dictionary	(16 items)
Supported external accessory protocols	Array	(1 item)
Item 0	String	com.sii-ps.sieap
Localization native development re...	String	\$(DEVELOPMENT_LANGUAGE)
Executable file	String	\$(EXECUTABLE_NAME)
Bundle identifier	String	\$(PRODUCT_BUNDLE_IDENTIFIER)
InfoDictionary version	String	6.0

(14) Select the target project in the [TARGETS], and open the [Build Settings] - [Build Options].



(15) Select the Enable Bitcode in the opened [Build Options], and select the No in the menu.



By completing these procedures, the library function becomes available.

Chapter 4

Functions of Library

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

4.1 Standard Mode and Page Mode

4.1.1 Basic Operation

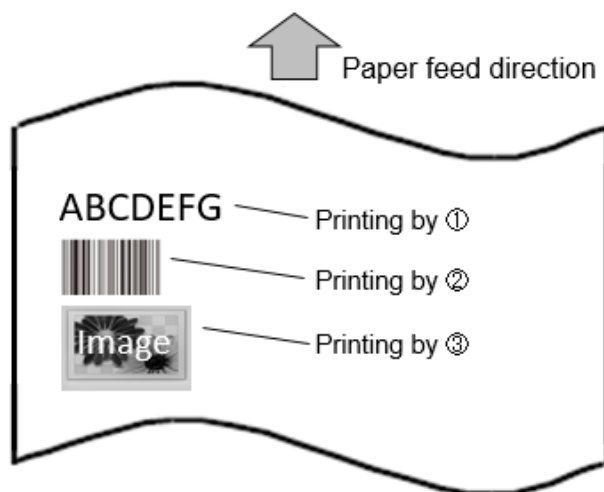
There are two printing modes "Standard mode" and "Page mode" in the library. The "Standard mode" and "Page mode" are described below.

(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

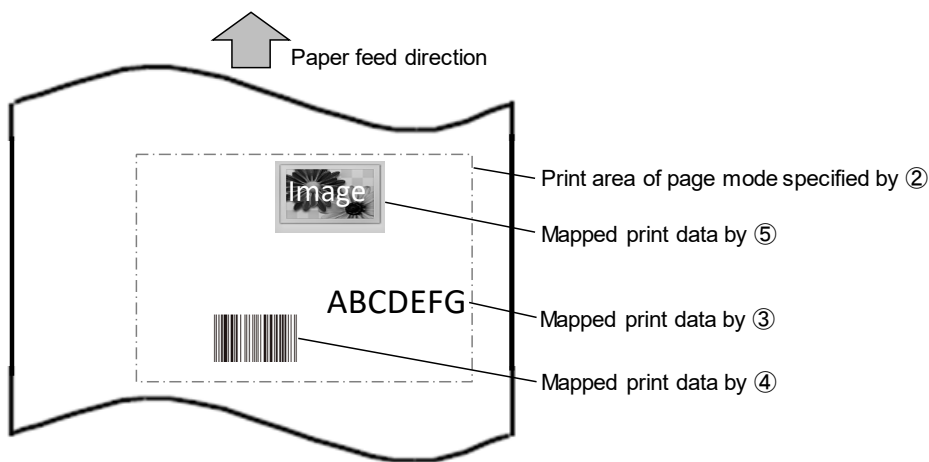
Page mode is the mode to perform the printing on a per-page basis.

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.

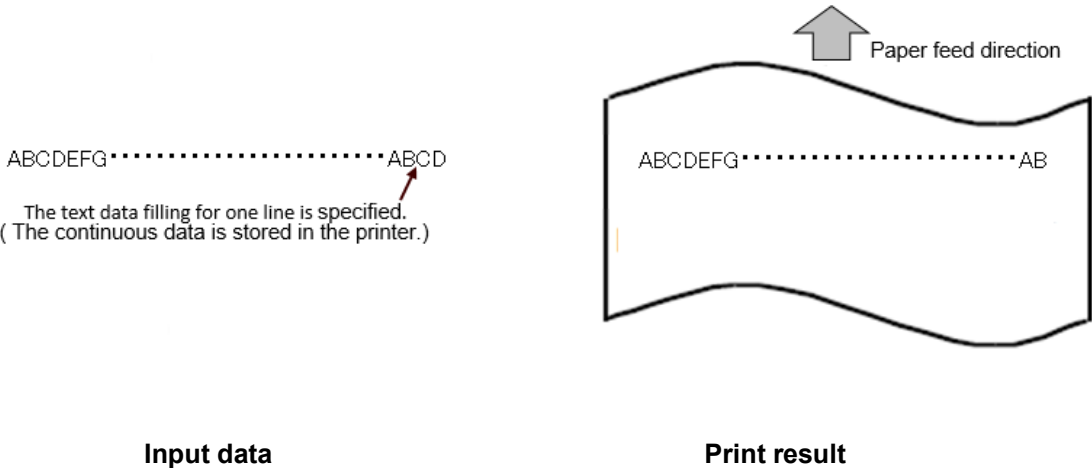
- The printing with a fixed length.
- The printing with the coordinate determination of the character starting position or the ruled line printing position.

4.1.2 Text Data Printing in Standard Mode

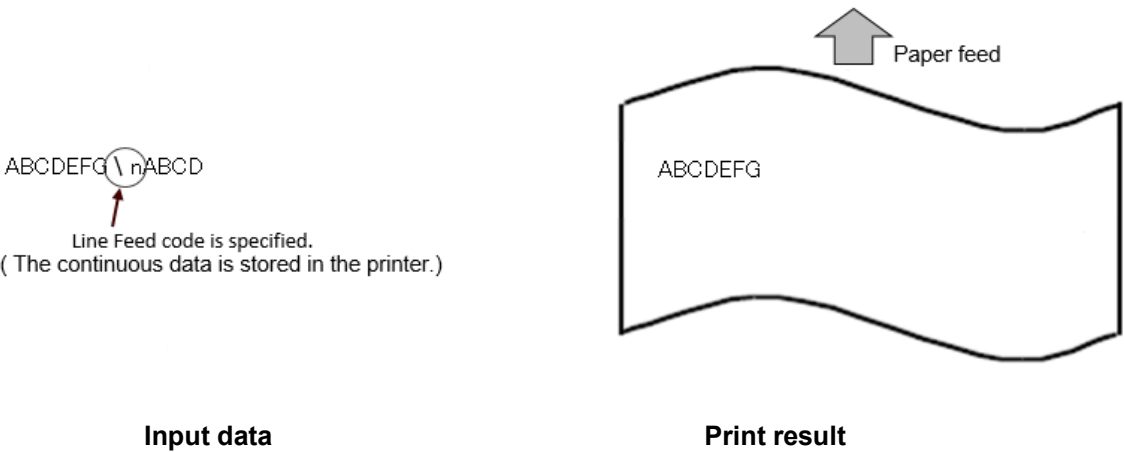
The text data in standard mode is printed each one line.

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.



- The print process when Line Feed code is specified.



4.1.3 Mapping Position of Print Data in Page Mode

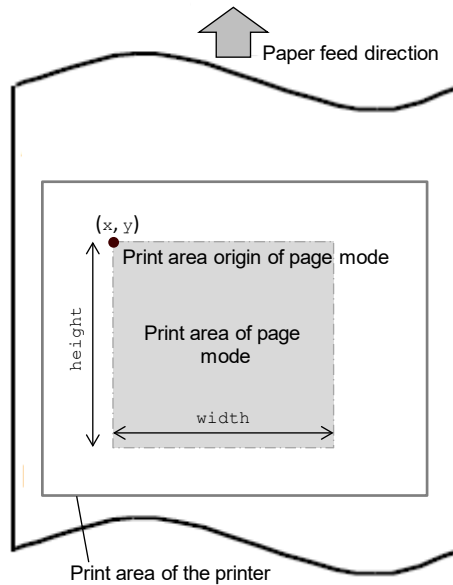
In page mode, the mapping position of print data is determined by print area, print direction, and reference point.

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.

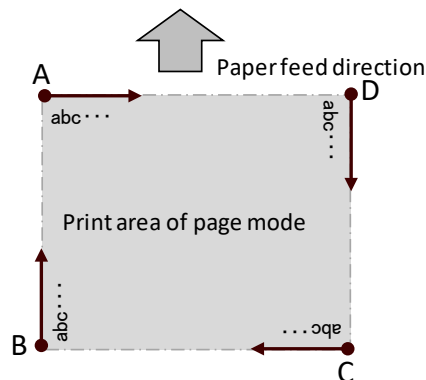


(2) Print direction

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.

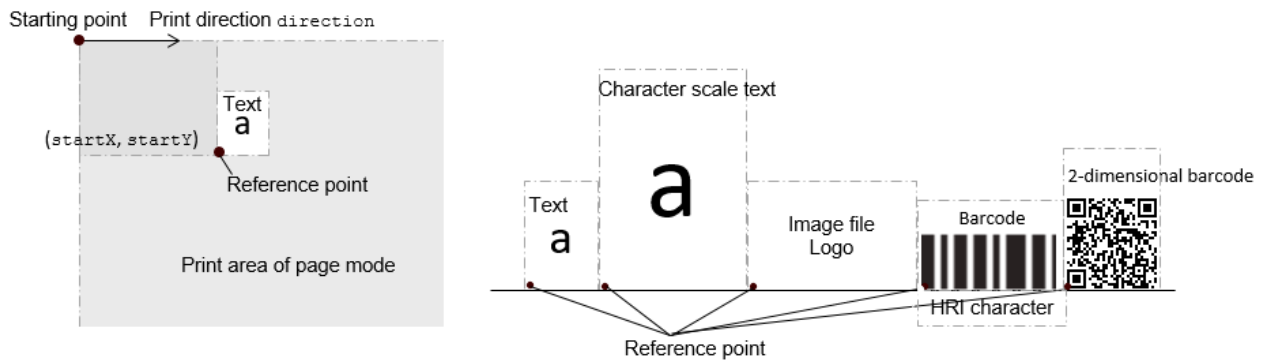
The relation between the print direction and the starting point is shown in the figure below.



- | | |
|--|---------------------------------|
| • Starting point: Upper left (A on the figure), | Print direction: Left to Right |
| • Starting point: Left below (B on the figure), | Print direction: Below to Upper |
| • Starting point: Right below (C on the figure), | Print direction: Right to Left |
| • Starting point: Upper right (D on the figure), | 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.

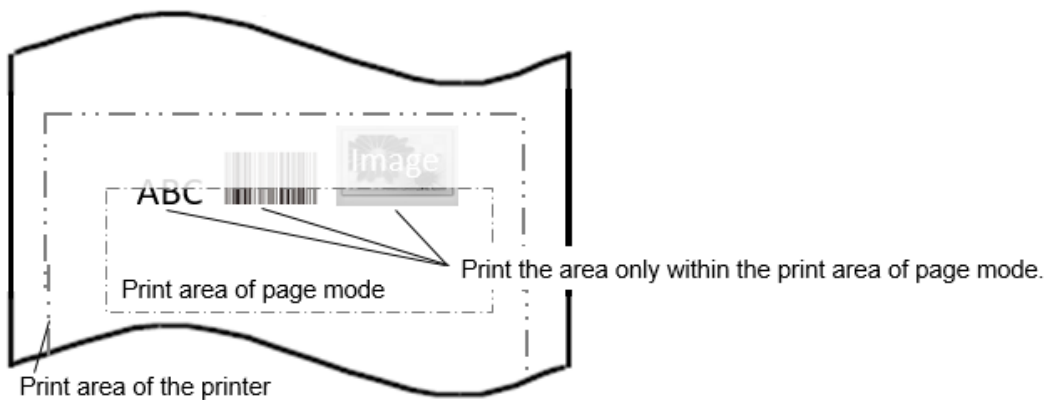
4.1.4 Print Data Process at Out of Print Area of Page Mode

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

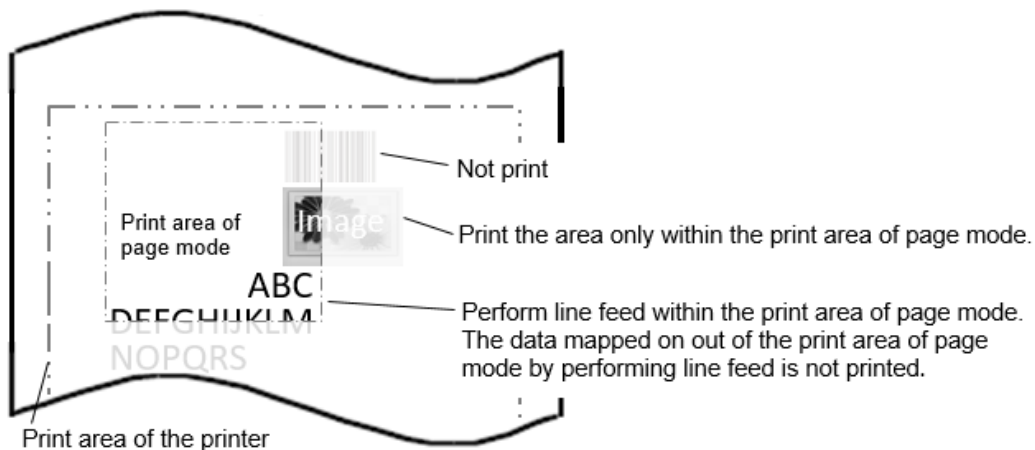
Type of Print Data

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

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



(2) 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 API Reference

This library includes the following classes and protocol.

Name	Description	Supported* ¹
SIIPrinterManager	Provides the APIs used for communication with the printer and for printing. See " 4.2.1 SIIPrinterManager Class " for details.	✓
SIIPrinterInfo	Stores the printer information found by startDiscoveryPrinter .	✓
SIIPrinterException	Exception class that is thrown at API call. See " 4.2.3 SIIPrinterException Class " for details.	✓
SIIPrinterManagerDelegate	Provides the API to get notice from the printer. See " 4.2.4 SIIPrinterManagerDelegate Protocol " for details.	✓

*1: ✓ : Supported, - : Not supported

(NOTE) MP-B30/MP-B30L does not support the APIs of Display or the barcode scanner.

4.2.1 SIIPrinterManager Class

(1) Method List

Methods provided by the **SIIPrinterManager** class are shown in the following table.
"Standard mode" or "Page mode" can be selected in the **SIIPrinterManager** class.

Method	Description
Common method to standard mode and page mode	The valid methods in standard mode and page mode. See "4.2.1(1)① Common method to standard mode and page mode" for the methods.
Dedicated method for standard mode	The valid methods in standard mode. See "4.2.1(1)② Dedicated method for standard mode" for the methods.
Dedicated method for page mode	The valid methods in page mode. See "4.2.1(1)③ Dedicated method for page mode" for the methods.

① 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 "4.2.1(5)① Common method to standard mode and page mode" for details of the common methods.

Name	Description	Supported ^{*1}
init	Instance	✓
connect	Start communicating with printer	✓
disconnect	Stop communicating with printer	✓
openDrawer	Open cash drawer	-
buzzer	Sound buzzer	-
externalBuzzer	Sound external buzzer	-
getStatus	Get printer status	✓
abort	Abort waiting state of printer	✓
registerLogo	Register logo	✓
unregisterLogo	Delete registered logo	✓
registerStyleSheet	Register style sheet	-
unregisterStyleSheet	Delete registered style sheet	-
resetPrinter	Reset printer	✓
getPrinterResponse	Get various responses from printer	✓
startDiscoveryPrinter	Start printer search (Bluetooth)	✓
startDiscoveryPrinter	Start printer search (TCP/IP)	✓
cancelDiscoveryPrinter	Cancel printer search	✓
getFoundPrinter	Get found printer information	✓
getVersion	Get SDK version	✓
controlTransaction	Start/End batch processing	✓

*1: ✓: Supported, -: Not supported

(NOTE) MP-B30/MP-B30L does not support the APIs of Display.

② Dedicated method for standard mode

Methods provided by the dedicated method for standard mode are shown in the following table.
See "4.2.1(5)② Dedicated method for standard mode" for details of the specified methods.

Name	Description	Supported ^{*1}
sendText	Send text data	✓
sendTextEx	Send format specified text data	✓
printBarcode	Print barcode	✓
printPDF417	Print PDF417	✓
printQRcode	Print QR Code	✓
printDataMatrix	Print Data Matrix	✓
printMaxiCode	Print MaxiCode	✓
printGS1DataBarStacked	Print GS1 Databar Stacked	✓
printGS1DataBarStackedOmniDirectional	Print GS1 Databar Stacked Omni-directional	✓
printGS1DataBarExpandedStacked	Print GS1 Databar Expanded Stacked	✓
printAztecCode	Print Aztec Code	✓ ^{*2}
cutPaper	Cut paper ^{*3}	✓
feedPosition	Paper form feed	✓ ^{*2}
sendBinary	Send binary data	✓
sendDataFile	Send specified file	✓
printLogo	Print logo	✓

*1: ✓ : Supported, -: Not supported

*2: Supported only by MP-B30L.

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

③ Dedicated method for page mode

Methods provided by the dedicated method for page mode are shown in the following table.
See "4.2.1(5)③ Dedicated method for page mode" for details of the specified methods.

Name	Description	Supported ^{*1}
enterPageMode	Start page mode	✓
exitPageMode	End page mode	✓
setPageModeArea	Specify print area of page mode	✓
setPageModeDirection	Specify print direction of page mode	✓
setPageModeLineSpacing	Specify line spacing of page mode	✓
printPageMode	Print page mode	✓
printPageModeText	Send text data of page mode	✓

Name	Description	Supported ^{*1}
printPageModeTextEx	Send format specified text data of page mode	✓
printPageModeBarcode	Print barcode of page mode	✓
printPageModePDF417	Print PDF417 of page mode	✓
printPageModeQRcode	Print QR Code of page mode	✓
printPageModeDataMatrix	Print Data Matrix of page mode	✓
printPageModeMaxiCode	Print MaxiCode of page mode	✓
printPageModeGS1DataBarStacked	Print GS1 Databar Stacked of page mode	✓
printPageModeGS1DataBarStackedOmnidirectional	Print GS1 Databar Stacked Omni-directional of page mode	✓
printPageModeGS1DataBarExpandedStacked	Print GS1 Databar Expanded Stacked of page mode	✓
printPageModeAztecCode	Print Aztec Code of page mode	✓ ^{*2}
sendPageModeBinary	Send binary data of page mode	✓
printPageModeImageFile	Draw image file of page mode	✓
printPageModeRectangle	Draw rectangle image of page mode	✓
printPageModeLine	Print ruled line of page mode	✓
printPageModeLogo	Print logo of page mode	✓

*1: ✓: Supported, -: Not supported

*2: Supported only by MP-B30L.

(2) Common property list to standard mode and page mode

Properties provided by **SIIPrinterManager** class are shown in the following table.

Name	Access	Description	Supported ^{*1}
sendTimeout	R/W	Get/Set send timeout period	✓
receiveTimeout	R/W	Get/Set receive timeout period	✓
internationalCharacter	R/W	Get/Set international character set	✓
codePage	R/W	Get/Set codepage	✓
printerModel	R	Get printer model	✓
portType	R	Get connecting port type	✓
isConnect	R	Verify connection state with printer	✓
socketKeepingTime	R/W	Get/Set socket keeping time	✓
delegate	R/W	Register delegate	✓

*1: ✓: Supported, -: Not supported

(3) Constant List

① Printer model

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

Constant Name	Description	Value
SII_PM_PRINTER_MODEL_MP_B30	MP-B30	302
SII_PM_PRINTER_MODEL_MP_B30L	MP-B30L	304

② Port type

Constants used for starting communication with the printer and getting the connection port type are shown in the following table.

Constant Name	Description	Value
SII_PM_PRINTER_PORT_TYPE_BLUETOOTH	Bluetooth	0
SII_PM_PRINTER_PORT_TYPE_TCP	TCP/IP	2

③ Response type

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

Constant Name	Description	Value
SII_PM_PRINTER_RESPONSE_REQUEST	Execution response request	0
SII_PM_PRINTER_RESPONSE_USER_AREA	Send remaining capacity of user area	1
SII_PM_PRINTER_RESPONSE_ARRANGE_USER_AREA	Send remaining capacity of user area after defragment	2
SII_PM_PRINTER_RESPONSE_NV_GRAPHICS	Send NV graphics memory capacity	3
SII_PM_PRINTER_RESPONSE_KEY_CODE	Send key code list of defined NV graphics	4
SII_PM_PRINTER_RESPONSE_BATTERY_STATUS	Battery remaining capacity level	5

④ Battery remaining capacity level

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

Constant Name	Description	Value
SII_PM_BATTERY_STATUS_FULL	Battery remaining capacity: approx. 80%	0
SII_PM_BATTERY_STATUS_MIDDLE	Battery remaining capacity: approx. 40%	1
SII_PM_BATTERY_STATUS_LOW	Battery remaining capacity: approx. 10%	2
SII_PM_BATTERY_STATUS_EMPTY	No battery	3

⑤ International character set

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

Constant Name	Description	Value
SII_PM_COUNTRY_USA	USA	0
SII_PM_COUNTRY_FRANCE	France	1
SII_PM_COUNTRY_GERMANY	Germany	2
SII_PM_COUNTRY_ENGLAND	United Kingdom	3
SII_PM_COUNTRY_DENMARK_1	Denmark I	4
SII_PM_COUNTRY_SWEDEN	Sweden	5
SII_PM_COUNTRY_ITALY	Italy	6
SII_PM_COUNTRY_SPAIN	Spain I	7
SII_PM_COUNTRY_JAPAN	Japan	8
SII_PM_COUNTRY_NORWAY	Norway	9
SII_PM_COUNTRY_DENMARK_2	Denmark II	10
SII_PM_COUNTRY_SPAIN_2	Spain II	11
SII_PM_COUNTRY_LATIN_AMERICA	Latin America	12
SII_PM_COUNTRY_ARABIA	Arabia	17

⑥ Codepage

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

Constant Name	Description	Value
SII_PM_CODE_PAGE_437	USA, Standard Europe (Code Page 437)	0
SII_PM_CODE_PAGE_KATAKANA	Katakana	1
SII_PM_CODE_PAGE_850	Multilingual (Code Page 850)	2
SII_PM_CODE_PAGE_860	Portuguese (Code Page 860)	3
SII_PM_CODE_PAGE_863	Canadian-French (Code page 863)	4
SII_PM_CODE_PAGE_865	Nordic (Code Page 865)	5
SII_PM_CODE_PAGE_857 ^{*1}	Turkish (Code Page 857)	13
SII_PM_CODE_PAGE_737	Greek (Code Page 737)	14
SII_PM_CODE_PAGE_1252	Latin (Code Page 1252)	16
SII_PM_CODE_PAGE_866	Russian (Code Page 866)	17
SII_PM_CODE_PAGE_852	Eastern Europe (CodePage 852)	18
SII_PM_CODE_PAGE_858	Euro (Code Page 858)	19
SII_PM_CODE_PAGE_855	Cyrillic (Code Page 855)	34
SII_PM_CODE_PAGE_864 ^{*1*2}	Arabic (Code Page 864)	37
SII_PM_CODE_PAGE_1250	Central European (Code Page 1250)	45
SII_PM_CODE_PAGE_1251	Cyrillic (Code Page 1251)	46
SII_PM_CODE_PAGE_1253 ^{*3}	Greek (Code Page 1253)	47
SII_PM_CODE_PAGE_1254	Turkish (Code Page 1254)	48

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

*2: Font B cannot be printed.

*3: 00AAh of the Unicode cannot be printed.

⑦ Barcode and PDF417

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

Constant Name	Description	Value
SII_PM_BARCODE_HEIGHT_DEFAULT	Default value of barcode height	162
SII_PM_PDF417_MODULE_HEIGHT_DEFAULT	Default value of PDF417 height	10
SII_PM_PDF417_ROW_AUTO	Automatic selection of the number of rows	0
SII_PM_PDF417_COLUMN_AUTO	Automatic selection of the number of columns	0

(4) Enumerated Constant List

① Dithering (Dithering)

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

Constant Name	Description
SII_PM_DITHERING_DISABLE	Dithering is disabled
SII_PM_DITHERING_ERRORDIFFUSION	Dithering is enabled

② Batch processing selection (TransactionFunction)

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

Constant Name	Description
SII_PM_TRANSACTION_CLEAR	Cancel batch processing
SII_PM_TRANSACTION_START	Start batch processing
SII_PM_TRANSACTION_PRINT	Finish batch printing and batch processing

③ Bold print (CharacterBold)

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

Constant Name	Description
SII_PM_BOLD_CANCEL	Cancel bold print
SII_PM_BOLD	Specify bold print

④ Underline (CharacterUnderline)

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

Constant Name	Description
SII_PM_UNDERLINE_CANCEL	Cancel underline print
SII_PM_UNDERLINE_1	Specify 1-dot width underline print
SII_PM_UNDERLINE_2	Specify 2-dot width underline print

⑤ Reverse print (CharacterReverse)

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

Constant Name	Description
SII_PM_REVERSE_CANCEL	Cancel reverse print
SII_PM_REVERSE	Specify reverse print

⑥ Inversion print (CharacterInversion)

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

Constant Name	Description
SII_PM_INVERSION_CANCEL	Cancel inversion print
SII_PM_INVERSION	Specify inversion print

⑦ Character font (CharacterFont)

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

Constant Name	Description
SII_PM_FONT_A	Font A (24 × 12)
SII_PM_FONT_B	Font B (16 × 8)

⑧ Character scale (CharacterScale)

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

Constant Name	Description
SII_PM_VERTICAL_1_HORIZONTAL_1	Height × 1 and width × 1
SII_PM_VERTICAL_1_HORIZONTAL_2	Height × 1 and width × 2
SII_PM_VERTICAL_1_HORIZONTAL_3	Height × 1 and width × 3
SII_PM_VERTICAL_1_HORIZONTAL_4	Height × 1 and width × 4
SII_PM_VERTICAL_2_HORIZONTAL_1	Height × 2 and width × 1
SII_PM_VERTICAL_2_HORIZONTAL_2	Height × 2 and width × 2
SII_PM_VERTICAL_2_HORIZONTAL_3	Height × 2 and width × 3
SII_PM_VERTICAL_2_HORIZONTAL_4	Height × 2 and width × 4
SII_PM_VERTICAL_2_HORIZONTAL_6	Height × 2 and width × 6
SII_PM_VERTICAL_3_HORIZONTAL_1	Height × 3 and width × 1
SII_PM_VERTICAL_3_HORIZONTAL_2	Height × 3 and width × 2

Constant Name	Description
SII_PM_VERTICAL_3_HORIZONTAL_3	Height × 3 and width × 3
SII_PM_VERTICAL_3_HORIZONTAL_4	Height × 3 and width × 4
SII_PM_VERTICAL_4_HORIZONTAL_1	Height × 4 and width × 1
SII_PM_VERTICAL_4_HORIZONTAL_2	Height × 4 and width × 2
SII_PM_VERTICAL_4_HORIZONTAL_3	Height × 4 and width × 3
SII_PM_VERTICAL_4_HORIZONTAL_4	Height × 4 and width × 4
SII_PM_VERTICAL_4_HORIZONTAL_6	Height × 4 and width × 6
SII_PM_VERTICAL_4_HORIZONTAL_8	Height × 4 and width × 8
SII_PM_VERTICAL_6_HORIZONTAL_2	Height × 6 and width × 2
SII_PM_VERTICAL_6_HORIZONTAL_4	Height × 6 and width × 4
SII_PM_VERTICAL_6_HORIZONTAL_6	Height × 6 and width × 6
SII_PM_VERTICAL_6_HORIZONTAL_8	Height × 6 and width × 8
SII_PM_VERTICAL_8_HORIZONTAL_4	Height × 8 and width × 4
SII_PM_VERTICAL_8_HORIZONTAL_6	Height × 8 and width × 6
SII_PM_VERTICAL_8_HORIZONTAL_8	Height × 8 and width × 8

⑨ Alignment (`PrintAlignment`)

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

Constant Name	Description
SII_PM_ALIGNMENT_LEFT	Aligned left
SII_PM_ALIGNMENT_CENTER	Centered
SII_PM_ALIGNMENT_RIGHT	Aligned right

⑩ Barcode symbol (`BarcodeSymbol`)

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

Constant Name	Description	Syntax ^{*1}
SII_PM_BARCODE_UPC_A	UPC-A	(a)
SII_PM_BARCODE_UPC_E	UPC-E	(a)
SII_PM_BARCODE_EAN13	EAN13	(a)
SII_PM_BARCODE_JAN13	JAN13	(a)
SII_PM_BARCODE_EAN8	EAN8	(a)
SII_PM_BARCODE_JAN8	JAN8	(a)
SII_PM_BARCODE_CODE39	CODE39	(a), (b)

Constant Name	Description	Syntax ^{*1}
SII_PM_BARCODE_CODE93	CODE93	(c)
SII_PM_BARCODE_CODE128	CODE128	(c)
SII_PM_BARCODE_ITF	ITF	(a), (b)
SII_PM_BARCODE_CODABAR	CODABAR	(a), (b)
SII_PM_BARCODE_EAN13_ADDON	EAN13 add-on	(a)
SII_PM_BARCODE_JAN13_ADDON	JAN13 add-on	(a)
SII_PM_BARCODE_GS1_OMNI_DIRECTIONAL	GS1 Databar Omni-directional	(a)
SII_PM_BARCODE_GS1_TRUNCATED	GS1 Databar Truncated	(a)
SII_PM_BARCODE_GS1_LIMITED	GS1 Databar Limited	(a)
SII_PM_BARCODE_GS1_EXPANDED	GS1 Databar Expanded	(a)

*1: See `printBarcode` or `printPageModeBarcode` for details of syntax.

⑪ Module size (`ModuleSize`)

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

Constant Name	Description	Method to Use
SII_PM_BARCODE_MODULE_WIDTH_2	Fine element 2 dots Module width 0.250 mm	<ul style="list-style-type: none"> ● <code>printBarcode</code> ● <code>printPageModeBarcode</code>
SII_PM_BARCODE_MODULE_WIDTH_3	Fine element 3 dots Module width 0.375 mm	
SII_PM_BARCODE_MODULE_WIDTH_4	Fine element 4 dots Module width 0.500 mm	
SII_PM_BARCODE_MODULE_WIDTH_5	Fine element 5 dots Module width 0.625 mm	
SII_PM_BARCODE_MODULE_WIDTH_6	Fine element 6 dots Module width 0.750 mm	
SII_PM_PDF417_MODULE_WIDTH_2	Nominal fine element width 2 dots	<ul style="list-style-type: none"> ● <code>printPDF417</code> ● <code>printPageModePDF417</code>
SII_PM_PDF417_MODULE_WIDTH_3	Nominal fine element width 3 dots	
SII_PM_PDF417_MODULE_WIDTH_4	Nominal fine element width 4 dots	
SII_PM_PDF417_MODULE_WIDTH_5	Nominal fine element width 5 dots	
SII_PM_PDF417_MODULE_WIDTH_6	Nominal fine element width 6 dots	
SII_PM_PDF417_MODULE_WIDTH_7	Nominal fine element width 7 dots	
SII_PM_PDF417_MODULE_WIDTH_8	Nominal fine element width 8 dots	

Constant Name	Description	Method to Use
SII_PM_QR_MODULE_SIZE_2	2 dots	<ul style="list-style-type: none"> ● <code>printQRcode</code> ● <code>printPageModeQRcode</code>
SII_PM_QR_MODULE_SIZE_3	3 dots	
SII_PM_QR_MODULE_SIZE_4	4 dots	
SII_PM_QR_MODULE_SIZE_5	5 dots	
SII_PM_QR_MODULE_SIZE_6	6 dots	
SII_PM_QR_MODULE_SIZE_7	7 dots	
SII_PM_QR_MODULE_SIZE_8	8 dots	
SII_PM_QR_MODULE_SIZE_9	9 dots	
SII_PM_QR_MODULE_SIZE_10	10 dots	
SII_PM_QR_MODULE_SIZE_11	11 dots	
SII_PM_QR_MODULE_SIZE_12	12 dots	
SII_PM_QR_MODULE_SIZE_13	13 dots	
SII_PM_QR_MODULE_SIZE_14	14 dots	
SII_PM_QR_MODULE_SIZE_15	15 dots	
SII_PM_QR_MODULE_SIZE_16	16 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_2	2 dots	<ul style="list-style-type: none"> ● <code>printDataMatrix</code> ● <code>printPageModeDataMatrix</code>
SII_PM_DATAMATRIX_MODULE_SIZE_3	3 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_4	4 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_5	5 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_6	6 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_7	7 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_8	8 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_9	9 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_10	10 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_11	11 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_12	12 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_13	13 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_14	14 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_15	15 dots	
SII_PM_DATAMATRIX_MODULE_SIZE_16	16 dots	

Constant Name	Description	Method to Use
SII_PM_GS1DATABAR_MODULE_SIZE_2	2 dots	<ul style="list-style-type: none"> ● <code>printGS1DataBarStacked</code> ● <code>printGS1DataBarStackedOmnidirectional</code> ● <code>printGS1DataBarExpandedStacked</code> ● <code>printPageModeGS1DataBarStacked</code> ● <code>Omnidirectional</code> ● <code>printPageModeGS1DataBarExpandedStacked</code>
SII_PM_GS1DATABAR_MODULE_SIZE_3	3 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_4	4 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_5	5 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_6	6 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_7	7 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_8	8 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_9	9 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_10	10 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_11	11 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_12	12 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_13	13 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_14	14 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_15	15 dots	
SII_PM_GS1DATABAR_MODULE_SIZE_16	16 dots	
SII_PM_AZTECCODE_MODULE_SIZE_2	2 dots	<ul style="list-style-type: none"> ● <code>printAztecCode</code> ● <code>printPageModeAztecCode</code>
SII_PM_AZTECCODE_MODULE_SIZE_3	3 dots	
SII_PM_AZTECCODE_MODULE_SIZE_4	4 dots	
SII_PM_AZTECCODE_MODULE_SIZE_5	5 dots	
SII_PM_AZTECCODE_MODULE_SIZE_6	6 dots	
SII_PM_AZTECCODE_MODULE_SIZE_7	7 dots	
SII_PM_AZTECCODE_MODULE_SIZE_8	8 dots	
SII_PM_AZTECCODE_MODULE_SIZE_9	9 dots	
SII_PM_AZTECCODE_MODULE_SIZE_10	10 dots	
SII_PM_AZTECCODE_MODULE_SIZE_11	11 dots	
SII_PM_AZTECCODE_MODULE_SIZE_12	12 dots	
SII_PM_AZTECCODE_MODULE_SIZE_13	13 dots	
SII_PM_AZTECCODE_MODULE_SIZE_14	14 dots	
SII_PM_AZTECCODE_MODULE_SIZE_15	15 dots	
SII_PM_AZTECCODE_MODULE_SIZE_16	16 dots	

⑫ HRI character print position (`HriPosition`)

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

Constant Name	Description
<code>SII_PM_HRI_NONE</code>	Not printed
<code>SII_PM_HRI_POSITION_ABOVE</code>	Above barcode
<code>SII_PM_HRI_POSITION_BELOW</code>	Below barcode
<code>SII_PM_HRI_POSITION_ABOVE_BELOW</code>	Above and below barcode (both)

⑬ N:W ratio (`NwRatio`)

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

Constant Name	Description
<code>SII_PM_NWRATIO_1TO2</code>	1:2
<code>SII_PM_NWRATIO_1TO2_5</code>	1:2.5
<code>SII_PM_NWRATIO_1TO3</code>	1:3

⑭ Error correction level (`ErrorCorrection`)

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

Constant Name	Description	Method to Use
<code>SII_PM_PDF417_ERROR_CORRECTION_0</code>	Error correction level 0	<ul style="list-style-type: none"> ● <code>printPDF417</code> ● <code>printPageModePDF417</code>
<code>SII_PM_PDF417_ERROR_CORRECTION_1</code>	Error correction level 1	
<code>SII_PM_PDF417_ERROR_CORRECTION_2</code>	Error correction level 2	
<code>SII_PM_PDF417_ERROR_CORRECTION_3</code>	Error correction level 3	
<code>SII_PM_PDF417_ERROR_CORRECTION_4</code>	Error correction level 4	
<code>SII_PM_PDF417_ERROR_CORRECTION_5</code>	Error correction level 5	
<code>SII_PM_PDF417_ERROR_CORRECTION_6</code>	Error correction level 6	
<code>SII_PM_PDF417_ERROR_CORRECTION_7</code>	Error correction level 7	
<code>SII_PM_PDF417_ERROR_CORRECTION_8</code>	Error correction level 8	
<code>SII_PM_QR_ERROR_CORRECTION_L</code>	Error correction level L	<ul style="list-style-type: none"> ● <code>printQRcode</code> ● <code>printPageModeQRcode</code>
<code>SII_PM_QR_ERROR_CORRECTION_M</code>	Error correction level M	
<code>SII_PM_QR_ERROR_CORRECTION_H</code>	Error correction level H	
<code>SII_PM_QR_ERROR_CORRECTION_Q</code>	Error correction level Q	

⑮ PDF417 symbol (Pdf417Symbol)

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

Constant Name	Description
SII_PM_PDF417_STANDARD	PDF417
SII_PM_PDF417_COMPACT	Compact PDF417

⑯ QR Code Model (QrModel)

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

Constant Name	Description
SII_PM_QR_MODEL_1	QR Code Model 1
SII_PM_QR_MODEL_2	QR Code Model 2

⑰ Data Matrix module (DataMatrixModule)

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

Constant Name	Description
SII_PM_DATA_MATRIX_AUTO	Number of modules: Automatic
SII_PM_DATA_MATRIX_10_10	Number of modules: 10 × 10
SII_PM_DATA_MATRIX_12_12	Number of modules: 12 × 12
SII_PM_DATA_MATRIX_14_14	Number of modules: 14 × 14
SII_PM_DATA_MATRIX_16_16	Number of modules: 16 × 16
SII_PM_DATA_MATRIX_18_18	Number of modules: 18 × 18
SII_PM_DATA_MATRIX_20_20	Number of modules: 20 × 20
SII_PM_DATA_MATRIX_22_22	Number of modules: 22 × 22
SII_PM_DATA_MATRIX_24_24	Number of modules: 24 × 24
SII_PM_DATA_MATRIX_26_26	Number of modules: 26 × 26
SII_PM_DATA_MATRIX_32_32	Number of modules: 32 × 32
SII_PM_DATA_MATRIX_36_36	Number of modules: 36 × 36
SII_PM_DATA_MATRIX_40_40	Number of modules: 40 × 40
SII_PM_DATA_MATRIX_44_44	Number of modules: 44 × 44
SII_PM_DATA_MATRIX_48_48	Number of modules: 48 × 48
SII_PM_DATA_MATRIX_52_52	Number of modules: 52 × 52
SII_PM_DATA_MATRIX_64_64	Number of modules: 64 × 64
SII_PM_DATA_MATRIX_72_72	Number of modules: 72 × 72
SII_PM_DATA_MATRIX_80_80	Number of modules: 80 × 80

Constant Name	Description
SII_PM_DATA_MATRIX_88_88	Number of modules: 88 × 88
SII_PM_DATA_MATRIX_96_96	Number of modules: 96 × 96
SII_PM_DATA_MATRIX_104_104	Number of modules: 104 × 104
SII_PM_DATA_MATRIX_120_120	Number of modules: 120 × 120
SII_PM_DATA_MATRIX_132_132	Number of modules: 132 × 132
SII_PM_DATA_MATRIX_144_144	Number of modules: 144 × 144
SII_PM_DATA_MATRIX_8_18	Number of modules: 8 × 18
SII_PM_DATA_MATRIX_8_32	Number of modules: 8 × 32
SII_PM_DATA_MATRIX_12_26	Number of modules: 12 × 26
SII_PM_DATA_MATRIX_12_36	Number of modules: 12 × 36
SII_PM_DATA_MATRIX_16_36	Number of modules: 16 × 36
SII_PM_DATA_MATRIX_16_48	Number of modules: 16 × 48

⑱ MaxiCode Mode (MaxiCodeMode)

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

Constant Name	Description
SII_PM_MAXI_CODE_2	Mode2
SII_PM_MAXI_CODE_3	Mode3
SII_PM_MAXI_CODE_4	Mode4
SII_PM_MAXI_CODE_5	Mode5

⑲ Aztec symbol (AztecSymbol)

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

Constant Name	Description
SII_PM_AZTECCODE_FULLRANGE	Full-Range mode
SII_PM_AZTECCODE_COMPACT	Compact mode

⑳ Cutting method (`CuttingMethod`)

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

Constant Name	Description
SII_PM_CUT_FULL	No cut Paper feed operation to the paper cut position
SII_PM_CUT_PARTIAL	
SII_PM_CUT_NONE *1	No cut

*1: Supported only by `printPageMode`.

㉑ Form feed position (`FeedPosition`)

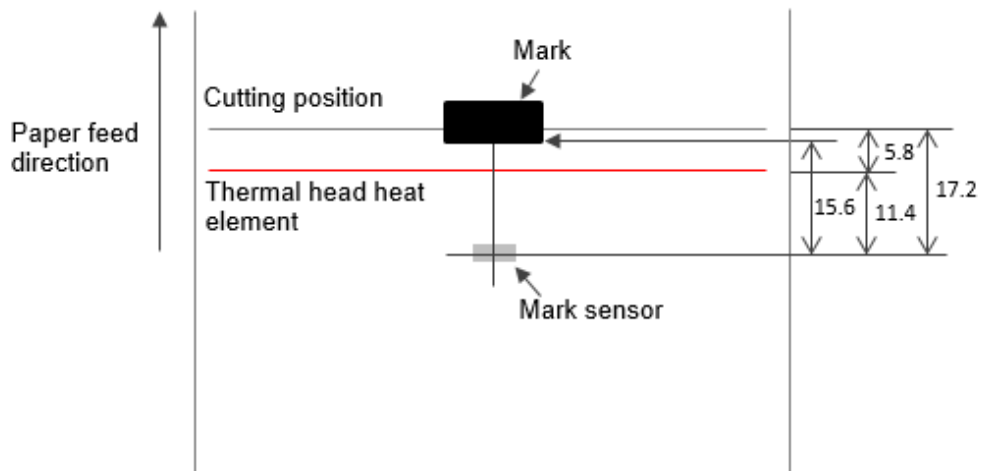
Constants of enumerated type used for the form feed position of marked paper or label are shown in the following table.

Constant Name	Description
SII_PM_FEED_CUTTER	After detecting the mark or gap, feeds the paper to the cutting position. The paper feed length is the length of the memory switches MS 21 to 22 (Mark Detection Cut Position Correction) of the printer. The default of the paper feed is 125 dots (15.6 mm).
SII_PM_FEED_NEXT_TOF	After detecting the next mark or next gap, feeds the paper to the printing position. The paper feed length is the length of the memory switches MS 26 to 27 (Mark Detection Print Position Correction) of the printer. The default of the paper feed is 125 dots (15.6 mm).

Referenece See "User's Guide" for the details of the memory switch of the printer.
The memory switch of the printer can be changed in the iOS app "SII Printer Utility" on the App Store.

The relation between the sensor position and the defaults of memory switches MS 21 to 22 (Mark Detection Cut Position Correction) of the printer and memory switches MS 26 to 27 (Mark Detection Print Position Correction) of the printer are shown in the following figure.

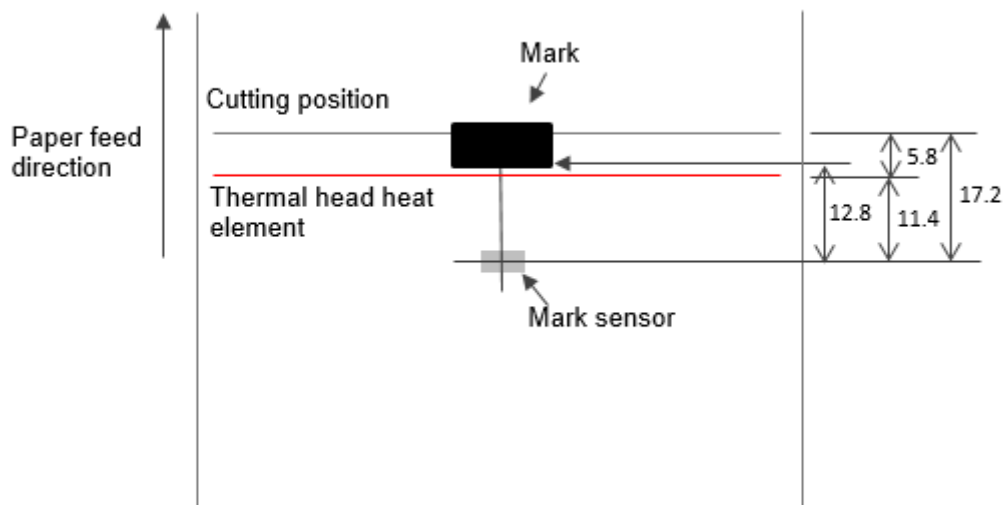
When the memory switch of the printer is set to the default, the cutting position of **SII_PM_FEED_CUTTER** and the next printing position of **SII_PM_FEED_NEXT_TOF** is the same paper feed length.



Unit : mm

To set to shorter the next print position for the mark to save paper, set the values of the memory switches MS 26 to 27 (Mark Detection Print Position Correction) of the printer shorter.

As an example, the relation of the sensor position when the values of the memory switches MS 26 to 27 of the printer are set to 103 dots (12.8 mm) and paper form feed is performed with specifying **SII_PM_FEED_NEXT_TOF** is shown in the following figure.



Unit : mm

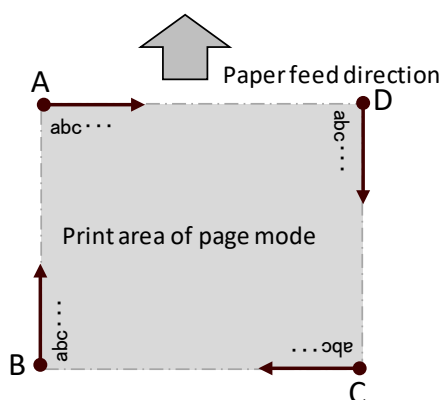
Notes

When using label, set the values of the memory switches MS 26 to 27 (Mark Detection Print Position Correction) of the printer so that the print position can be inside the label.

②② Print direction (Direction)

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

Constant Name	Description
SII_PM_DIRECTION_LEFT_TO_RIGHT	Starting point: Upper left (A on the figure), Print direction: Left to Right
SII_PM_DIRECTION_BOTTOM_TO_TOP	Starting point: Left below (B on the figure), Print direction: Below to Upper
SII_PM_DIRECTION_RIGHT_TO_LEFT	Starting point: Right below (C on the figure), Print direction: Right to Left
SII_PM_DIRECTION_TOP_TO_BOTTOM	Starting point: Upper right (D on the figure), Print direction: Upper to Below



②③ Line style (LineStyle)

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

Constant Name	Description
SII_PM_LINestyle_THIN	Thin solid line (2 dots)
SII_PM_LINestyle_MEDIUM	Medium solid line (4 dots)
SII_PM_LINestyle_THICK	Thick solid line (8 dots)

(5) Method Details

① 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** is executed.

init		Instance
Syntax	- (id) init ;	
Description	This method initializes the instance of SIIPrinterManager class.	
Return value	When succeeded, the initialized instance of SIIPrinterManager class is returned. When failed, nil is returned.	
Example of use	<pre>SIIPrinterManager *printerManager = [[SIIPrinterManager alloc] init];</pre>	

connect	Start communicating with printer
----------------	---

Starts communicating with the printer.

Syntax	- (void) connect : (NSInteger)printerModel address: (NSString) address portType: (NSInteger)portType;	
Parameter	printerModel	Printer model constant. See "4.2.1(3)① Printer model" for available constants.
	address	Depends on the setting of portType. ·For SII_PM_PRINTER_PORT_TYPE_BLUETOOTH : Specify the Bluetooth device name (Bluetooth Accessory). Example: "MP-B30" ·For SII_PM_PRINTER_PORT_TYPE_TCP : Specify the IP address of the printer. Example: "192.168.0.190"
	portType	Port type See "4.2.1(3)② Port type" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.	
Description	Call this method before using other SIIPrinterManager class methods. In order to make this library work properly, this method may change the printer settings when connecting.	
	For Bluetooth connection: Communication with a printer paired with iOS device starts through Bluetooth connection. Connection is made to the paired Bluetooth device (Bluetooth accessory) specified by address.	
	For TCP/IP connection: Communication with a printer connected to the same network as the iOS device starts through TCP/IP connection. Connection is made to the IP address specified by address. TCP port 9100 and 26100 are used for communication.	

- **Creating/discarding of socket in TCP/IP connection of the library**

After **connect**, the library retains the created socket until **disconnect**. And connecting to the same printer from other applications is not possible until **disconnect**.

Based on the completion of data transmission to the printer, the socket is once discarded after elapsing the socket keeping time set by **socketKeepingTime**. Then the new socket is created immediately and used for the next connection. If the printer is receiving a connection request from another host on the same network at the time of discarding the socket, the printer establishes communication with that host, so the reconnection may fail.

Note A concurrent connection from multiple apps to one printer is not supported.

disconnect Stop communicating with printer

Stops communicating with the printer.

Syntax - (void) **disconnect**;

Error **SIIPrinterException** is thrown when an error occurs while this method is being called.
See "**4.2.3 SIIPrinterException Class**" for details on the error.

Note It is recommended to get execution response by **SII_PM_PRINTER_RESPONSE_REQUEST** of **getPrinterResponse** before executing this method. If not, the following problems may occur:

- The communication is disconnected before the print data sending from iOS device to the printer is completed, and a part of the data may be lost.
- In Bluetooth connection, when either **disconnect** or **connect** is executed while the printer is in the buffer full state^{*1}, the communication between iOS device and the printer may be disconnected.

^{*1}: The state of buffer full means that the buffer of the printer is filled with print data. The size to be in buffer full state is approximately 4K bytes.

If you do not execute **getPrinterResponse** in your program, please fully evaluate your program to confirm no problems arise.

openDrawer Open cash drawer

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

Syntax - (void) **openDrawer**: (DrawerNum) drawerNum
onOffTime: (PulseWidth) onOffTime;

buzzer Sound buzzer

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

Syntax - (void) **buzzer**: (NSInteger) onTime
offTime: (NSInteger) offTime;

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

```
Syntax      - (void) externalBuzzer:(BuzzerPattern)buzzerPattern
              buzzerCount:(NSInteger)buzzerCount;
```

Gets the latest printer status.

Syntax - (void) **getStatus**: (NSInteger[]) buf;

Parameter	buf	Status retrieved from the printer
-----------	-----	-----------------------------------

Error `SIIPrinterException` is thrown when an error occurs while this method is being called.
See "[4.2.3 SIIPrinterException Class](#)" for details on the error.

Description	The status retrieved from the printer is stored in an NSInteger array.
-------------	--

The printer status is shown below.

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

Bit	Function	Value	
		0	1
0	Voltage error	No error	Error
1	Hardware error	No error	Error
2	Head temperature error	No error	Error
3	Reserved	Fixed	-
4	Out-of-paper error	No error	Error
5	Reserved	Fixed	-
6	MP-B30: Paper jam error while detecting mark MP-B30L: Paper jam error while detecting mark or gap	No error	Error
7	Cover open error	No error	Error
8	FEED Switch status	OFF	ON
9	Reserved	Fixed	-
10	Paper feed status	Stop	Operating
11	Return-waiting status	Not waiting	Waiting
12	Reserved	Fixed	-
13	Reserved	-	Fixed
14	Reserved	-	Fixed
15	Reserved	-	Fixed
16	FLASH memory rewriting	Not rewriting	Rewriting
17	Reserved	-	Fixed
18	Reserved	-	Fixed
19	Reserved	-	Fixed

Bit	Function	Value	
		0	1
20 to 22	Battery remaining capacity level	000: No battery 001: Low (Battery remaining capacity: approx. 10%) 011: Middle (Battery remaining capacity: approx. 40%) 111: Full (Battery remaining capacity: approx. 80%)	
23	Battery error	No error	Error
24 to 31	Reserved	-	Fixed

abort

Abort waiting state of printer

Aborts the waiting state of the printer.

Syntax - (void) **abort**;

Error **SIIPrinterException** is thrown when an error occurs while this method is being called.
See "**4.2.3 SIIPrinterException Class**" for details on the error.

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

registerLogo

Register logo

Registers image file to the NV graphics memory in the printer as a logo.

The method of syntax (a), dithering can be specified.

The method of syntax (b), dithering is fixed to be disabled.

Syntax (a) - (void) **registerLogo**: (NSString *)fileName
 logoId: (NSString *)logoId
 dithering: (Dithering)dithering;

(b) - (void) **registerLogo**: (NSString *)fileName
 logoId: (NSString *)logoId;

Parameter fileName File name of image file to be registered as a logo
Supported image file extensions are .bmp, .jpg, .jpeg, and .png. Colored image is converted to monochrome image by binarization and registered.

logoId ID of the logo to be registered (key code)
Specify the ID of the logo to be registered as a two-character string.
Valid characters are ASCII character codes from 20h (space) to 7Eh (tilde) such as alphanumeric ('0' to '9', 'A' to 'Z', 'a' to 'z').

dithering Dithering
See "4.2.1(4)① Dithering (Dithering)" for available constants.

Error **SIIPrinterException** is thrown when an error occurs while this method is being called.
See "**4.2.3 SIIPrinterException Class**" for details on the error.

unregisterLogo Delete registered logo

Deletes the registered logo.

Syntax - (void) **unregisterLogo:** (NSString *)logoId;

Parameter logoId ID of the logo to be deleted (key code)
Specify the ID of the registered logo as a character string.

Error **SIIPrinterException** is thrown when an error occurs while this method is being called.
See "**4.2.3 SIIPrinterException Class**" for details on the error.

registerStyleSheet Register style sheet

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

Syntax - (void) **registerSytleSheet:** (NSString *)fileName
cssId: (NSInteger)cssId;

unregisterStyleSheet Delete registered style sheet

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

Syntax - (void) **unregisterStyleSheet:** (NSInteger)cssId;

resetPrinter Reset printer

Performs a hardware reset of the printer.

Syntax - (void) **resetPrinter;**

Error **SIIPrinterException** is thrown when an error occurs while this method is being called.
See "**4.2.3 SIIPrinterException Class**" for details on the error.

Description For Bluetooth connection:
The printer hardware reset is performed by the printer command "Printer Reset". When using this method, enable iOS Auto Connection in the iOS app "SII Printer Utility" on the App Store. When it is disabled, this method fails to reconnect after reset and **SIIPrinterException** is thrown.
This method takes about 10 seconds to complete reconnection with the printer after performing the reset. Use this method after setting a sufficient receive timeout period.

For TCP/IP connection:
The reset is performed to the connected printer by our proprietary command (reset request) to TCP port 26100.

The connection with the printer is retained even after this method is executed.

Gets response data from the printer.

Syntax - (void) **getPrinterResponse:** (NSInteger) responseId
 param: (NSObject *) param
 response: (void *) response;

Parameter	responseId	Response type constant See "4.2.1(3)③ Response type" for available constants.
	param	Command parameter The value to be specified varies with the response type constant. See the following table for description of the value to be specified.
	response	Buffer for storing the retrieved response data The buffer type varies with the response type constant. See the following table for the buffer type.

Response Type Constant	
Parameter	Description
SII_PM_PRINTER_RESPONSE_REQUEST (Execution response request)	
param	Specify 0 to 15 (00h to 0Fh) in NSData type.
response	Specify an NSInteger array of length 1. When the response is retrieved successfully, the response code of the execution response request is stored with 128 to 143 (80h to 8Fh).
SII_PM_PRINTER_RESPONSE_USER_AREA (Send remaining capacity of user area)	
param	Specify nil.
response	Specify an NSInteger array of length 1. When the response is retrieved successfully, the remaining capacity of the user area is stored as a numerical value in bytes.
SII_PM_PRINTER_RESPONSE_ARRANGE_USER_AREA (Send remaining capacity of user area after defragment)	
param	Specify nil.
response	Specify an NSInteger array of length 1. When the response is retrieved successfully, the remaining capacity of the user area after defragment is stored as a numerical value in bytes.
SII_PM_PRINTER_RESPONSE_NV_GRAPHICS (Send NV graphics memory capacity)	
param	Specify nil.
response	Specify an NSInteger array of length 1. When the response is retrieved successfully, the NV graphics memory capacity is stored as a numerical value in bytes.
SII_PM_PRINTER_RESPONSE_KEY_CODE (Send key code list of defined NV graphics)	
param	Specify nil.
response	Specify an NSMutableArray array. When the response is retrieved successfully, the key code of NV graphics is stored as a string array.

Searches for SII printer connecting to the same network.

Syntax	- (void) startDiscoveryPrinter: (NSInteger) retryCount timeout: (NSInteger) timeout completion: (SIIDiscoveryPrinterCompletion) completion;	
Parameter	retryCount	<p>Retry count (times)</p> <p>Sends the local broadcast packet the number of times set by <code>retryCount</code>.</p> <p>The valid range is 1 to 5.</p> <p>When the value is specified less than 1, the number is set to 1.</p> <p>When the value is specified more than 5, the number is set to 5.</p>
	timeout	<p>Search timeout period (millisecond: ms)</p> <p>Sets the timeout period per search. Each time the local broadcast packet is sent, this method waits for a response from the printer until the period specified by <code>timeout</code> elapses.</p> <p>The valid range is 3000 to 60000.</p> <p>When the value is specified less than 3000, the period is set to 3000 ms.</p> <p>When the value is specified more than 60000, the period is set to 60000 ms.</p>
	completion	<p>Printer search completion event</p> <p>Notifies the block set by <code>completion</code> as an event.</p>
Error	SIIPrinterException is thrown when an error occurs while this method is being called.	
Description	This method searches for SII printers. The printer information of the found printer can be retrieved by getFoundPrinter .	
	<p>The definition of SIIDiscoveryPrinterCompletion is as follows:</p> <pre>typedef void (^SIIDiscoveryPrinterCompletion) (NSArray *printerList);</pre>	

Cancels **startDiscoveryPrinter** (TCP/IP) under execution.

Syntax	- (void) cancelDiscoveryPrinter;	
Description	This method is available only when <code>portType</code> of connect is SII_PM_PRINTER_PORT_TYPE_TCP .	
	The cancellation of the search is notified as an event to the block set to <code>completion</code> of startDiscoveryPrinter .	

Returns the printer information found by **startDiscoveryPrinter** (TCP/IP) in NSArray type.

Syntax - (NSArray *)**getFoundPrinter**;

Description This method is available only when `portType` of **connect** is **SII_PM_PRINTER_PORT_TYPE_TCP**.

See "**4.2.2 SIIPrinterInfo Class**" for details of the printer information.

Return value NSArray type printer information

Gets the SDK version as a character string.

Syntax - (NSString *)**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 can be executed regardless of whether **isConnect** is YES or NO.

Starts or ends batch processing.

Syntax - (void)**controlTransaction**: (TransactionFunction) control;

Parameter control Batch processing selection
See "**4.2.1(4)② Batch processing selection**
(TransactionFunction)" for available constants.

Error **SIIPrinterException** is thrown when an error occurs while this method is being called.
See "**4.2.3 SIIPrinterException Class**" for details on the error.

Description The procedure of batch processing is as follows:
(1) Start batch processing.
Specify **SII_PM_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 **SII_PM_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 **SII_PM_TRANSACTION_CLEAR**
- Specify **SII_PM_TRANSACTION_START**
- Execute **disconnect**

The batch processing target methods are as follows:

- **sendText**
- **sendTextEx**
- **printBarcode**
- **printPDF417**
- **printQRcode**
- **printDataMatrix**
- **printMaxiCode**
- **printGS1DataBarStacked**
- **printGS1DataBarStackedOmnidirectional**
- **printGS1DataBarExpandedStacked**
- **printAztecCode**^{*1}
- **cutPaper**
- **feedPosition**^{*1}
- **openDrawer**
- **buzzer**
- **sendBinary**
- **sendDataFile**
- **printLogo**^{*2}
- **enterPageMode**
- **exitPageMode**
- **setPageModeArea**
- **setPageModeDirection**
- **setPageModeLineSpacing**
- **printPageMode**
- **printPageModeText**
- **printPageModeTextEx**
- **printPageModeBarcode**
- **printPageModePDF417**
- **printPageModeQRcode**
- **printPageModeDataMatrix**
- **printPageModeMaxiCode**
- **printPageModeGS1DataBarStacked**
- **printPageModeGS1DataBarStackedOmnidirectional**
- **printPageModeGS1DataBarExpandedStacked**
- **printPageModeAztecCode**^{*1}
- **sendPageModeBinary**
- **printPageModeImageFile**
- **printPageModeRectangle**
- **printPageModeLine**
- **printPageModeLogo**^{*2}

*1: Supported only by MP-B30L.

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

② Dedicated method for standard mode

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

sendText Send text data

Sends text data.

Syntax	- (void) sendText: (NSString *)text;
Parameter	text Text data to send to the printer Data size that can be specified at one time is 16 KB (16384 bytes).
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.
Description	This method encodes the specified text data to printable text data based on internationalCharacter and codePage , and sends it to the printer. This method does not add a line feed code at the end of the text data. In order to print to the end, add a line feed code to the end of the text data.

sendTextEx Send format specified text data

Sends format specified text data to the printer.

The method of syntax (a) can specify bold print, underline, reverse print, font, character scale and alignment to text data.

The method of syntax (b) can specify bold print, underline, font and character scale to text data.

The method of syntax (c) can specify bold print, underline, inversion print, reverse print, font, character scale and alignment to text data.

Syntax	(a) - (void) sendTextEx: (NSString *)text bold: (CharacterBold)bold underline: (CharacterUnderline)underline reverse: (CharacterReverse)reverse font: (CharacterFont)font scale: (CharacterScale)scale alignment: (PrintAlignment)alignment; (b) - (void) sendTextEx: (NSString *)text bold: (CharacterBold)bold underline: (CharacterUnderline)underline font: (CharacterFont)font scale: (CharacterScale)scale; (c) - (void) sendTextEx: (NSString *)text bold: (CharacterBold)bold underline: (CharacterUnderline)underline reverse: (CharacterReverse)reverse inversion: (CharacterInversion)inversion font: (CharacterFont)font scale: (CharacterScale)scale alignment: (PrintAlignment)alignment;
Parameter	text Text data to send to the printer Data size that can be specified at 1 time is 16 KB (16384 bytes).

<code>bold</code>	Bold print See "4.2.1(4)③ Bold print (<code>CharacterBold</code>)" for available constants.
<code>underline</code>	Underline See "4.2.1(4)④ Underline (<code>CharacterUnderline</code>)" for available constants.
<code>reverse</code>	Reverse print See "4.2.1(4)⑤ Reverse print (<code>CharacterReverse</code>)" for available constants.
<code>inversion</code>	Inversion print See "4.2.1(4)⑥ Inversion print (<code>CharacterInversion</code>)" for available constants.
<code>font</code>	Character font See "4.2.1(4)⑦ Character font (<code>CharacterFont</code>)" for available constants.
<code>scale</code>	Character scale See "4.2.1(4)⑧ Character scale (<code>CharacterScale</code>)" for available constants.
<code>alignment</code>	Alignment See "4.2.1(4)⑨ Alignment (<code>PrintAlignment</code>)" for available constants.
Error	<code>SIIPrinterException</code> is thrown when an error occurs while this method is being called. See " 4.2.3 <code>SIIPrinterException</code> Class " for details on the error.
Description	This method encodes the formatted text data to printable text data based on <code>internationalCharacter</code> and <code>codePage</code> , and sends it to the printer. This method does not add a line feed code at the end of the text data. In order to print to the end, add a line feed code to the end of the text data.

`printBarcode`

Print barcode

Prints the barcode.

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

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

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

```
Syntax      (a) - (void) printBarcode: (BarcodeSymbol) barcodeSymbol
              text: (NSString *) text
              moduleSize: (ModuleSize) moduleSize
              moduleHeight: (NSInteger) moduleHeight
              hriPosition: (HriPosition) hriPosition
              hriFont: (CharacterFont) hriFont
              alignment: (PrintAlignment) alignment;
```

```

(b) - (void) printBarcode: (BarcodeSymbol)barcodeSymbol
      text:(NSString *)text
      moduleSize:(ModuleSize)moduleSize
      moduleHeight:(NSInteger)moduleHeight
      hriPosition:(HriPosition)hriPosition
      hriFont:(CharacterFont)hriFont
      alignment:(PrintAlignment)alignment
      nwRatio:(NwRatio)nwRatio;

(c) - (void) printBarcode: (BarcodeSymbol)barcodeSymbol
      data:(NSData*)data
      moduleSize:(ModuleSize)moduleSize
      moduleHeight:(NSInteger)moduleHeight
      hriPosition:(HriPosition)hriPosition
      hriFont:(CharacterFont)hriFont
      alignment:(PrintAlignment)alignment;

```

Parameter	barcodeSymbol	Barcode symbol See "4.2.1(4)⑩ Barcode symbol (BarcodeSymbol)" for available constants and corresponding syntax.
	text (data)	Barcode data to send to the printer
	moduleSize	Barcode width See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.
	moduleHeight	Barcode height (dot) <ul style="list-style-type: none"> When barcodeSymbol is below, the valid range is 1 to 255. SII_PM_BARCODE_UPC_A SII_PM_BARCODE_UPC_E SII_PM_BARCODE_EAN13 SII_PM_BARCODE_JAN13 SII_PM_BARCODE_EAN8 SII_PM_BARCODE_JAN8 SII_PM_BARCODE_CODE39 SII_PM_BARCODE_CODE93 SII_PM_BARCODE_CODE128 SII_PM_BARCODE_ITF SII_PM_BARCODE_CODABAR SII_PM_BARCODE_EAN13_ADDON SII_PM_BARCODE_JAN13_ADDON When barcodeSymbol is below, the valid range varies depending on barcodeSymbol and moduleSize.

barcodeSymbol		
	moduleSize	Valid Range
SII_PM_BARCODE_GS1_OMNI_DIRECTIONAL		
	SII_PM_BARCODE_MODULE_WIDTH_2	66 to 255
	SII_PM_BARCODE_MODULE_WIDTH_3	99 to 255
	SII_PM_BARCODE_MODULE_WIDTH_4	132 to 255
	SII_PM_BARCODE_MODULE_WIDTH_5	165 to 255
	SII_PM_BARCODE_MODULE_WIDTH_6	198 to 255

barcodeSymbol		
	moduleSize	Valid Range
SII_PM_BARCODE_GS1_TRUNCATED		
	SII_PM_BARCODE_MODULE_WIDTH_2	26 to 255
	SII_PM_BARCODE_MODULE_WIDTH_3	39 to 255
	SII_PM_BARCODE_MODULE_WIDTH_4	52 to 255
	SII_PM_BARCODE_MODULE_WIDTH_5	65 to 255
	SII_PM_BARCODE_MODULE_WIDTH_6	78 to 255
SII_PM_BARCODE_GS1_LIMITED		
	SII_PM_BARCODE_MODULE_WIDTH_2	20 to 255
	SII_PM_BARCODE_MODULE_WIDTH_3	30 to 255
	SII_PM_BARCODE_MODULE_WIDTH_4	40 to 255
	SII_PM_BARCODE_MODULE_WIDTH_5	50 to 255
	SII_PM_BARCODE_MODULE_WIDTH_6	60 to 255
SII_PM_BARCODE_GS1_EXPANDED		
	SII_PM_BARCODE_MODULE_WIDTH_2	68 to 255
	SII_PM_BARCODE_MODULE_WIDTH_3	102 to 255
	SII_PM_BARCODE_MODULE_WIDTH_4	136 to 255
	SII_PM_BARCODE_MODULE_WIDTH_5	170 to 255
	SII_PM_BARCODE_MODULE_WIDTH_6	204 to 255

hriPosition	HRI character print position See "4.2.1(4)⑫ HRI character print position (HriPosition)" for available constants.
hriFont	HRI character font See "4.2.1(4)⑦ Character font (CharacterFont)" for available constants.
alignment	Alignment See "4.2.1(4)⑨ Alignment (PrintAlignment)" for available constants.
nwRatio	N:W ratio See "4.2.1(4)⑬ N:W ratio (NwRatio)" for available constants. Depending on the specified nwRatio and moduleSize, the width of the wide element is set as shown in the following table.

moduleSize	nwRatio		
	SII_PM_ NWRATIO_1TO2	SII_PM_ NWRATIO_1TO2_5	SII_PM_ NWRATIO_1TO3
SII_PM_BARCODE_MODULE_WIDTH_2	0.500 mm (4 dots)	0.625 mm (5 dots)	0.750 mm (6 dots)
SII_PM_BARCODE_MODULE_WIDTH_3	0.750 mm (6 dots)	1.000 mm (8 dots)	1.125 mm (9 dots)

moduleSize	nwRatio		
	SII_PM_ NWRATIO_1TO2	SII_PM_ NWRATIO_1TO2_5	SII_PM_ NWRATIO_1TO3
SII_PM_BARCODE_MODULE_WIDTH_4	1.000 mm (8 dots)	1.250 mm (10 dots)	1.500 mm (12 dots)
SII_PM_BARCODE_MODULE_WIDTH_5	1.250 mm (10 dots)	1.625 mm (13 dots)	1.875 mm (15 dots)
SII_PM_BARCODE_MODULE_WIDTH_6	1.500 mm (12 dots)	1.875 mm (15 dots)	2.250 mm (18 dots)

Error	<p>SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.</p>
Notes	The quiet zone is not secured. Set the quiet zone in accordance with the standard of the barcode symbol.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

printPDF417

Print PDF417

Prints PDF417.
The method of syntax (a) specifies the PDF417 symbol.
The method of syntax (b) is fixed to standard PDF417.

Syntax	(a) - (void) printPDF417: (NSString *)text errorCorrection:(ErrorCorrection)errorCorrection row:(NSInteger)row column:(NSInteger)column moduleSize:(ModuleSize)moduleSize moduleHeight:(NSInteger)moduleHeight alignment:(PrintAlignment)alignment pdf417Symbol:(Pdf417Symbol)pdf417Symbol;	
	(b) - (void) printPDF417: (NSString *)text errorCorrection:(ErrorCorrection)errorCorrection row:(NSInteger)row column:(NSInteger)column moduleSize:(ModuleSize)moduleSize moduleHeight (NSInteger)moduleHeight alignment:(PrintAlignment)alignment;	
Parameter	text	Barcode data to send to the printer
	errorCorrection	Error correction level See "4.2.1(4)⑭ Error correction level (ErrorCorrection)" for available constants.
	row	Number of rows (row) The valid range is 0, 3 to 90. When 0 is specified, the number of rows is automatically set.
	column	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.

<code>moduleSize</code>	Nominal fine element width See "4.2.1(4)⑪ Module size (<code>ModuleSize</code>)" for available constants.
<code>moduleHeight</code>	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.
<code>alignment</code>	Alignment See "4.2.1(4)⑨ Alignment (<code>PrintAlignment</code>)" for available constants.
<code>pdf417Symbol</code>	PDF417 symbol See "4.2.1(4)⑮ PDF417 symbol (<code>Pdf417Symbol</code>)" for available constants.
Error	<code>SIIPrinterException</code> is thrown when an error occurs while this method is being called. See "4.2.3 <code>SIIPrinterException</code> Class " for details on the error.
Notes	The quiet zone is not secured. Set the quiet zone in accordance with the standard of the barcode symbol.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

printQRcode

Print QR Code

Prints QR Code.

The method of syntax (a) specifies QR Code Model.

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

Syntax	(a) - (void) printQRcode: (NSString *)text errorCorrection: (ErrorCorrection)errorCorrection moduleSize: (ModuleSize)moduleSize alignment: (PrintAlignment)alignment model: (QrModel)model; (b) - (void) printQRcode: (NSString *)text errorCorrection: (ErrorCorrection)errorCorrection moduleSize: (ModuleSize)moduleSize alignment: (PrintAlignment)alignment;								
Parameter	<table><tr><td>text</td><td>Barcode data to send to the printer The version is automatically set depending on the number of data bytes set with <code>text</code> in either syntax (a) and (b).</td></tr><tr><td>errorCorrection</td><td>Error correction level See "4.2.1(4)⑭ Error correction level (ErrorCorrection)" for available constants.</td></tr><tr><td>moduleSize</td><td>Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.</td></tr><tr><td>alignment</td><td>Alignment See "4.2.1(4)⑨ Alignment (PrintAlignment)" for available constants.</td></tr></table>	text	Barcode data to send to the printer The version is automatically set depending on the number of data bytes set with <code>text</code> in either syntax (a) and (b).	errorCorrection	Error correction level See "4.2.1(4)⑭ Error correction level (ErrorCorrection)" for available constants.	moduleSize	Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.	alignment	Alignment See "4.2.1(4)⑨ Alignment (PrintAlignment)" for available constants.
text	Barcode data to send to the printer The version is automatically set depending on the number of data bytes set with <code>text</code> in either syntax (a) and (b).								
errorCorrection	Error correction level See "4.2.1(4)⑭ Error correction level (ErrorCorrection)" for available constants.								
moduleSize	Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.								
alignment	Alignment See "4.2.1(4)⑨ Alignment (PrintAlignment)" for available constants.								

model	QR Code Model See "4.2.1(4)⑩ QR Code Model (QrModel)" for available constants.
-------	---

Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.
-------	---

Notes	The quiet zone is not secured. Set the quiet zone in accordance with the standard of the barcode symbol.
-------	--

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

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

Prints Data Matrix.

Syntax	- (void) printDataMatrix: (NSString *)text dataMatrixModule: (DataMatrixModule) dataMatrixModule moduleSize: (ModuleSize) moduleSize alignment: (PrintAlignment) alignment;
--------	---

Parameter	text	Barcode data to send to the printer
	dataMatrixModule	Number of Data Matrix modules See "4.2.1(4)⑪ Data Matrix module (DataMatrixModule)" for available constants.
	moduleSize	Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.
	alignment	Alignment See "4.2.1(4)⑨ Alignment (PrintAlignment)" for available constants.

Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.
-------	---

Notes	The quiet zone is not secured. Set the quiet zone in accordance with the standard of the barcode symbol.
-------	--

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

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

Prints MaxiCode.

Syntax	- (void) printMaxiCode: (NSString *)text maxiCodeMode: (MaxiCodeMode) maxiCodeMode alignment: (PrintAlignment) alignment;
--------	--

Parameter	text	Barcode data to send to the printer
		<ul style="list-style-type: none"> When maxiCodeMode is SII_PM_MAXI_CODE_2: Add service class (3 digits), country code (3 digits), and postal code (9 digits) to the beginning of the data.

- When `maxiCodeMode` is **SII_PM_MAXI_CODE_3**:
Add service class (3 digits), country code (3 digits), and postal code (6 digits) to the beginning of the data.

<code>maxiCodeMode</code>	<p>MaxiCode Mode</p> <p>See "4.2.1(4)⑩ MaxiCode Mode (<code>MaxiCodeMode</code>)" for available constants.</p>
<code>alignment</code>	<p>Alignment</p> <p>See "4.2.1(4)⑨ Alignment (<code>PrintAlignment</code>)" for available constants.</p>
Error	<p>SIIPrinterException is thrown when an error occurs while this method is being called.</p> <p>See "4.2.3 SIIPrinterException Class" for details on the error.</p>
Notes	The quiet zone is not secured. Set the quiet zone in accordance with the standard of the barcode symbol.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

`printGS1DataBarStacked`

Print GS1 Databar Stacked

Prints GS1 Databar Stacked.

Syntax	<pre> - (void) printGS1DataBarStacked: (NSString *)text moduleSize: (ModuleSize)moduleSize alignment: (PrintAlignment)alignment; </pre>	
Parameter	<code>text</code>	<p>Barcode data to send to the printer</p> <p>Enter 13 characters from '0' to '9'. The leading '01' is automatically added by the printer. The check digit is automatically calculated by the printer.</p>
	<code>moduleSize</code>	<p>Module size</p> <p>See "4.2.1(4)⑪ Module size (<code>ModuleSize</code>)" for available constants.</p>
	<code>alignment</code>	<p>Alignment</p> <p>See "4.2.1(4)⑨ Alignment (<code>PrintAlignment</code>)" for available constants.</p>
Error	<p>SIIPrinterException is thrown when an error occurs while this method is being called.</p> <p>See "4.2.3 SIIPrinterException Class" for details on the error.</p>	
Reference	See "Appendix B Barcode Size List" for details of the barcode size.	

```
printGS1DataBarStackedOmnidirectional
```

Print GS1 Databar Stacked Omni-directional

```
printGS1DataBarStackedOmnidirectional
```

Print GS1 Databar Stacked Omni-directional

Prints GS1 Databar Stacked Omni-directional.

Syntax	- (void) printGS1DataBarStackedOmnidirectional: (NSString *)text moduleHeight: (NSInteger)moduleHeight moduleSize: (ModuleSize)moduleSize alignment: (PrintAlignment)alignment;
Parameter	<p>text Barcode data to send to the printer Enter 13 characters from '0' to '9'. The leading '01' is automatically added by the printer. The check digit is automatically calculated by the printer.</p> <p>moduleHeight Barcode module height (number of modules) The valid range is 33 to 255.</p> <p>moduleSize Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.</p> <p>alignment Alignment See "4.2.1(4)⑨ Alignment (PrintAlignment)" for available constants.</p>
Error	<p>SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.</p>
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

```
printGS1DataBarExpandedStacked
```

```
printGS1DataBarExpandedStacked
```

Prints GS1 Databar Expanded Stacked.

Syntax	<pre> - (void) printGS1DataBarExpandedStacked: (NSString *)text column: (NSInteger) column moduleSize: (ModuleSize) moduleSize alignment: (PrintAlignment) alignment; </pre>
Parameter	<p>text Barcode data to send to the printer Enter any number of characters using the following: ', ', '"', '%', '&', '"', '(', ')', '*', '+', ',', '-', '.', '/', ':', ';', '<', '=', '>', '?', '_', '0' to '9', 'A' to 'Z', 'a' to 'z' Enter '{1' for FNC1. Be sure to input the check digit because it is not automatically calculated by the printer.</p> <p>column Number of columns Specify the number of segments in 1 line. An even number from 2 to 20 is valid.</p> <p>moduleSize Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.</p> <p>alignment Alignment See "4.2.1(4)⑨ Alignment (PrintAlignment)" for available constants.</p>

- Error **SIIPrinterException** is thrown when an error occurs while this method is being called.
See "4.2.3 SIIPrinterException Class" for details on the error.
- Reference See "Appendix B Barcode Size List" for details of the barcode size.

printAztecCode

Print Aztec Code

Supported only by MP-B30L.
Prints Aztec Code.

- Syntax

- (void) **printAztecCode:** (NSString *)text
 layer: (NSInteger) layer
 errorCorrection: (NSInteger) errorCorrection
 moduleSize: (ModuleSize) moduleSize
 aztecSymbol: (AztecSymbol) aztecSymbol
 alignment: (PrintAlignment) alignment;
- Parameter

text

Barcode data to send to the printer
 Encodes the data to binary in UTF-8 and sends to the printer.
 When the data to be sent cannot be specified as a string, it can be specified using the following escape sequence.

Escape Sequence	Description
\nn	Control code (Specify nn as a hexadecimal number)
\\	Backslash

 To specify FNC1, enter @"x1b\x30" in the data.
 To specify 1Bh, enter @"x1b\x1b" in the data.

layer

Number of layer
 The valid range of full-range mode is 0, 4 to 32.
 The valid range of compact mode is 0, 1 to 4.
 When 0 is specified, layer is automatically set.

errorCorrection

Error correction level (%)
 The valid range is 0, 5 to 95.
 When 0 is specified, the level is 23%.

moduleSize

Module size
 See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.

aztecSymbol

Aztec symbol
 See "4.2.1(4)⑲ Aztec symbol (AztecSymbol)" for available constants.

alignment

Alignment
 See "4.2.1(4)⑨ Alignment (PrintAlignment)" for available constants.
- Error

SIIPrinterException is thrown when an error occurs while this method is being called.
 See "4.2.3 SIIPrinterException Class" for details on the error.
- Reference

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

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

Syntax	- (void) cutPaper: (CuttingMethod) cuttingMethod;	
Parameter	cuttingMethod	Cutting method See "4.2.1(4)㉑ Cutting method (CuttingMethod)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.	

Supported only by MP-B30L.

Performs the paper form feed of marked paper or label.

Syntax	- (void) feedPosition: (FeedPosition) feedPosition;	
Parameter	feedPosition	Form feed position See "4.2.1(4)㉑ Form feed position (FeedPosition)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.	
Note	The paper form feed is not performed when this method is executed at the form feed position of the marked paper or the label.	

Sends binary data to the printer.

Syntax	- (void) sendBinary: (NSData*) data;	
Parameter	data	Binary data to send to the printer Data size that can be specified at one time is 256 KB (262144 bytes).
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.	
Description	This method sends the specified binary data to the printer without conversion. By sending printer command as binary data with this method, printer functions not supported in the library become available. However, this method does not support commands to get the response from the printer.	

Sends file data.

The method of syntax (a), dithering can be specified.

The method of syntax (b), dithering is fixed to be disabled.

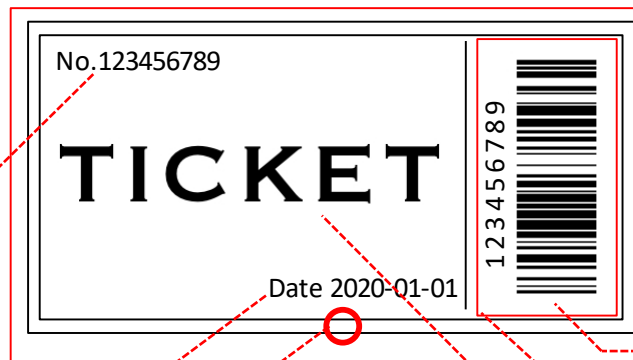
Syntax	(a) - (void) sendDataFile: (NSString *)fileName alignment: (PrintAlignment) alignment dithering: (Dithering) dithering;
	(b) - (void) sendDataFile: (NSString *)fileName alignment: (PrintAlignment) alignment;
Parameter	<p>fileName</p> <p>Name of data file to send to the printer The maximum file size that can be specified is 1 MB (1048576 bytes). The file extensions that can be sent and the file transmission are described below.</p> <ul style="list-style-type: none"> • .bmp, .jpg, .jpeg, .png Data is sent to the printer as image file. Colored image file is converted to monochrome image by binarization and sent to the printer. Printing is performed in batch after mapping the image file on the memory of the printer. • .txt Data is sent to the printer as text data. Text data format supports UTF-8. This method encodes the text data to printable text data based on the settings of internationalCharacter and codePage, and then sends it to the printer. This method does not add a line feed code at the end of the text data. In order to print to the end, add a line feed code at the end of the text data. • .bin, .dat Data is sent to the printer as binary data without conversion. <p>alignment</p> <p>Alignment It is valid when the extension of the file specified by <i>fileName</i> is .bmp, .jpg, .jpeg, .png, or .txt. See "4.2.1(4)⑨ Alignment (PrintAlignment)" for available constants.</p> <p>dithering</p> <p>Dithering It is valid when the extension of the file specified by <i>fileName</i> is .bmp, .jpg, .jpeg, or .png. See "4.2.1(4)① Dithering (Dithering)" for available constants.</p>
Error	<p>SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.</p>

Prints the registered logo.

Syntax	- (void) printLogo: (NSString *)logoId alignment(PrintAlignment)alignment;	
Parameter	logoId	ID of the logo to be printed (key code) Specify the ID of the registered logo as a character string.
	alignment	Alignment See "4.2.1(4)⑨ Alignment (PrintAlignment)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.	

③ 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

```
[printerManager enterPageMode];
```

② Specify print area of page mode

```
[printerManager setPageModeArea:0 y:0 width:576 height:355];
```

③ Specify a rectangle and a ruled line

```
[printerManager printPageModeRectangle:0 startY:0 endX:575 endY:344 lineStyle:SII_PM_LINESTYLE_THIN];  
[printerManager printPageModeRectangle:7 startY:7 endX:567 endY:336 lineStyle:SII_PM_LINESTYLE_THIN];  
[printerManager printPageModeLine:404 startY:11 endX:404 endY:334 lineStyle:SII_PM_LINESTYLE_THIN];
```

④ Specify a character

```
[printerManager printPageModeText:21 startY:37 text:@"NO.123456789";  
[printerManager printPageModeText:212 startY:330 text:@"Date 2020-01-01";
```

⑤ Specify an image file

```
[NSString *filePath = [[NSBundle mainBundle] pathForResource:@"TicketImage" ofType:@"jpg"];  
[printerManager printPageModeImageFile:10 startY:212 fileName:filePath  
dithering:SII_PM_DITHERING_DISABLE];
```

⑥ Specify print area of page mode

```
[printerManager setPageModeArea:404 y:9 width:163 height:327];
```

⑦ Specify print direction

```
[printerManager setPageModeDirection:SII_PM_DIRECTION_BOTTOM_TO_TOP];
```

⑧ Specify a barcode

```
[printerManager printPageModeBarcode:20 startY:132 barcodeSymbol:SII_PM_BARCODE_CODE128  
data:[@"{B123456789" dataUsingEncoding:NSUTF8StringEncoding]  
moduleSize:SII_PM_BARCODE_MODULE_WIDTH_2 moduleHeight:80 hriPosition:SII_PM_HRI_POSITION_ABOVE  
hriFont:SII_PM_FONT_A];
```

⑨ Print in page mode

```
[printerManager printPageMode:SII_PM_CUT_PARTIAL];
```

⑩ Ends page mode

```
[printerManager exitPageMode];
```

Starts page mode.

Syntax	- (void) enterPageMode ;
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.
Description	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. Executing exitPageMode discards the print data kept in the page data buffer and changes the mode to standard mode. Executing printPageMode prints the print data kept in the page data buffer.

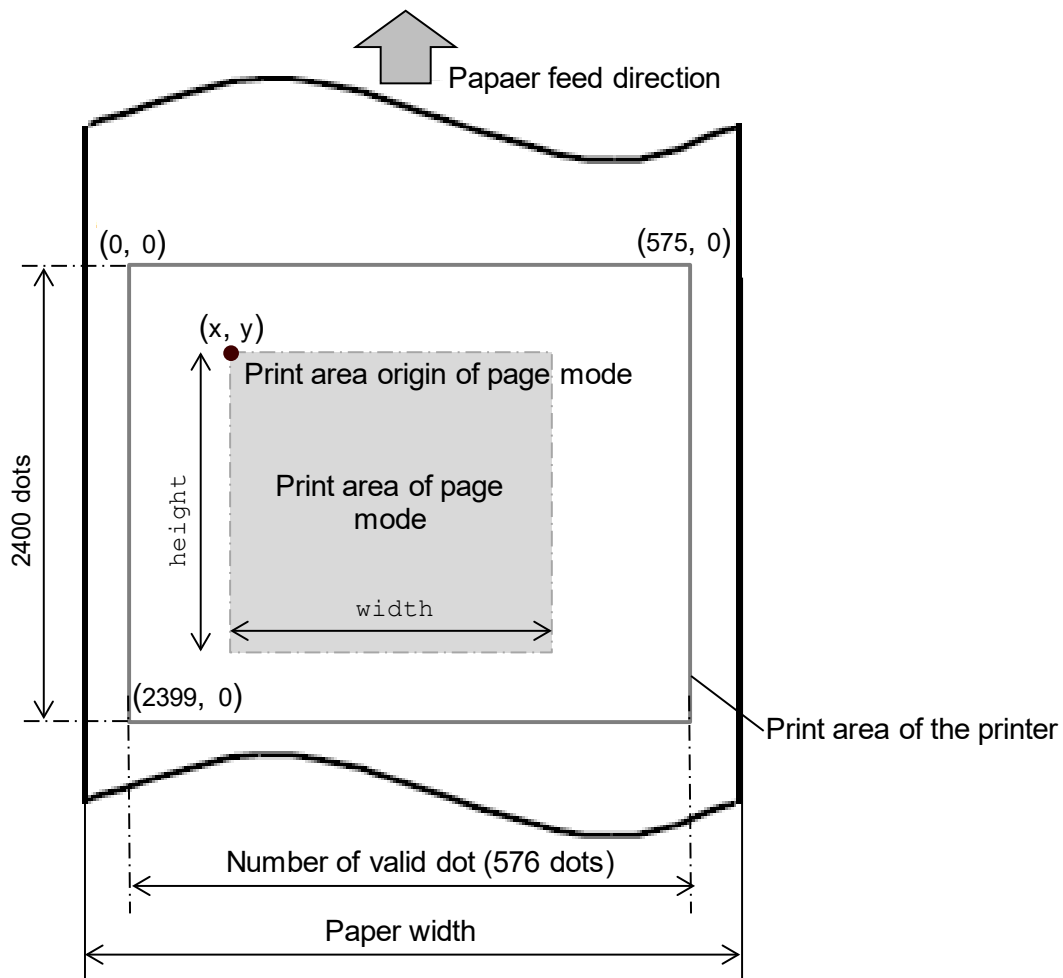
Ends page mode and changes the mode to standard mode.

Syntax	- (void) exitPageMode ;
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.
Description	Discards the print data kept in the page data buffer and changes the mode to standard mode.

Specifies print area of page mode.

Syntax	- (void) setPageModeArea : (NSInteger) x y: (NSInteger) y width: (NSInteger) width height: (NSInteger) height;
Parameter	<div> <div>x</div> <div>The horizontal origin (dot) of the print area of page mode The valid range is 0 to 575. 0 represents the left edge on the print area of the printer.</div> </div> <div> <div>y</div> <div>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.</div> </div> <div> <div>width</div> <div>The print area width (dot) of page mode The valid range is 1 to (576-x).</div> </div> <div> <div>height</div> <div>The print area height (dot) of page mode The valid range is 1 to (2400-y).</div> </div>

The relation between the print area of page mode and the print area of the printer is shown in figure below.



Error **SIIPrinterException** is thrown when an error occurs while this method is being called.
See "**4.2.3 SIIPrinterException Class**" for details on the error.

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

Starting page mode by **enterPageMode** and executing this method after the dedicated method for page mode is executed, the print area of page mode can be additionally specified. 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 $x = 0$, $y = 0$, $width = 576$, $height = 2400$ after executing **enterPageMode**.

Specifies print direction of page mode.

Syntax	- (void) setPageModeDirection: (Direction)direction;	
Parameter	direction	Print direction See "4.2.1(4)② Print direction (Direction)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.	
Description	Start page mode by enterPageMode before executing this method. The print direction is left to right after executing enterPageMode .	

Specifies line spacing of page mode.

Syntax	- (void) setPageModeLineSpacing: (NSInteger)lineSpacing;	
Parameter	lineSpacing	Line spacing (dot) of page mode The valid range is 0 to 255.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.	
Description	Start page mode by enterPageMode before executing this method. The line spacing is 34 dots after executing enterPageMode .	

Prints the print data kept in page data buffer.

Syntax	- (void) printPageMode: (CuttingMethod)CuttingMethod;	
Parameter	cuttingMethod	Cutting method See "4.2.1(4)② Cutting method (CuttingMethod)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.	
Description	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 • Execute disconnect • Execute exitPageMode 	

Maps the text data on the print area of page mode.

Syntax	- (void) printPageModeText: (NSInteger) startX startY: (NSInteger) startY text: (NSString *) text;	
Parameter	startX	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	startY	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	text	Text data Data size that can be specified at 1 time is 16 KB (16384 bytes).
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.	
Description	This method encodes the specified text data to printable text data based on internationalCharacter and codePage . Start page mode by enterPageMode before executing this method.	

Maps the format specified text data on the print area of page mode.

Syntax	- (void) printPageModeTextEx: (NSInteger) startX startY: (NSInteger) startY text: (NSString *) text bold: (CharacterBold) bold underline: (CharacterUnderline) underline reverse: (CharacterReverse) reverse font: (CharacterFont) font scale: (CharacterScale) scale;	
Parameter	startX	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	startY	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	text	Text data Data size that can be specified at 1 time is 16 KB (16384 bytes).
	bold	Bold print See "4.2.1(4)③ Bold print (CharacterBold) " for available constants.
	underline	Underline See "4.2.1(4)④ Underline (CharacterUnderline)" for available constants.

reverse	Reverse print See "4.2.1(4)⑤ Reverse print (CharacterReverse)" for available constants.
font	Font See "4.2.1(4)⑦ Character font (CharacterFont)" for available constants.
scale	Character scale See "4.2.1(4)⑧ Character scale (CharacterScale)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.
Description	This method encodes the specified text data to printable text data based on internationalCharacter and codePage . Start page mode by enterPageMode before executing this method.

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

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.

Syntax	<p>(a) - (void) printPageModeBarcode: (NSInteger) startX startY: (NSInteger) startY barcodeSymbol: (BarcodeSymbol) barcodeSymbol text: (NSString *) text moduleSize: (ModuleSize) moduleSize moduleHeight: (NSInteger) moduleHeight hriPosition: (HriPosition) hriPosition hriFont: (CharacterFont) hriFont;</p> <p>(b) - (void) printPageModeBarcode: (NSInteger) startX startY: (NSInteger) startY barcodeSymbol: (BarcodeSymbol) barcodeSymbol text: (NSString *) text moduleSize: (ModuleSize) moduleSize moduleHeight: (NSInteger) moduleHeight hriPosition: (HriPosition) hriPosition hriFont: (CharacterFont) hriFont nwRatio: (NwRatio) nwRatio;</p> <p>(c) - (void) printPageModeBarcode: (NSInteger) startX startY: (NSInteger) startY barcodeSymbol: (BarcodeSymbol) barcodeSymbol data: (NSData*) data moduleSize: (ModuleSize) moduleSize moduleHeight: (NSInteger) moduleHeight hriPosition: (HriPosition) hriPosition hriFont: (CharacterFont) hriFont;</p>
Parameter	<p>startX The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.</p>

startY	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
barcodeSymbol	BarcodeSymbol See "4.2.1(4)⑩ Barcode symbol (BarcodeSymbol) for available constants and correspondent syntax.
text(data)	Barcode data
moduleSize	Barcode width See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.
moduleHeight	Barcode height (dot)

- When barcodeSymbol is set to the following, the valid range is 1 to 255.

SII_PM_BARCODE_UPC_A
 SII_PM_BARCODE_UPC_E
 SII_PM_BARCODE_EAN13
 SII_PM_BARCODE_JAN13
 SII_PM_BARCODE_EAN8
 SII_PM_BARCODE_JAN8
 SII_PM_BARCODE_CODE39
 SII_PM_BARCODE_CODE93
 SII_PM_BARCODE_CODE128
 SII_PM_BARCODE_ITF
 SII_PM_BARCODE_CODABAR
 SII_PM_BARCODE_EAN13_ADDON
 SII_PM_BARCODE_JAN13_ADDON

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

barcodeSymbol		
	moduleSize	Valid Range
SII_PM_BARCODE_GS1_OMNI_DIRECTIONAL		
	SII_PM_BARCODE_MODULE_WIDTH_2	66 to 255
	SII_PM_BARCODE_MODULE_WIDTH_3	99 to 255
	SII_PM_BARCODE_MODULE_WIDTH_4	132 to 255
	SII_PM_BARCODE_MODULE_WIDTH_5	165 to 255
	SII_PM_BARCODE_MODULE_WIDTH_6	198 to 255
SII_PM_BARCODE_GS1_TRUNCATED		
	SII_PM_BARCODE_MODULE_WIDTH_2	26 to 255
	SII_PM_BARCODE_MODULE_WIDTH_3	39 to 255
	SII_PM_BARCODE_MODULE_WIDTH_4	52 to 255
	SII_PM_BARCODE_MODULE_WIDTH_5	65 to 255
	SII_PM_BARCODE_MODULE_WIDTH_6	78 to 255

barcodeSymbol		
	moduleSize	Valid Range
SII_PM_BARCODE_GS1_LIMITED		
	SII_PM_BARCODE_MODULE_WIDTH_2	20 to 255
	SII_PM_BARCODE_MODULE_WIDTH_3	30 to 255
	SII_PM_BARCODE_MODULE_WIDTH_4	40 to 255
	SII_PM_BARCODE_MODULE_WIDTH_5	50 to 255
	SII_PM_BARCODE_MODULE_WIDTH_6	60 to 255
SII_PM_BARCODE_GS1_EXPANDED		
	SII_PM_BARCODE_MODULE_WIDTH_2	68 to 255
	SII_PM_BARCODE_MODULE_WIDTH_3	102 to 255
	SII_PM_BARCODE_MODULE_WIDTH_4	136 to 255
	SII_PM_BARCODE_MODULE_WIDTH_5	170 to 255
	SII_PM_BARCODE_MODULE_WIDTH_6	204 to 255

hriPosition	HRI character print position See "4.2.1(4)⑫ HRI character print position (HriPosition)" for available constants.
hriFont	HRI character font See "4.2.1(4)⑦ Character font (CharacterFont)" for available constants.
nwRatio	N:W ratio See "4.2.1(4)⑬ 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.

moduleSize	nwRatio		
	SII_PM_NWRATIO_1TO2	SII_PM_NWRATIO_1TO2_5	SII_PM_NWRATIO_1TO3
SII_PM_BARCODE_MODULE_WIDTH_2	0.500 mm (4 dots)	0.625 mm (5 dots)	0.750 mm (6 dots)
SII_PM_BARCODE_MODULE_WIDTH_3	0.750 mm (6 dots)	1.000 mm (8 dots)	1.125 mm (9 dots)
SII_PM_BARCODE_MODULE_WIDTH_4	1.000 mm (8 dots)	1.250 mm (10 dots)	1.500 mm (12 dots)
SII_PM_BARCODE_MODULE_WIDTH_5	1.250 mm (10 dots)	1.625 mm (13 dots)	1.875 mm (15 dots)
SII_PM_BARCODE_MODULE_WIDTH_6	1.500 mm (12 dots)	1.875 mm (15 dots)	2.250 mm (18 dots)

Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.
Description	Start page mode by enterPageMode before executing this method.
Note	Map the print data of the barcode not to overlap the other print data. The quiet zone is not secured. Set the quiet zone in accordance with the standard of the barcode symbol.


```
printPageModePDF417
```

Print PDF417 of page mode

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.

```
Syntax      (a) - (void) printPageModePDF417: (NSInteger) startX
              startY: (NSInteger) startY
              text: (NSString *)text
              errorCorrection: (ErrorCorrection) errorCorrection
              row: (NSInteger) row
              column: (NSInteger) column
              moduleSize: (ModuleSize) moduleSize
              moduleHeight: (NSInteger) moduleHeight
              pdf417Symbol: (Pdf417Symbol) pdf417Symbol;
```

```
(b) - (void) printPageModePDF417: (NSInteger)startX
    startY: (NSInteger)startY
    text: (NSString *)text
    errorCorrection: (ErrorCorrection)errorCorrection
    row: (NSInteger)row
    column: (NSInteger)column
    moduleSize: (ModuleSize)moduleSize
    moduleHeight: (NSInteger)moduleHeight;
```

Parameter	Description
<code>startX</code>	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
<code>startY</code>	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
<code>text</code>	Barcode data
<code>errorCorrection</code>	Error correction level See "4.2.1(4)⑭ Error correction level (<code>ErrorCorrection</code>)" for available constants.
<code>row</code>	The number of rows (row) The valid range is 0, 3 to 90. When 0 is specified, the number of rows is automatically set.
<code>column</code>	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.
<code>moduleSize</code>	Nominal fine element width See "4.2.1(4)⑪ Module size (<code>ModuleSize</code>)" for available constants.
<code>moduleHeight</code>	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.
<code>pdf417Symbol</code>	Symbol of PDF417 See "4.2.1(4)⑮ PDF417 symbol (<code>Pdf417Symbol</code>)" for available constants.

Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.
Description	Start page mode by enterPageMode before executing this method.
Note	Map the print data of the barcode not to overlap the other print data. The quiet zone is not secured. Set the quiet zone in accordance with the standard of the barcode symbol.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

printPageModeQRcode

Print QR Code of page mode

Maps QR Code on the print area of page mode.
The method of syntax (a) specifies QR Code Model.
The method of syntax (b) is fixed to QR Code Model 2.

Syntax	<pre> (a) - (void) printPageModeQRcode: (NSInteger) startX startY: (NSInteger) startY text: (NSString *)text errorCorrection: (ErrorCorrection)errorCorrection moduleSize: (ModuleSize)moduleSize model: (QrModel)model; (b) - (void) printPageModeQRcode: (NSInteger) startX startY: (NSInteger) startY text: (NSString *)text errorCorrection: (ErrorCorrection)errorCorrection moduleSize: (ModuleSize)moduleSize; </pre>	
Parameter	startX	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	startY	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	text	Barcode data The version for either syntax (a) or (b) is automatically set depending on the number of data specified on <code>text</code> .
	errorCorrection	Error correction level See "4.2.1(4)⑭ Error correction level (ErrorCorrection)" for available constants.
	moduleSize	Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.
	model	QR Code Model See "4.2.1(4)⑯ QR Code Model (QrModel)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.	
Description	Start page mode by enterPageMode before executing this method.	

Note	Map the print data of the barcode not to overlap the other print data. The quiet zone is not secured. Set the quiet zone in accordance with the standard of the barcode symbol.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

`printPageModeDataMatrix`

Print Data Matrix of page mode

Maps Data Matrix on the print area of page mode.

Syntax	<pre> - (void) printPageModeDataMatrix: (NSInteger) startX startY: (NSInteger) startY text: (NSString *) text dataMatrixModule: (DataMatrixModule) dataMatrixModule moduleSize: (ModuleSize) moduleSize; </pre>	
Parameter	<code>startX</code>	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	<code>startY</code>	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	<code>text</code>	Barcode data
	<code>dataMatrixModule</code>	The number of Data Matrix modules See "4.2.1(4)⑪ Data Matrix module (<code>DataMatrixModule</code>)" for available constants.
	<code>moduleSize</code>	Module size See "4.2.1(4)⑪ Module size (<code>ModuleSize</code>)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class " for details on the error.	
Description	Start page mode by enterPageMode before executing this method.	
Note	Map the print data of the barcode not to overlap the other print data. The quiet zone is not secured. Set the quiet zone in accordance with the standard of the barcode symbol.	
Reference	See "Appendix B Barcode Size List" for details of the barcode size.	

`printPageModeMaxiCode`

Print MaxiCode of page mode

Maps MaxiCode on the print area of page mode.

Syntax	<pre> - (void) printPageModeMaxiCode: (NSInteger) startX startY: (NSInteger) startY text: (NSString *) text maxiCodeMode: (MaxiCodeMode) maxiCodeMode; </pre>	
Parameter	<code>startX</code>	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	<code>startY</code>	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.

text	Barcode data
	<ul style="list-style-type: none"> • When maxiCodeMode is SII_PM_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 maxiCodeMode is SII_PM_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.
maxiCodeMode	MaxiCode Mode See "4.2.1(4)⑩ MaxiCode Mode (MaxiCodeMode)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.
Description	Start page mode by enterPageMode before executing this method.
Note	Map the print data of the barcode not to overlap the other print data. The quiet zone is not secured. Set the quiet zone in accordance with the standard of the barcode symbol.
Reference	See "Appendix B Barcode Size List" for details of the barcode size.

printPageModeGS1DataBarStacked Print GS1 Databar Stacked of page mode

Maps GS1 Databar Stacked on the print area of page mode.

Syntax	- (void) printPageModeGS1DataBarStacked: (NSInteger) startX startY: (NSInteger) startY text: (NSString *) text moduleSize: (ModuleSize) moduleSize;	
Parameter	startX	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	startY	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	text	Barcode data Enter 13 characters from '0' to '9'. The leading '01' is automatically added by the printer. The check digit is automatically calculated by the printer.
	moduleSize	Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.	
Description	Start page mode by enterPageMode before executing this method.	
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.	

printPageModeGS1DataBarStackedOmnidirectional

Print GS1 Databar Stacked Omni-directional of page mode

Maps GS1 Databar Stacked Omni-directional on the print area of page mode.

Syntax	<pre>- (void) printPageModeGS1DataBarStackedOmnidirectional: (NSInteger) startX startY: (NSInteger) startY text: (NSString *)text moduleHeight: (ModuleHeight)moduleHeight moduleSize: (ModuleSize)moduleSize;</pre>	
Parameter	startX	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	startY	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	text	Barcode data Enter 13 characters from '0' to '9'. The leading '01' is automatically added by the printer. The check digit is automatically calculated by the printer.
	moduleHeight	Barcode module height (the number of the modules) The valid range is 33 to 255.
	moduleSize	Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.	
Description	Start page mode by enterPageMode before executing this method.	
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.	

printPageModeGS1DataBarExpandedStacked

Print GS1 Databar Expanded Stacked of page mode

Maps GS1 Databar Expanded Stacked on the print area of page mode.

Syntax	<pre>- (void) printPageModeGS1DataBarExpandedStacked: (NSInteger) startX startY: (NSInteger) startY text: (NSString *)text column: (NSInteger) column moduleSize: (ModuleSize)moduleSize;</pre>	
Parameter	startX	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	startY	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.

text	Barcode data Enter any number of characters using the following: ' ', '!', '""', '%', '&', '(', ')', '*', '+', ',', '-', '.', '/', ':', ';', '<', '=', '>', '?', '_', '0' to '9', 'A' to 'Z', 'a' to 'z'. Enter '{1' to FNC1. Be sure to input the check digit because it is not automatically calculated by the printer.
column	The number of columns Specifies the number of the segments in 1 line. The valid range is the even number from 2 to 20.
moduleSize	Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.
Description	Start page mode by enterPageMode before executing this method.
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.

printPageModeAztecCode	Print Aztec Code of page mode
-------------------------------	--------------------------------------

Supported only by MP-B30L.

Maps Aztec Code on the print area of page mode.

Syntax	- (void) printPageModeAztecCode : (NSInteger) startX startY: (NSInteger) startY text: (NSString *) text layer: (NSInteger) layer errorCorrection: (NSInteger) errorCorrection moduleSize: (ModuleSize) moduleSize aztecSymbol: (AztecSymbol) aztecSymbol;
Parameter	startX The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	startY The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	text Barcode data to send to the printer Encodes the data to binary in UTF-8 and sends to the printer. When the data to be sent cannot be specified as a string, it can be specified using the following escape sequence.

Escape Sequence	Description
\nn	Control code (Specify nn as a hexadecimal number)
\\	Backslash

To specify FNC1, enter @ "x1b\x30" in the data.

To specify 1Bh, enter @ "x1b\x1b" in the data.

layer	Number of layer The valid range of full-range mode is 0, 4 to 32. The valid range of compact mode is 0, 1 to 4. When 0 is specified, layer is automatically set.
errorCorrection	Error correction level (%) The valid range is 0, 5 to 95. When 0 is specified, the level is 23%.
moduleSize	Module size See "4.2.1(4)⑪ Module size (ModuleSize)" for available constants.
aztecSymbol	Aztec symbol See "4.2.1(4)⑲ Aztec symbol (AztecSymbol)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.
Description	Start page mode by enterPageMode before executing this method.
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.

sendPageModeBinary

Send binary data of page mode

Maps binary data on the print area of page mode.

Syntax	- (void) sendPageModeBinary : (NSData*) data;
Parameter	binary Binary data Data size that can be specified at 1 time is 16 KB (16384 bytes).
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.
Description	Start page mode by enterPageMode 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.
Note	This method may execute unexpected performance depending on the data to send. Please ensure the performance with your actual device in advance.

Maps the image file on the print area of page mode.

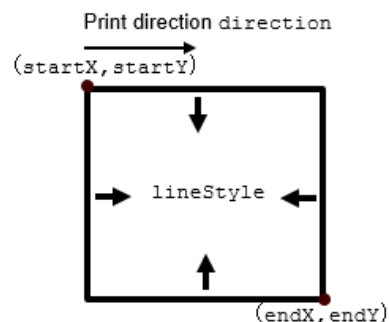
Syntax	<pre> - (void) printPageModeImageFile: (NSInteger) startX startY: (NSInteger) startY fileName: (NSString *) fileName dithering: (Dithering) dithering; </pre>	
Parameter	startX	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	startY	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	fileName	Name of the image file 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.
	dithering	Dithering See "4.2.1(4)① Dithering (Dithering)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.	
Description	Start page mode by enterPageMode before executing this method.	

Maps the rectangle image on the print area of page mode.

Syntax	<pre> - (void) printPageModeRectangle: (NSInteger) startX startY: (NSInteger) startY endX: (NSInteger) endX endY: (NSInteger) endY lineStyle: (LineStyle) lineStyle; </pre>	
	startX	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
	startY	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
	endX	The horizontal reference point (dot) from the ending point The valid range is 0 to 2399.
	endY	The vertical reference point (dot) from the ending point The valid range is 0 to 2399.
	lineStyle	Line style See "4.2.1(4)② Line style (LineStyle)" for available constants.
Error	SIIPrinterException is thrown when an error occurs while this method is being called. See " 4.2.3 SIIPrinterException Class " for details on the error.	

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

The rectangle is mapped to `direction` of **setPageModeDirection** 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
	<pre> startX 0 startY 0 endX 239 endY 239 lineStyle SII_PM_LINestyle_MEDIUM </pre>

printPageModeLine

Print ruled line of page mode

Maps the ruled line on the print area of page mode.

Syntax

```

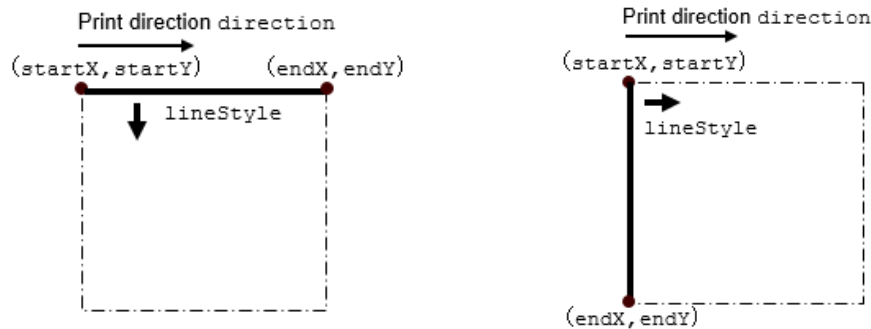
- (void) printPageModeLine: (NSInteger) startX
                                startY: (NSInteger) startY
                                endX: (NSInteger) endX
                                endY: (NSInteger) endY
                                lineStyle: (LineStyle) lineStyle;

```

Parameter

<code>startX</code>	The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.
<code>startY</code>	The vertical reference point (dot) from the starting point The valid range is 0 to 2399.
<code>endX</code>	The horizontal reference point (dot) from the ending point The valid range is 0 to 2399.
<code>endY</code>	The vertical reference point (dot) from the ending point The valid range is 0 to 2399.
<code>lineStyle</code>	Line style See "4.2.1(4)② Line style (LineStyle)" for available constants.

Error	<p>SIIPrinterException is thrown when an error occurs while this method is being called.</p> <p>See "4.2.3 SIIPrinterException Class" for details on the error.</p>
Description	<p>Start page mode by enterPageMode before executing this method.</p> <p>A diagonal stroke cannot be drawn by this method.</p> <p>The ruled line is mapped to the direction of setPageModeDirection as shown in the figure below.</p>



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>①</p> <pre> startX 0 startY 0 endX 239 endY 0 lineStyle SII_PM_LINestyle_MEDIUM </pre>
	<p>②</p> <pre> startX 0 startY 236 endX 239 endY 236 lineStyle SII_PM_LINestyle_MEDIUM </pre>

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>① (startX=0, startY=0) (startX=236, startY=0) lineStyle= SII_PM_LINestyle_MEDIUM (4 dots) → (endX=0, endY=239) (endX=236, endY=239) ② lineStyle= SII_PM_LINestyle_MEDIUM (4 dots) →</p>	<p>①</p> <p>startX 0 startY 0 endX 0 endY 239 lineStyle SII_PM_LINestyle_MEDIUM</p> <p>②</p> <p>startX 236 startY 0 endX 236 endY 239 lineStyle SII_PM_LINestyle_MEDIUM</p>

printPageModeLogo

Print logo of page mode

Maps the registered logo on the print area of page mode.

Syntax	- (void) printPageModeLogo : (NSInteger) startX startY: (NSInteger) startY logoId: (NSString *) logoId;
Parameter	<p>startX The horizontal reference point (dot) from the starting point The valid range is 0 to 2399.</p> <p>startY The vertical reference point (dot) from the starting point The valid range is 0 to 2399.</p> <p>logoId Logo ID to print (key code) Specify the ID of the registered logo as a character string</p>
Error	<p>SIIPrinterException is thrown when an error occurs while this method is being called. See "4.2.3 SIIPrinterException Class" for details on the error.</p>
Description	Start page mode by enterPageMode before executing this method.

(6) Common property detail to standard mode and page mode

sendTimeout

Get/Set send timeout period

Gets or sets the timeout period in sending data.

Syntax	@property NSInteger sendTimeout ;
Valid range	100 to 300000 (millisecond: ms) When the value is specified less than 100, the period is set to 100 ms. When the value is specified more than 300000, the period is set to 300000 ms.
Default	10000
Description	This property can get or set the timeout period regardless of whether isConnect is YES or NO. The set timeout period becomes effective at the next data sending.

receiveTimeout

Get/Set receive timeout period

Gets or sets the timeout period in receiving data.

Syntax	@property NSInteger receiveTimeout ;
Valid range	100 to 300000 (millisecond: ms) When the value is specified less than 100, the period is set to 100 ms. When the value is specified more than 300000, the period is set to 300000 ms.
Default	10000
Description	This property can get or set the timeout period regardless of whether isConnect is YES or NO. The set timeout period becomes effective at the next data receiving.

internationalCharacter

Get/Set international character set

Gets or sets the value of international character set.

Syntax	@property NSInteger internationalCharacter ;
Description	<p>See "4.2.1(3)⑤ International character set" for configurable constants. When an invalid value is specified, it is ignored.</p> <p>When this property is not set, the international character set is as follows depending on the language setting of iOS device.</p> <p>When the language setting of iOS device is Japanese: SII_PM_COUNTRY_JAPAN When the language setting of iOS device is other than Japanese: SII_PM_COUNTRY_USA</p> <p>When text data is sent by sendText, sendTextEx, sendDataFile, printPageModeText, or printPageModeTextEx, the print result of the following character codes varies. See "Appendix A Character Set" for details of the characters to be printed.</p> <p>Character codes with the varying print result depending on the configuration of the international character: 0x23, 0x24, 0x40, 0x5B, 0x5C, 0x5D, 0x5E, 0x60, 0x7B, 0x7C, 0x7D, 0x7E</p>

Gets or sets the value of codepage.

Syntax	<code>@property NSInteger codePage;</code>
Description	<p>See "4.2.1(3)⑥ Codepage" for configurable constants. When an invalid value is specified, it is ignored.</p> <p>When this property is not set, the codepage is as follows depending on the language setting of iOS device.</p> <p>When the language setting of iOS device is Japanese: <code>SHI_PM_CODE_PAGE_KATAKANA</code></p> <p>When the language setting of iOS device is other than Japanese: <code>SHI_PM_CODE_PAGE_1252</code></p> <p>The encoder used for sending the text data by <code>sendText</code>, <code>sendTextEx</code>, <code>sendDataFile</code>, <code>printPageModeText</code>, or <code>printPageModeTextEx</code> is changed. See "Appendix A Character Set" for characters to be printed.</p>

Gets the value of the connecting printer model.

Syntax	<code>@property(readonly) NSInteger printerModel;</code>
Default	-1
Return value	<p>See "4.2.1(3)① Printer model" for available constants.</p> <p>When <code>isConnect</code> is NO, -1 is returned.</p>

Gets the value of the port type used for connection with the printer.

Syntax	<code>@property(readonly) NSInteger portType;</code>
Default	-1
Return value	<p>See "4.2.1(3)② Port type" for available constants.</p> <p>When <code>isConnect</code> is NO, -1 is returned.</p>

Verifies connection state with the printer.

Syntax	<code>@property(readonly) BOOL isConnect;</code>
Return value	<p>YES Connected to the printer</p> <p>NO Not connected to the printer</p>
Description	<p>This property retains the <code>connect</code> state as a BOOL value.</p> <p>When <code>connect</code> succeeds, this property is YES. After <code>connect</code>, when <code>disconnect</code> succeeds, this property becomes NO.</p>

Gets or sets the socket keeping time.

Syntax	@property NSInteger socketKeepingTime ;
Valid range	60000 to 300000 (millisecond: ms) When the value is specified less than 60000, the time is set to 60000 ms. When the value is specified more than 300000, the time is set to 300000 ms.
Default	300000
Description	This property can get or set the socket keeping time regardless of whether isConnect is YES or NO. For the socket keeping time, specify a time equal to Receive Timeout of the printer to be connected. The setting of Receive Timeout can be changed in "SII Printer Utility" with the iOS app on the App Store. The set socket keeping time becomes effective at the next connect execution.

Registers a delegate object that receives notifications from the printer.

Syntax	@property(weak, nonatomic) id<SIIPrinterManagerDelegate> delegate ;
Description	Specify an object conforming to SIIPrinterManagerDelegate protocol. When this property is executed with the delegate object registered, the already registered delegate object becomes disabled, and a new delegate object is registered. When nil is specified for this property, the notification of the printer status is stopped.

4.2.2 SIIPrinterInfo Class

This class stores the printer information found by printer searching method. It gets the printer model name, MAC address, and IP address from the found printer information.

(1) Method List

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

Name	Description
SIIPrinterInfo	Constructor of the printer information class

(2) Property List

Properties provided by **SIIPrinterInfo** class are shown in the following table.

Name	Access	Description
name	R	Get printer model name
mac	R	Get MAC address
ip	R	Get IP address

(3) Method Details

SIIPrinterInfo	Constructor
-----------------------	--------------------

Syntax **SIIPrinterInfo**

Description This method stores the printer information found by **startDiscoveryPrinter**.

(4) Property Details

name	Get printer model name
------	------------------------

Syntax @property NSString ***name**;

Description This property gets the printer model name from the printer information found by **startDiscoveryPrinter**.

mac	Get MAC address
-----	-----------------

Syntax @property NSString ***mac**;

Description This property gets the MAC address from the printer information found by **startDiscoveryPrinter**.

ip	Get IP address
----	----------------

Syntax @property NSString ***ip**;

Description This property gets the IP address from the printer information found by **startDiscoveryPrinter**.

4.2.3 SIIPrinterException Class

(1) Method List

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

Name	Description
SIIPrinterException	Constructor

(2) Property List

Properties provided by **SIIPrinterException** class are shown in the following table.

Name	Access	Description
errorCode	R	Get error code
errorMessage	R	Get error message

(3) Constant List

① Error code

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

Constant Name	Description	Value
SII_PM_ERROR_ACCESS_DENIED	Failed to get the handle.*1	-1
	An unavailable port was specified.	
	An unsupported method was specified.	
SII_PM_ERROR_SHARING_VIOLATION	An already opened port was specified.	-11
SII_PM_ERROR_PORT_NOT_OPENED	The port is not open.	-12
SII_PM_ERROR_DEVICE_NOT_CONNECTED	There is a problem with the Bluetooth connection between the iOS device and the printer.	-21
SII_PM_ERROR_OFFLINE	Disconnected state or the printer is offline.	-22
SII_PM_ERROR_DEVICE_INITIALIZE_FAILED	Failed to change the printer settings. Data sending to the printer is not completed within the send timeout period, or data receiving from the printer is not completed within the receive timeout period.	-31
SII_PM_ERROR_DATA_SIZE_ZERO	0-byte data was specified.	-101
SII_PM_ERROR_OVER_MAX_DATA_SIZE	Maximum data size is exceeded.	-102
SII_PM_ERROR_ENCODE_FAILED	An error occurred in encoding text data.*1	-111
SII_PM_ERROR_TIMEOUT	Send timeout occurred.	-201
	Receive timeout occurred.	
SII_PM_ERROR_FILE_NOT_FOUND	The specified file is not found.	-301
SII_PM_ERROR_FILE_USED	The specified file is in use by another process.	-302
SII_PM_ERROR_FILE_INVALID	The specified file is invalid.	-303
SII_PM_ERROR_LOW_MEMORY	Memory shortage occurred when loading image file.	-311
SII_PM_ERROR_OVER_MAX_IMAGE	Either or both of width and height of image file exceeds the number of printable maximum dots.	-312
SII_PM_ERROR_LOGO_NOT_DEFINED	The logo is not registered.	-313
SII_PM_ERROR_LOW_USER_AREA	Remaining user area is insufficient.	-401
SII_PM_ERROR_LOW_EXTERNAL_RAM	Remaining RAM capacity is insufficient.	-402
SII_PM_ERROR_INVALID_NO	The specified value for the logo ID is invalid.	-501
SII_PM_ERROR_PAGE_MODE_SPECIFIED	Page mode is specified.	-511
SII_PM_ERROR_PAGE_MODE_NOT_SPECIFIED	Page mode is not specified.	-512
SII_PM_ERROR_INVALID_PARAM	The specified parameter is invalid.	-9999

*1: Abnormal processing might have occurred.

(4) Method Details

`SIIPrinterException`

Constructor

This is the exception class that is thrown when API of `SIIPrinterManager` class is called.

Syntax `SIIPrinterException`

(5) Property Details

`errorCode`

Get error code

Gets the error code of the thrown exception.

Syntax `@property NSInteger errorCode;`

Return value See "4.2.3(3) Constant List".

`errorMessage`

Get error message

Gets the error message of the thrown exception.

Syntax `@property NSString *errorMessage;`

Description A character string that supplements the contents of `errorCode` can be retrieved.

4.2.4 SIIPrinterManagerDelegate Protocol

(1) Method List

Methods provided by **SIIPrinterManagerDelegate** protocol are shown in the following table.

Name	Description
<code>didStatusChange</code>	Notify printer status

(NOTE) MP-B30/MP-B30L does not support the APIs of the barcode scanner.

(2) Method Details

didStatusChange Notify printer status

Notifies changes in the printer status.

```
Syntax      - (void) didStatusChange: (SIIPrinterManager *)printerManager
              status: (NSInteger)status;
```

Parameter	printerManager	Calling SIIPrinterManager object
	status	Printer status

Description	<p>This method is called the latest status at the following timing.</p> <ul style="list-style-type: none"> ·When connect is executed. ·When the printer status is changed.
-------------	---

This method is called when `isConnect` is YES.

The notification of the printer status is stopped by `disconnect`.

The notification of the printer status is stopped by setting nil to `delegate`.

When communication with the printer is disconnected, this method notifies 0x80000000. After disconnection from the printer, the library attempts to resume communication with the printer until **disconnect** is executed. When communication with the printer becomes possible, this method notifies the latest printer status. See **getStatus** for description of the printer status.

Do not execute the APIs of `SIIPrinterManager` within this method.

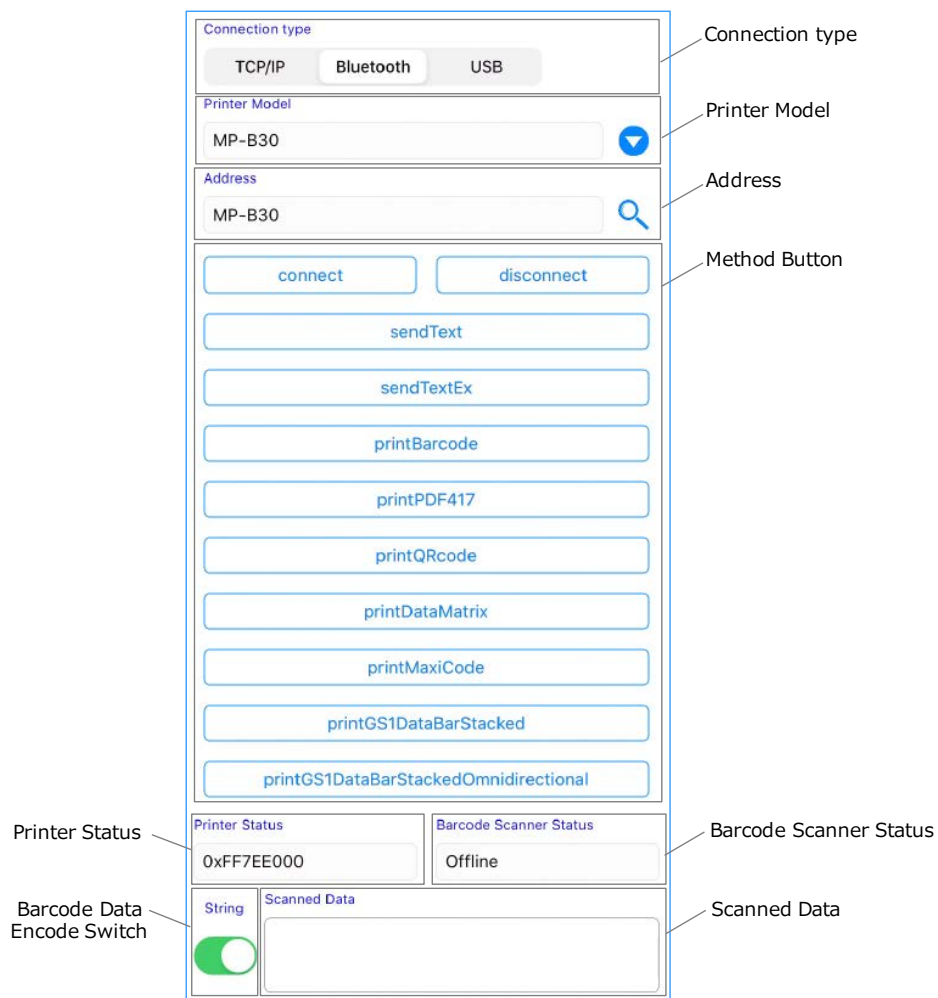
Chapter 5




Sample Program

This chapter describes the sample program provided by SII print class library using MP-B30 as an example.

5.1 Screen Layout

SII print class library includes SiiLibSample, a sample program in Xcode project format. This section describes the screen of SiiLibSample.



Item	Description
Connection type	Selects connection type to the printer.
Printer Model	Specifies the printer model. When tapping  , a list of printer models is displayed. By selecting from the list, the printer model can be entered.
Address	Used to specify the printer address. For Bluetooth connection: After tapping  , a list of paired Bluetooth device name is displayed. By selecting a Bluetooth device name from the list, the printer address can be selected. For TCP/IP connection: After tapping  , a list of the connectable printer IP address is displayed. By selecting a printer IP address from the list, the printer address can be selected.
Method Button	These buttons are for executing each method. In SiiLibSample, methods and properties of "4.1.1 SIIPrinterManager Class" are arranged. As the screen is scrolled, methods and properties not displayed can be seen. See "Chapter 4 Functions of the Library" for details of each method.
Printer Status	Displays the printer status. When connect succeeds, the latest status is displayed.
Barcode Scanner Status	Displays the connection status of the barcode scanner. MP-B30/MP-B30L does not support the barcode scanner.
Barcode Data Encode Switch	Selects the barcode data encoded by the barcode scanner. MP-B30/MP-B30L does not support the barcode scanner.
Scanned Data	Displays the barcode data scanned through the barcode scanner. MP-B30/MP-B30L does not support the barcode scanner.

5.2 Precaution

The sample program is subject to change without notice.

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

Appendix A

Character Set

A.1 Codepage Table (Character Code Table)

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

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

Figure A-1 SII_PM_CODE_PAGE_437 (USA, Standard Europe)

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

Figure A-2 SH_PM_CODE_PAGE_KATAKANA

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

Figure A-3 SH_PM_CODE_PAGE_850 (Multilingual)

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

Figure A-4 SII_PM_CODE_PAGE_860 (Portuguese)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
80	Ç	ü	é	â	Â	à	¶	ç	ê	ë	è	ï	î	≡	À	§
90	É	È	Ê	ô	Ë	Ï	Ô	Ù	⊗	Ô	Ü	¢	£	Ù	û	f
A0	í	´	ó	ú	¨	³	-	î	¬	¬	½	¼	¾	«	»	
B0	⌘	⌘	⌘													
C0	L	L	T		-	+	+	+	+	+	+	+	+	+	+	+
D0	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
E0	α	β	Γ	π	Σ	σ	μ	τ	φ	θ	Ω	δ	∞	φ	ε	Π
F0	≡	±	≥	≤		J	÷	≈	°	•	•	√	n	2	■	

Figure A-5 SII_PM_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	â	ç	ê	ë	è	ï	î	ï	Ä	Å
90	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	Pt	f
A0	á	í	ó	ú	ñ	Ñ	ä	ö	í	í	½	¼	í	«	»	
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	≡	±	≥	≤		J	÷	≈	°	.	.	√	n	2	■	

Figure A-6 SII_PM_CODE_PAGE_865 (Nordic)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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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	ï	Ä	Å
90	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	Ş	ş
A0	á	í	ó	ú	ñ	Ñ	Ğ	ğ	ı	®	¬	½	¼	ı	«	»
B0	☐	☐	☐			Á	Â	À	©							
C0	L	L	T	T	T	ã	Ã	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌	⌌
D0	o	a	Ê	Ë	È	Í	Î	İ	J	Γ	■	■	■	■	■	■
E0	ó	β	ô	ò	õ	Ö	μ	×	ú	û	ü	ì	ÿ	-	'	
F0	-	±	¾	¶	§	÷	,	°	..	.	1	3	2	■		

Figure A-7 SII_PM_CODE_PAGE_857 (Turkish)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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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	A	B	Γ	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O	Π
90	P	Σ	T	Υ	Φ	X	Ψ	Ω	α	β	γ	δ	ε	ζ	η	θ
A0	ι	κ	λ	μ	ν	ξ	ο	π	ρ	σ	ς	τ	υ	φ	χ	ψ
B0	⋈	⋈	⋈		†	‡		π	‡			π			‡	‡
C0	L	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
D0	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
E0	ω	ά	έ	ή	ϊ	ί	ό	ύ	ϋ	ώ	Ά	Έ	Ή	Ί	Ό	Υ
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Figure A-8 SHI_PM_CODE_PAGE_737 (Greek)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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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
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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
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Figure A-9 SHI_PM_CODE_PAGE_1252 (Latin)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
80	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
90	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A0	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B0	␣	␣	␣													
C0	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣
D0	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣
E0	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
F0	Ё	ё	Є	є	İ	ı	Ÿ	ÿ	°	•	•	√	№	α	■	

Figure A-10 SII_PM_CODE_PAGE_866 (Russian)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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50	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
80	Ç	ü	é	â	ä	û	ç	ł	ë	ő	ö	î	ž	Ä	Ć	
90	É	Í	í	ô	ö	Ĺ	ĺ	Š	š	Ö	Ü	ř	ť	Ł	×	č
A0	á	í	ó	ú	À	à	Ž	ž	Ę	ę	¬	ž	Č	š	«	»
B0	␣	␣	␣			Á	Â	Ě	Š					ž	ž	
C0	␣	␣	␣	␣	␣	Ā	ā	Ľ	ľ	␣	␣	␣	␣	␣	␣	␣
D0	đ	Đ	Ď	Ě	ď	Ň	í	î	ě	Ĵ	␣	␣	␣	␣	␣	␣
E0	ó	ß	ô	ń	ň	š	š	ř	ú	ř	Ů	ý	Ý	ť	'	
F0	-	"	˘	˘	˘	§	÷	˚	˚	˚	Ů	Ř	ř	■		

Figure A-11 SII_PM_CODE_PAGE_852 (Eastern Europe)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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50	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
80	Ç	ü	é	â	ä	à	â	ç	ê	ë	è	ï	î	ì	Ä	Å
90	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	f
A0	á	í	ó	ú	ñ	Ñ	ä	ö	¿	®	¬	½	¼	¡	«	»
B0	☐	☐	☐			Á	Â	Ã	©	¶	¶	¶	¶	¶	¥	₱
C0	L	⊥	T	└	└	└	ã	Ã	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	α
D0	ð	Ð	Ê	Ë	È	€	Í	Î	Ï	Ј	Г	■	■	■	■	■
E0	ó	β	ô	ò	õ	õ	μ	þ	þ	ú	û	ü	ý	ý	-	'
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Figure A-12 SII_PM_CODE_PAGE_858 (Euro)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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50	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
80	ђ	Ђ	ѓ	Ѓ	ё	Ё	є	Є	ѕ	Ѕ	і	І	ї	Ї	ј	Ј
90	љ	Љ	њ	Њ	ћ	Ћ	ќ	Ќ	џ	Џ	џ	џ	џ	џ	џ	џ
A0	а	А	б	Б	в	В	г	Г	д	Д	е	Е	ф	Ф	г	Г
B0	☐	☐	☐			x	X	и	И	¶	¶	¶	¶	¶	¶	¶
C0	L	⊥	T	└	└	└	к	К	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	α
D0	л	Л	м	М	н	Н	о	О	п	П	г	■	■	■	■	■
E0	я	Р	р	с	С	т	Т	у	У	ж	Ж	в	В	ь	ь	№
F0	-	ы	Ы	э	Э	ш	Ш	э	Э	щ	Щ	ч	Ч	§		■

Figure A-13 SII_PM_CODE_PAGE_855 (Cyrillic)

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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	ش	ص	ض	ظ
C0	¢	ء	آ	أ	ؤ	ع	ئ	ب	ا	ث	ة	ج	ح	خ	د	ذ
D0	ذ	ر	ز	س	ش	ص	ض	ط	ظ	ع	غ	ف	ق	ك	م	ن
E0	-	ف	ق	ك	م	ن	ه	و	ي	ض	ع	غ	ف	ق	ك	م
F0	-	ن	ه	و	ي	ض	ع	غ	ف	ق	ك	م	ن	ه	و	ي

Figure A-14 SII_PM_CODE_PAGE_864 (Arabic)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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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	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘
A0	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘
B0	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘
C0	Á	Á	Á	Á	Á	Á	Á	Á	Á	Á	Á	Á	Á	Á	Á	Á
D0	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ
E0	á	á	á	á	á	á	á	á	á	á	á	á	á	á	á	á
F0	đ	đ	đ	đ	đ	đ	đ	đ	đ	đ	đ	đ	đ	đ	đ	đ

Figure A-15 SII_PM_CODE_PAGE_1250 (Central European)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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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	Ѡ	ѡ	Ѣ	ѣ	Ѥ	ѥ	Ѧ	ѧ	Ѩ	ѩ	Ѫ	ѫ	Ѭ	ѭ	Ѯ	ѯ
90	Ѱ	ѱ	Ѳ	ѳ	Ѵ	ѵ	Ѷ	ѷ	Ѹ	ѹ	Ѻ	ѻ	Ѽ	ѽ	Ѿ	ѿ
A0	Ѡ	ѡ	Ѣ	ѣ	Ѥ	ѥ	Ѧ	ѧ	Ѩ	ѩ	Ѫ	ѫ	Ѭ	ѭ	Ѯ	ѯ
B0	Ѱ	ѱ	Ѳ	ѳ	Ѵ	ѵ	Ѷ	ѷ	Ѹ	ѹ	Ѻ	ѻ	Ѽ	ѽ	Ѿ	ѿ
C0	Ѡ	ѡ	Ѣ	ѣ	Ѥ	ѥ	Ѧ	ѧ	Ѩ	ѩ	Ѫ	ѫ	Ѭ	ѭ	Ѯ	ѯ
D0	Ѱ	ѱ	Ѳ	ѳ	Ѵ	ѵ	Ѷ	ѷ	Ѹ	ѹ	Ѻ	ѻ	Ѽ	ѽ	Ѿ	ѿ
E0	Ѡ	ѡ	Ѣ	ѣ	Ѥ	ѥ	Ѧ	ѧ	Ѩ	ѩ	Ѫ	ѫ	Ѭ	ѭ	Ѯ	ѯ
F0	Ѱ	ѱ	Ѳ	ѳ	Ѵ	ѵ	Ѷ	ѷ	Ѹ	ѹ	Ѻ	ѻ	Ѽ	ѽ	Ѿ	ѿ

Figure A-16 SH_PM_CODE_PAGE_1251 (Cyrillic)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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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	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î
B0	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C0	ı	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
D0	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	İ	ÿ	á	â	ã	ä	å
E0	â	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	ï	ÿ	ó	ô	õ	ö

Figure A-17 SH_PM_CODE_PAGE_1253 (Greek)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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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	ϕ	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	¯	
B0	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C0	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D0	Ğ	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	İ	Ş	ß
E0	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F0	ğ	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ı	ş	ÿ

Figure A-18 SII_PM_CODE_PAGE_1254 (Turkish)

A.2 International Character Set

Print results of the specific character codes vary depending on the setting of the international character set. The following table shows the specific character codes and their print results.

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

Figure A-19 International Character Set

Appendix B

Barcode Size List

B.1 Barcode Size List

B.1.1 `printBarcode`, `printPageModeBarcode`



(1) Height of the barcode image

hriFont	hriPosition	Length from Top of Barcode to Reference Point	Height of Barcode Image
SII_PM_FONT_A	SII_PM_HRI_NONE	moduleHeight	moduleHeight
	SII_PM_HRI_POSITION_ABOVE	moduleHeight + 32	moduleHeight + 32
	SII_PM_HRI_POSITION_BELOW	moduleHeight	moduleHeight + 32
	SII_PM_HRI_POSITION_ABOVE_BELOW	moduleHeight + 64	moduleHeight + 64
SII_PM_FONT_B	SII_PM_HRI_NONE	moduleHeight	moduleHeight
	SII_PM_HRI_POSITION_ABOVE	moduleHeight + 24	moduleHeight + 24
	SII_PM_HRI_POSITION_BELOW	moduleHeight	moduleHeight + 24
	SII_PM_HRI_POSITION_ABOVE_BELOW	moduleHeight + 48	moduleHeight + 48

(2) Width of the barcode image

barcodeSymbol	moduleSize	Width of Barcode Image
SII_PM_BARCODE_UPC_A	SII_PM_BARCODE_MODULE_WIDTH_2	190
	SII_PM_BARCODE_MODULE_WIDTH_3	285
	SII_PM_BARCODE_MODULE_WIDTH_4	380
	SII_PM_BARCODE_MODULE_WIDTH_5	475
	SII_PM_BARCODE_MODULE_WIDTH_6	570
SII_PM_BARCODE_UPC_E	SII_PM_BARCODE_MODULE_WIDTH_2	102
	SII_PM_BARCODE_MODULE_WIDTH_3	153
	SII_PM_BARCODE_MODULE_WIDTH_4	204
	SII_PM_BARCODE_MODULE_WIDTH_5	255
	SII_PM_BARCODE_MODULE_WIDTH_6	306
SII_PM_BARCODE_EAN13	SII_PM_BARCODE_MODULE_WIDTH_2	190
	SII_PM_BARCODE_MODULE_WIDTH_3	285
	SII_PM_BARCODE_MODULE_WIDTH_4	380
	SII_PM_BARCODE_MODULE_WIDTH_5	475
	SII_PM_BARCODE_MODULE_WIDTH_6	570
SII_PM_BARCODE_JAN13	SII_PM_BARCODE_MODULE_WIDTH_2	190
	SII_PM_BARCODE_MODULE_WIDTH_3	285
	SII_PM_BARCODE_MODULE_WIDTH_4	380
	SII_PM_BARCODE_MODULE_WIDTH_5	475
	SII_PM_BARCODE_MODULE_WIDTH_6	570
SII_PM_BARCODE_EAN8	SII_PM_BARCODE_MODULE_WIDTH_2	134
	SII_PM_BARCODE_MODULE_WIDTH_3	201
	SII_PM_BARCODE_MODULE_WIDTH_4	268
	SII_PM_BARCODE_MODULE_WIDTH_5	335
	SII_PM_BARCODE_MODULE_WIDTH_6	402
SII_PM_BARCODE_JAN8	SII_PM_BARCODE_MODULE_WIDTH_2	134
	SII_PM_BARCODE_MODULE_WIDTH_3	201
	SII_PM_BARCODE_MODULE_WIDTH_4	268
	SII_PM_BARCODE_MODULE_WIDTH_5	335
	SII_PM_BARCODE_MODULE_WIDTH_6	402
SII_PM_BARCODE_CODE93	SII_PM_BARCODE_MODULE_WIDTH_2	$18 \times \text{number of barcode data} + 56$
	SII_PM_BARCODE_MODULE_WIDTH_3	$27 \times \text{number of barcode data} + 84$
	SII_PM_BARCODE_MODULE_WIDTH_4	$36 \times \text{number of barcode data} + 112$
	SII_PM_BARCODE_MODULE_WIDTH_5	$45 \times \text{number of barcode data} + 140$
	SII_PM_BARCODE_MODULE_WIDTH_6	$54 \times \text{number of barcode data} + 168$
SII_PM_BARCODE_CODE128	SII_PM_BARCODE_MODULE_WIDTH_2	$22 \times \text{number of barcode data} + 26$
	SII_PM_BARCODE_MODULE_WIDTH_3	$33 \times \text{number of barcode data} + 39$
	SII_PM_BARCODE_MODULE_WIDTH_4	$44 \times \text{number of barcode data} + 52$
	SII_PM_BARCODE_MODULE_WIDTH_5	$55 \times \text{number of barcode data} + 65$
	SII_PM_BARCODE_MODULE_WIDTH_6	$66 \times \text{number of barcode data} + 78$

barcodeSymbol	moduleSize	Width of Barcode Image
SII_PM_BARCODE_ GS1_OMNI_DIRECTIONAL	SII_PM_BARCODE_MODULE_WIDTH_2	192
	SII_PM_BARCODE_MODULE_WIDTH_3	288
	SII_PM_BARCODE_MODULE_WIDTH_4	384
	SII_PM_BARCODE_MODULE_WIDTH_5	480
	SII_PM_BARCODE_MODULE_WIDTH_6	576
SII_PM_BARCODE_ GS1_TRUNCATED	SII_PM_BARCODE_MODULE_WIDTH_2	192
	SII_PM_BARCODE_MODULE_WIDTH_3	288
	SII_PM_BARCODE_MODULE_WIDTH_4	384
	SII_PM_BARCODE_MODULE_WIDTH_5	480
	SII_PM_BARCODE_MODULE_WIDTH_6	576
SII_PM_BARCODE_ GS1_LIMITED	SII_PM_BARCODE_MODULE_WIDTH_2	158
	SII_PM_BARCODE_MODULE_WIDTH_3	237
	SII_PM_BARCODE_MODULE_WIDTH_4	316
	SII_PM_BARCODE_MODULE_WIDTH_5	395
	SII_PM_BARCODE_MODULE_WIDTH_6	474
SII_PM_BARCODE_ GS1_EXPANDED* ¹	SII_PM_BARCODE_MODULE_WIDTH_2	number of barcode module × 2
	SII_PM_BARCODE_MODULE_WIDTH_3	number of barcode module × 3
	SII_PM_BARCODE_MODULE_WIDTH_4	number of barcode module × 4
	SII_PM_BARCODE_MODULE_WIDTH_5	number of barcode module × 5
	SII_PM_BARCODE_MODULE_WIDTH_6	number of barcode module × 6

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

barcodeSymbol	nwRatio	moduleSize	Width of Barcode Image
SII_PM_BARCODE_CODE39	SII_PM_NWRATIO_1TO2	SII_PM_BARCODE_MODULE_WIDTH_2	26 × number of barcode data + 50
		SII_PM_BARCODE_MODULE_WIDTH_3	39 × number of barcode data + 75
		SII_PM_BARCODE_MODULE_WIDTH_4	52 × number of barcode data + 100
		SII_PM_BARCODE_MODULE_WIDTH_5	65 × number of barcode data + 125
		SII_PM_BARCODE_MODULE_WIDTH_6	78 × number of barcode data + 150
	SII_PM_NWRATIO_1TO2_5	SII_PM_BARCODE_MODULE_WIDTH_2	29 × number of barcode data + 56
		SII_PM_BARCODE_MODULE_WIDTH_3	45 × number of barcode data + 87
		SII_PM_BARCODE_MODULE_WIDTH_4	58 × number of barcode data + 112
		SII_PM_BARCODE_MODULE_WIDTH_5	74 × number of barcode data + 143
		SII_PM_BARCODE_MODULE_WIDTH_6	87 × number of barcode data + 168
	SII_PM_NWRATIO_1TO3	SII_PM_BARCODE_MODULE_WIDTH_2	32 × number of barcode data + 62
		SII_PM_BARCODE_MODULE_WIDTH_3	48 × number of barcode data + 93
		SII_PM_BARCODE_MODULE_WIDTH_4	64 × number of barcode data + 124
		SII_PM_BARCODE_MODULE_WIDTH_5	80 × number of barcode data + 155
		SII_PM_BARCODE_MODULE_WIDTH_6	96 × number of barcode data + 186
SII_PM_BARCODE_ITF	SII_PM_NWRATIO_1TO2	SII_PM_BARCODE_MODULE_WIDTH_2	14 × number of barcode data + 16
		SII_PM_BARCODE_MODULE_WIDTH_3	21 × number of barcode data + 24
		SII_PM_BARCODE_MODULE_WIDTH_4	28 × number of barcode data + 32
		SII_PM_BARCODE_MODULE_WIDTH_5	35 × number of barcode data + 40
		SII_PM_BARCODE_MODULE_WIDTH_6	42 × number of barcode data + 48
	SII_PM_NWRATIO_1TO2_5	SII_PM_BARCODE_MODULE_WIDTH_2	16 × number of barcode data + 17
		SII_PM_BARCODE_MODULE_WIDTH_3	25 × number of barcode data + 26
		SII_PM_BARCODE_MODULE_WIDTH_4	32 × number of barcode data + 34

barcodeSymbol	nwRatio	moduleSize	Width of Barcode Image
SII_PM_BARCODE_ITF	SII_PM_NWRATIO_1TO2_5	SII_PM_BARCODE_MODULE_WIDTH_5	41 × number of barcode data + 43
		SII_PM_BARCODE_MODULE_WIDTH_6	48 × number of barcode data + 51
	SII_PM_NWRATIO_1TO3	SII_PM_BARCODE_MODULE_WIDTH_2	18 × number of barcode data + 18
		SII_PM_BARCODE_MODULE_WIDTH_3	27 × number of barcode data + 27
		SII_PM_BARCODE_MODULE_WIDTH_4	36 × number of barcode data + 36
		SII_PM_BARCODE_MODULE_WIDTH_5	45 × number of barcode data + 45
SII_PM_BARCODE_CODABAR*1	SII_PM_NWRATIO_1TO2	SII_PM_BARCODE_MODULE_WIDTH_2	20 × number of data + 2 × (2 + number of wide data) - 2
		SII_PM_BARCODE_MODULE_WIDTH_3	30 × number of data + 3 × (2 + number of wide data) - 3
		SII_PM_BARCODE_MODULE_WIDTH_4	40 × number of data + 4 × (2 + number of wide data) - 4
		SII_PM_BARCODE_MODULE_WIDTH_5	50 × number of data + 5 × (2 + number of wide data) - 5
		SII_PM_BARCODE_MODULE_WIDTH_6	60 × number of data + 6 × (2 + number of wide data) - 6
	SII_PM_NWRATIO_1TO2_5	SII_PM_BARCODE_MODULE_WIDTH_2	22 × number of data + 3 × (2 + number of wide data) - 2
		SII_PM_BARCODE_MODULE_WIDTH_3	34 × number of data + 5 × (2 + number of wide data) - 3
		SII_PM_BARCODE_MODULE_WIDTH_4	44 × number of data + 6 × (2 + number of wide data) - 4
		SII_PM_BARCODE_MODULE_WIDTH_5	56 × number of data + 8 × (2 + number of wide data) - 5
		SII_PM_BARCODE_MODULE_WIDTH_6	66 × number of data + 9 × (2 + number of wide data) - 6
	SII_PM_NWRATIO_1TO3	SII_PM_BARCODE_MODULE_WIDTH_2	24 × number of data + 4 × (2 + number of wide data) - 2
		SII_PM_BARCODE_MODULE_WIDTH_3	36 × number of data + 6 × (2 + number of wide data) - 3
		SII_PM_BARCODE_MODULE_WIDTH_4	48 × number of data + 8 × (2 + number of wide data) - 4
		SII_PM_BARCODE_MODULE_WIDTH_5	60 × number of data + 10 × (2 + number of wide data) - 5
		SII_PM_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 " : / . +".

barcodeSymbol	Number of Data	moduleSize	Width of Barcode Image
SII_PM_BARCODE_EAN13_ADDON	14 or 15	SII_PM_BARCODE_MODULE_WIDTH_2	244
		SII_PM_BARCODE_MODULE_WIDTH_3	366
		SII_PM_BARCODE_MODULE_WIDTH_4	488
		SII_PM_BARCODE_MODULE_WIDTH_5	610
		SII_PM_BARCODE_MODULE_WIDTH_6	732
	17 or 18	SII_PM_BARCODE_MODULE_WIDTH_2	298
		SII_PM_BARCODE_MODULE_WIDTH_3	447
		SII_PM_BARCODE_MODULE_WIDTH_4	596
		SII_PM_BARCODE_MODULE_WIDTH_5	745
		SII_PM_BARCODE_MODULE_WIDTH_6	894
SII_PM_BARCODE_JAN13_ADDON	14 or 15	SII_PM_BARCODE_MODULE_WIDTH_2	244
		SII_PM_BARCODE_MODULE_WIDTH_3	366
		SII_PM_BARCODE_MODULE_WIDTH_4	488
		SII_PM_BARCODE_MODULE_WIDTH_5	610
		SII_PM_BARCODE_MODULE_WIDTH_6	732
	17 or 18	SII_PM_BARCODE_MODULE_WIDTH_2	298
		SII_PM_BARCODE_MODULE_WIDTH_3	447
		SII_PM_BARCODE_MODULE_WIDTH_4	596
		SII_PM_BARCODE_MODULE_WIDTH_5	745
		SII_PM_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: row ≠ 0

(2) Width of the barcode image

When pdf417Symol is **SII_PM_PDF417_STANDARD**:

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

*1: column ≠ 0

When pdf417Symol is **SII_PM_PDF417_COMPACT**:

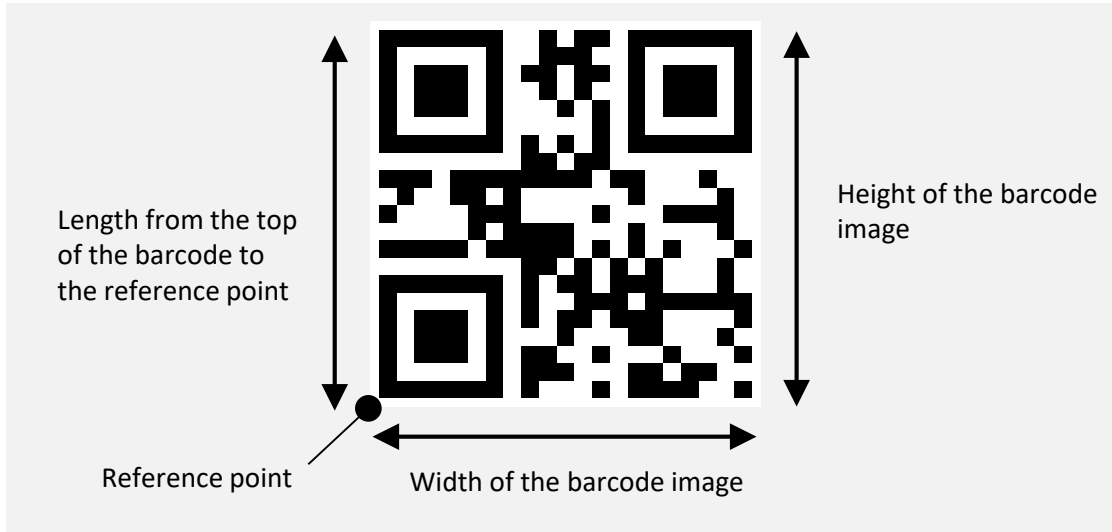
$$\text{Width of the barcode image} = (17 \times \text{column}^{*1} + 35) \times \text{module size value}$$

*1: column ≠ 0

Module Size Value

moduleSize	Module Size Value
SII_PM_PDF417_MODULE_WIDTH_2	2
SII_PM_PDF417_MODULE_WIDTH_3	3
SII_PM_PDF417_MODULE_WIDTH_4	4
SII_PM_PDF417_MODULE_WIDTH_5	5
SII_PM_PDF417_MODULE_WIDTH_6	6
SII_PM_PDF417_MODULE_WIDTH_7	7
SII_PM_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 = $(4 \times \text{version}^{*2} + 17) \times \text{module size value}$

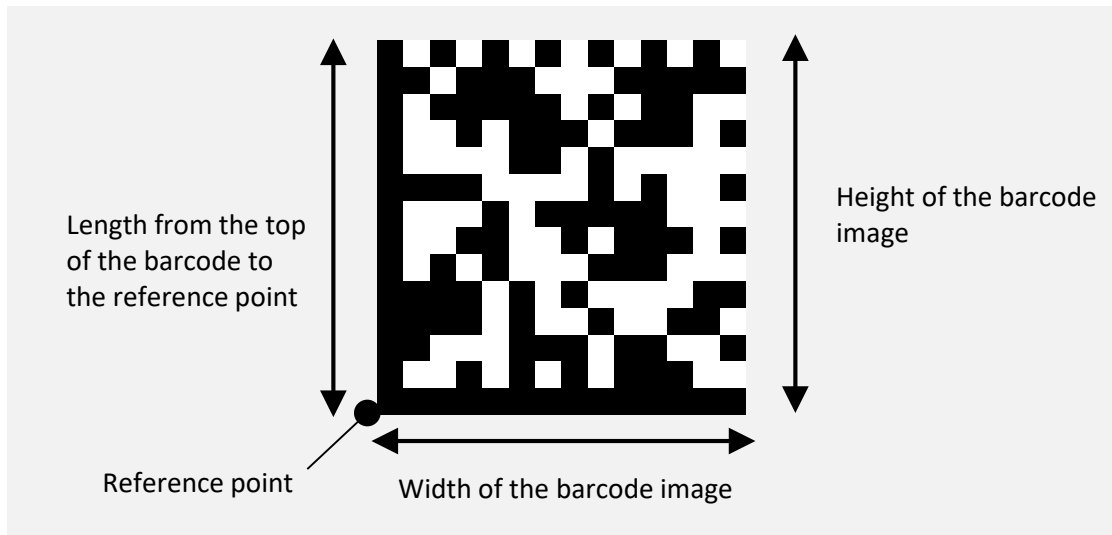
*1: Height of the barcode image = Length from the top of the barcode to the reference point

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

Module Size Value

moduleSize	Module Size Value
SII_PM_QR_MODULE_SIZE_2	2
SII_PM_QR_MODULE_SIZE_3	3
SII_PM_QR_MODULE_SIZE_4	4
SII_PM_QR_MODULE_SIZE_5	5
SII_PM_QR_MODULE_SIZE_6	6
SII_PM_QR_MODULE_SIZE_7	7
SII_PM_QR_MODULE_SIZE_8	8
SII_PM_QR_MODULE_SIZE_9	9
SII_PM_QR_MODULE_SIZE_10	10
SII_PM_QR_MODULE_SIZE_11	11
SII_PM_QR_MODULE_SIZE_12	12
SII_PM_QR_MODULE_SIZE_13	13
SII_PM_QR_MODULE_SIZE_14	14
SII_PM_QR_MODULE_SIZE_15	15
SII_PM_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

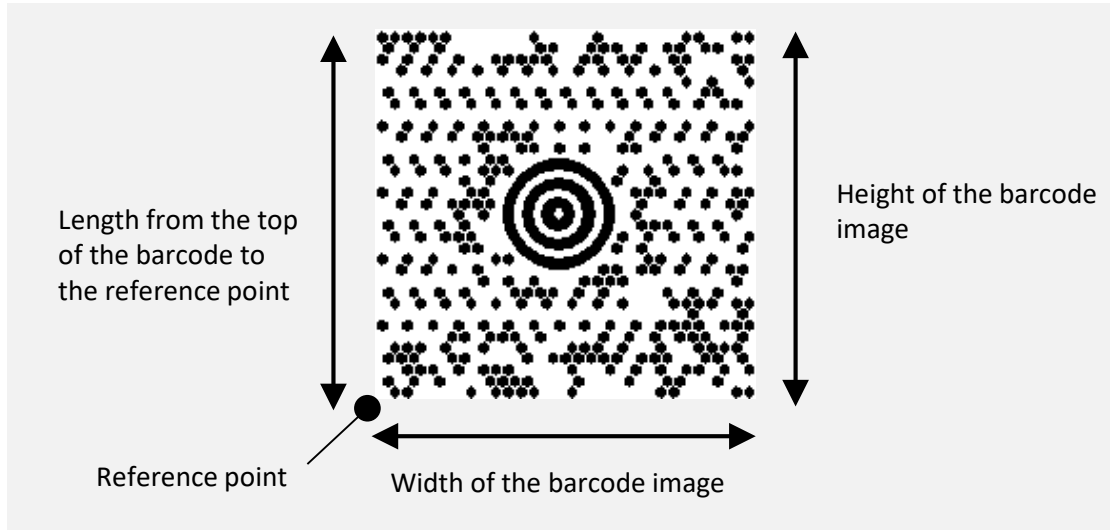
dataMatrixModule	Number of Vertical Module	Number of Horizontal Module
SII_PM_DATA_MATRIX_10_10	10	10
SII_PM_DATA_MATRIX_12_12	12	12
SII_PM_DATA_MATRIX_14_14	14	14
SII_PM_DATA_MATRIX_16_16	16	16
SII_PM_DATA_MATRIX_18_18	18	18
SII_PM_DATA_MATRIX_20_20	20	20
SII_PM_DATA_MATRIX_22_22	22	22
SII_PM_DATA_MATRIX_24_24	23	23
SII_PM_DATA_MATRIX_26_26	26	26
SII_PM_DATA_MATRIX_32_32	32	32
SII_PM_DATA_MATRIX_36_36	36	36
SII_PM_DATA_MATRIX_40_40	40	40
SII_PM_DATA_MATRIX_44_44	44	44
SII_PM_DATA_MATRIX_48_48	48	48
SII_PM_DATA_MATRIX_52_52	52	52
SII_PM_DATA_MATRIX_64_64	64	64
SII_PM_DATA_MATRIX_72_72	72	72
SII_PM_DATA_MATRIX_80_80	80	80
SII_PM_DATA_MATRIX_88_88	88	88
SII_PM_DATA_MATRIX_96_96	96	96
SII_PM_DATA_MATRIX_104_104	104	104
SII_PM_DATA_MATRIX_120_120	120	120

dataMatrixModule	Number of Vertical Module	Number of Horizontal Module
SII_PM_DATA_MATRIX_132_132	132	132
SII_PM_DATA_MATRIX_144_144	144	144
SII_PM_DATA_MATRIX_8_18	8	18
SII_PM_DATA_MATRIX_8_32	8	32
SII_PM_DATA_MATRIX_12_26	12	26
SII_PM_DATA_MATRIX_12_36	12	36
SII_PM_DATA_MATRIX_16_36	16	36
SII_PM_DATA_MATRIX_16_48	16	48

Module Size Value

moduleSize	Module Size Value
SII_PM_DATAMATRIX_MODULE_SIZE_2	2
SII_PM_DATAMATRIX_MODULE_SIZE_3	3
SII_PM_DATAMATRIX_MODULE_SIZE_4	4
SII_PM_DATAMATRIX_MODULE_SIZE_5	5
SII_PM_DATAMATRIX_MODULE_SIZE_6	6
SII_PM_DATAMATRIX_MODULE_SIZE_7	7
SII_PM_DATAMATRIX_MODULE_SIZE_8	8
SII_PM_DATAMATRIX_MODULE_SIZE_9	9
SII_PM_DATAMATRIX_MODULE_SIZE_10	10
SII_PM_DATAMATRIX_MODULE_SIZE_11	11
SII_PM_DATAMATRIX_MODULE_SIZE_12	12
SII_PM_DATAMATRIX_MODULE_SIZE_13	13
SII_PM_DATAMATRIX_MODULE_SIZE_14	14
SII_PM_DATAMATRIX_MODULE_SIZE_15	15
SII_PM_DATAMATRIX_MODULE_SIZE_16	16

B.1.5 printMaxicode, printPageModeMaxicode



(1) Height of the barcode image

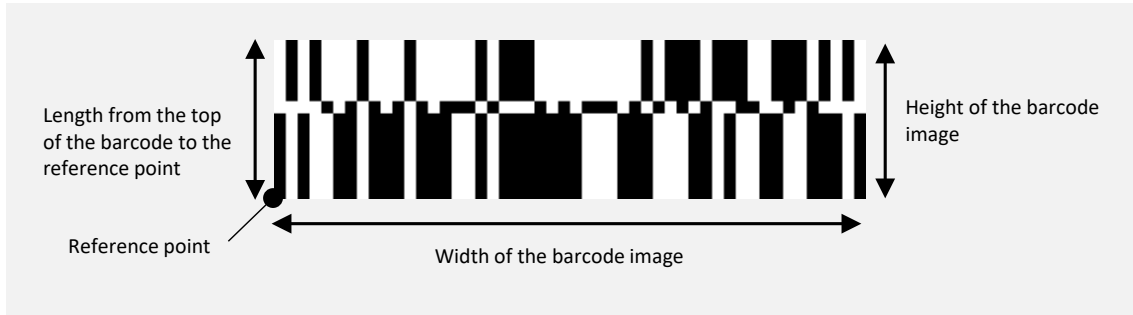
Height of the barcode image*1 = 200

*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 = $13 \times \text{module size value}$

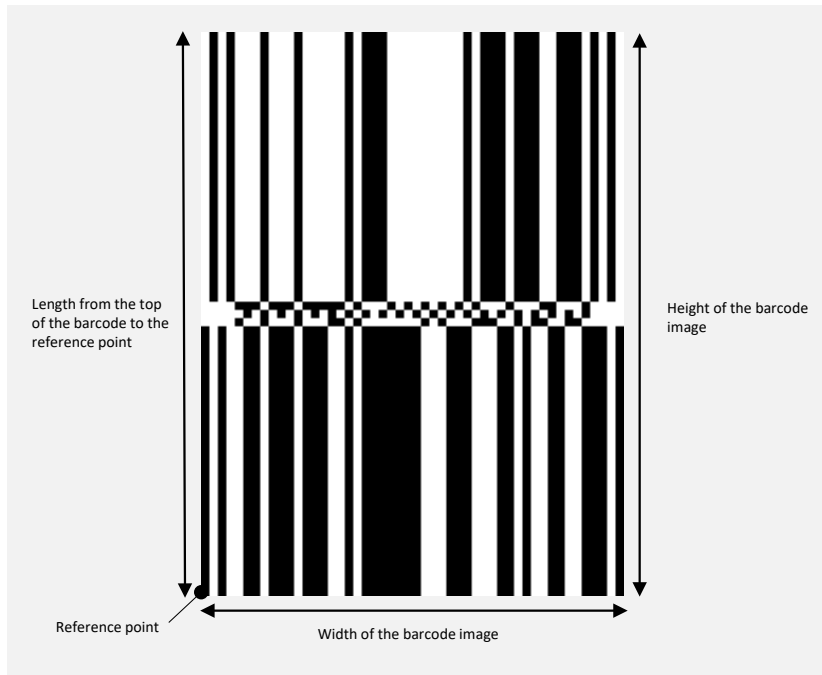
*1: Height of the barcode image = Length from the top of the barcode to the reference point

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

Module Size Value

moduleSize	Module Size Value
SII_PM_GS1DATABAR_MODULE_SIZE_2	2
SII_PM_GS1DATABAR_MODULE_SIZE_3	3
SII_PM_GS1DATABAR_MODULE_SIZE_4	4
SII_PM_GS1DATABAR_MODULE_SIZE_5	5
SII_PM_GS1DATABAR_MODULE_SIZE_6	6
SII_PM_GS1DATABAR_MODULE_SIZE_7	7
SII_PM_GS1DATABAR_MODULE_SIZE_8	8
SII_PM_GS1DATABAR_MODULE_SIZE_9	9
SII_PM_GS1DATABAR_MODULE_SIZE_10	10
SII_PM_GS1DATABAR_MODULE_SIZE_11	11
SII_PM_GS1DATABAR_MODULE_SIZE_12	12
SII_PM_GS1DATABAR_MODULE_SIZE_13	13
SII_PM_GS1DATABAR_MODULE_SIZE_14	14
SII_PM_GS1DATABAR_MODULE_SIZE_15	15
SII_PM_GS1DATABAR_MODULE_SIZE_16	16

B.1.7 `printGS1DataBarStackedOmnidirectional,`
`printPageModeGS1DataBarStackedOmnidirectional`



(1) Height and width of the barcode image

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

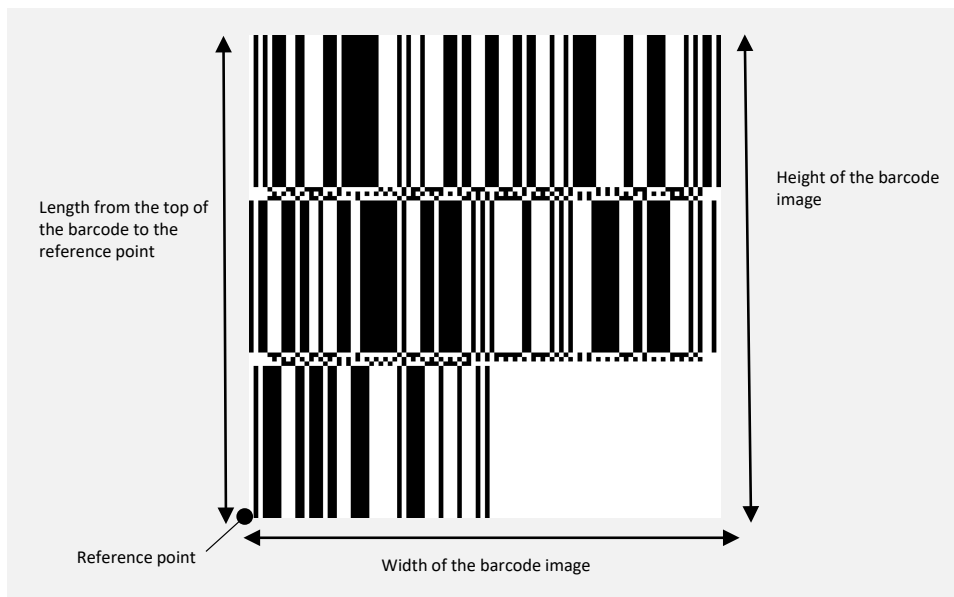
*1: Height of the barcode image = Length from the top of the barcode to the reference point

Width of the barcode image = 50 × module size value

Module Size Value

moduleSize	Module Size Value
SII_PM_GS1DATABAR_MODULE_SIZE_2	2
SII_PM_GS1DATABAR_MODULE_SIZE_3	3
SII_PM_GS1DATABAR_MODULE_SIZE_4	4
SII_PM_GS1DATABAR_MODULE_SIZE_5	5
SII_PM_GS1DATABAR_MODULE_SIZE_6	6
SII_PM_GS1DATABAR_MODULE_SIZE_7	7
SII_PM_GS1DATABAR_MODULE_SIZE_8	8
SII_PM_GS1DATABAR_MODULE_SIZE_9	9
SII_PM_GS1DATABAR_MODULE_SIZE_10	10
SII_PM_GS1DATABAR_MODULE_SIZE_11	11
SII_PM_GS1DATABAR_MODULE_SIZE_12	12
SII_PM_GS1DATABAR_MODULE_SIZE_13	13
SII_PM_GS1DATABAR_MODULE_SIZE_14	14
SII_PM_GS1DATABAR_MODULE_SIZE_15	15
SII_PM_GS1DATABAR_MODULE_SIZE_16	16

B.1.8 `printGS1DataBarExpandedStacked,`
`printPageModeGS1DataBarExpandedStacked`



(1) Height and width of the barcode image

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

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

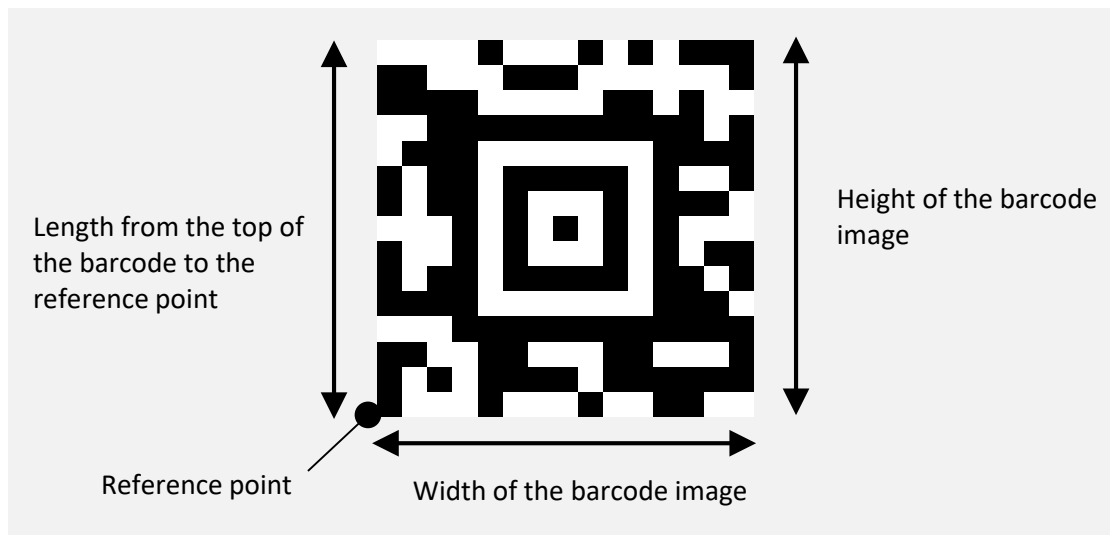
*2: The number of row is determined by the barcode data.

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

Module Size Value

moduleSize	Module Size Value
SII_PM_GS1DATABAR_MODULE_SIZE_2	2
SII_PM_GS1DATABAR_MODULE_SIZE_3	3
SII_PM_GS1DATABAR_MODULE_SIZE_4	4
SII_PM_GS1DATABAR_MODULE_SIZE_5	5
SII_PM_GS1DATABAR_MODULE_SIZE_6	6
SII_PM_GS1DATABAR_MODULE_SIZE_7	7
SII_PM_GS1DATABAR_MODULE_SIZE_8	8
SII_PM_GS1DATABAR_MODULE_SIZE_9	9
SII_PM_GS1DATABAR_MODULE_SIZE_10	10
SII_PM_GS1DATABAR_MODULE_SIZE_11	11
SII_PM_GS1DATABAR_MODULE_SIZE_12	12
SII_PM_GS1DATABAR_MODULE_SIZE_13	13
SII_PM_GS1DATABAR_MODULE_SIZE_14	14
SII_PM_GS1DATABAR_MODULE_SIZE_15	15
SII_PM_GS1DATABAR_MODULE_SIZE_16	16

B.1.9 printAztecCode, printPageModeAztecCode



(1) Height and width of the barcode image

Height*1 and width of the barcode image = number of module size × module size value

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

Example: When `aztecSymbol` is `SII_PM_AZTECCODE_COMPACT` and `layer` is 1 and `moduleSize` is `SII_PM_AZTECCODE_MODULE_SIZE_6`:

Height and width of the barcode image = $15 \times 6 = 90$

Number of Module

<code>aztecSymbol</code>	<code>layer</code>	Number of Module
SII_PM_AZTECCODE_FULLRANGE	4	31
	5	37
	6	41
	7	45
	8	49
	9	53
	10	57
	11	61
	12	67
	13	71
	14	75
	15	79
	16	83
	17	87
	18	91
	19	95
	20	101
	21	105

aztecSymbol	layer	Number of Module
SII_PM_AZTECCODE_FULLRANGE	22	109
	23	113
	24	117
	25	121
	26	125
	27	131
	28	135
	29	139
	30	143
	31	147
	32	151
SII_PM_AZTECCODE_COMPACT	1	15
	2	19
	3	23
	4	27

Module Size Value

moduleSize	Module Size Value
SII_PM_AZTECCODE_MODULE_SIZE_2	2
SII_PM_AZTECCODE_MODULE_SIZE_3	3
SII_PM_AZTECCODE_MODULE_SIZE_4	4
SII_PM_AZTECCODE_MODULE_SIZE_5	5
SII_PM_AZTECCODE_MODULE_SIZE_6	6
SII_PM_AZTECCODE_MODULE_SIZE_7	7
SII_PM_AZTECCODE_MODULE_SIZE_8	8
SII_PM_AZTECCODE_MODULE_SIZE_9	9
SII_PM_AZTECCODE_MODULE_SIZE_10	10
SII_PM_AZTECCODE_MODULE_SIZE_11	11
SII_PM_AZTECCODE_MODULE_SIZE_12	12
SII_PM_AZTECCODE_MODULE_SIZE_13	13
SII_PM_AZTECCODE_MODULE_SIZE_14	14
SII_PM_AZTECCODE_MODULE_SIZE_15	15
SII_PM_AZTECCODE_MODULE_SIZE_16	16

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(Specifications are subject to change without notice.)