



MP-A40 Series  
SDK for iOS  
Application Programmer's Guide

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## Introduction

This document describes the MP-A40 Series SDK for iOS (hereinafter referred to as "the SDK") provided by Seiko Instruments Inc. (hereinafter referred to as "SII").

### Target Printers

This section lists the printers supported by the SDK.

Printer	Communication Interface
MP-A40 (Bluetooth supporting model)	Bluetooth
MP-A40 (Wireless LAN supporting model)	Wireless LAN

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# Chapter 1

## Product Overview

This chapter describes the product overview of the SDK.

### 1.1 Function

The SII print class library included in the SDK, provides iOS applications with the functions to use SII printer MP-A40 series (hereinafter referred to as "printer").  
Moreover, the SDK provides Xcode projects as a sample program for SII print class library.

### 1.2 Configuration

The SII print class library and the sample programs included in the SDK are located in the section surrounded by dashed lines in the iOS configuration diagram (Figure 1-1).



Figure 1-1

### **1.2.1 SII Print Class Library**

By using SII Print Class Library (hereinafter referred to as "the library"), iOS applications can easily send print data and printer commands to printer through communication port (Bluetooth or TCP/IP) on an iOS device. Also, the applications can retrieve printer status.

The library provides the following functions.

- Connection/disconnection to/from a printer
- Sending data to a printer (print data and/or printer commands)
- Barcode print and 2-dimensional barcode print
- Sending a data file to a printer (print data and/or printer commands)
- Retrieving printer status
- Retrieving various responses from a printer
- Printer search by Bluetooth or TCP/IP

### **1.2.2 Sample Program**

When an application used for communication with a printer by Bluetooth is registered to App Store, SII needs to apply it in advance. For the details, contact SII.

# Chapter 2

## Product Specification

This chapter describes the product specification 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.

iPhone models

- iPhone X
- iPhone 8
- iPhone 8 Plus
- iPhone 7
- iPhone 7 Plus
- iPhone SE
- iPhone 6s
- iPhone 6s Plus
- iPhone 6
- iPhone 6 Plus

iPad models

- 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 Air 2
- iPad mini 4
- iPad mini 3

iPod models

- iPod touch (6th generation)

#### 2.1.2 Applicable iOS Versions

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

- iOS 14-14.8
- iPadOS 14-14.8
- iOS 15-15.7.2
- iPadOS 15-15.7.2
- iOS 16-16.3.1
- iPadOS 16-16.3.1

## 2.2 Operating Conditions

This section describes the operating conditions for the library in the following table. Set the Function Setting / function selection to the values shown in the following table before using the library. See "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE" for details about Function Settings.

- **Memory Switch**

**Table 2-1 Function Settings by Memory Switch**

MS	Function	Value
1-1	Interface Selection (Interface)	1: USB/Wireless
1-2	Mark Mode Selection (Mark Mode)	0: Enable* <sup>1</sup> 1: Disable
1-3	Command System Selection (Command System)	000: ESC/POS
1-4		
1-5		
2-2	Realtime Command Selection (Realtime Command)	0: Enable
9-1	Automatic Status Response Selection <ESC/POS> (Auto Status Back <ESC/POS>)	0: Enable
9-2	Initialized Response Selection <ESC/POS> (Init. Response <ESC/POS>)	0: Enable

\*1: Select "Enable" when feeding to home position of the marked thermal paper.

- **Bluetooth Communication Settings**

For Bluetooth communication settings, set the following values in addition to Table 2-1. For the setting method, see the printer command "Set Bluetooth Communication" described in "MP-A40 SERIES Thermal Printer USER'S GUIDE".

Function	Value
iOS Auto Connection Selection (Auto Connection)	0: Disable 1: Enable* <sup>1</sup>
Profile Selection (Profile)	1: iAP2* <sup>2</sup>

\*1: Select "Enable" when using `reset`.

\*2: To switch the Profile Selection, press the POWER Switch 5 times within 3 seconds with the printer on.

## 2.3 Precaution

When using TCP/IP, the library cannot share the communication port with the printer driver or other libraries.

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

A concurrent connection from multiple apps to one printer is not supported when the multiple apps are started simultaneously by the Multitasking function for the iPad with iPadOS.

## **Chapter 3**

### **How to Use Library**

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

#### **3.1 Developmental Environment for iOS Application**

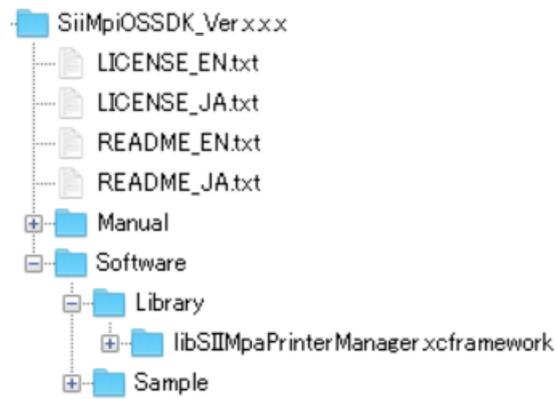
In order to develop iOS applications, following tools are required.

- Xcode 12.0 or later

This chapter and after in this document, it is assumed that there is an environment where you can use each tool.

## 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 XCFramework. The file name of the library is libSiiMpaPrinterManager.xcframework.

### 3.3 Build Library into Xcode Projects

Using the project of the sample program (SIIMpaPrinterSample) included in the SDK as an example, this section describes how to build the library into the projects.

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

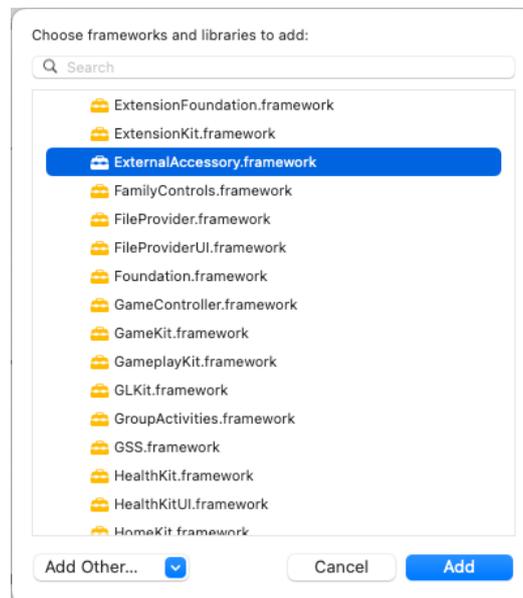
**(NOTE) If the following libraries provided SDK Ver. 1.0.9 or earlier versions are included in the target project, delete them all.**

- SIIMpaPrinterManager.a
- SIIMpaPrinterManager.h

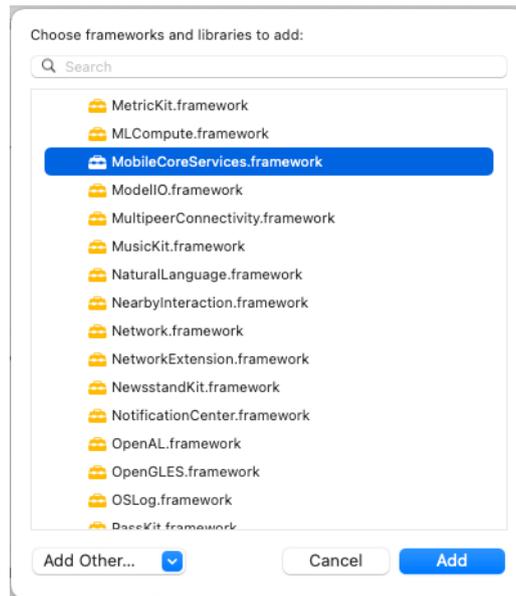
(1) Open the Xcode project.

(2) Build Framework and a library.

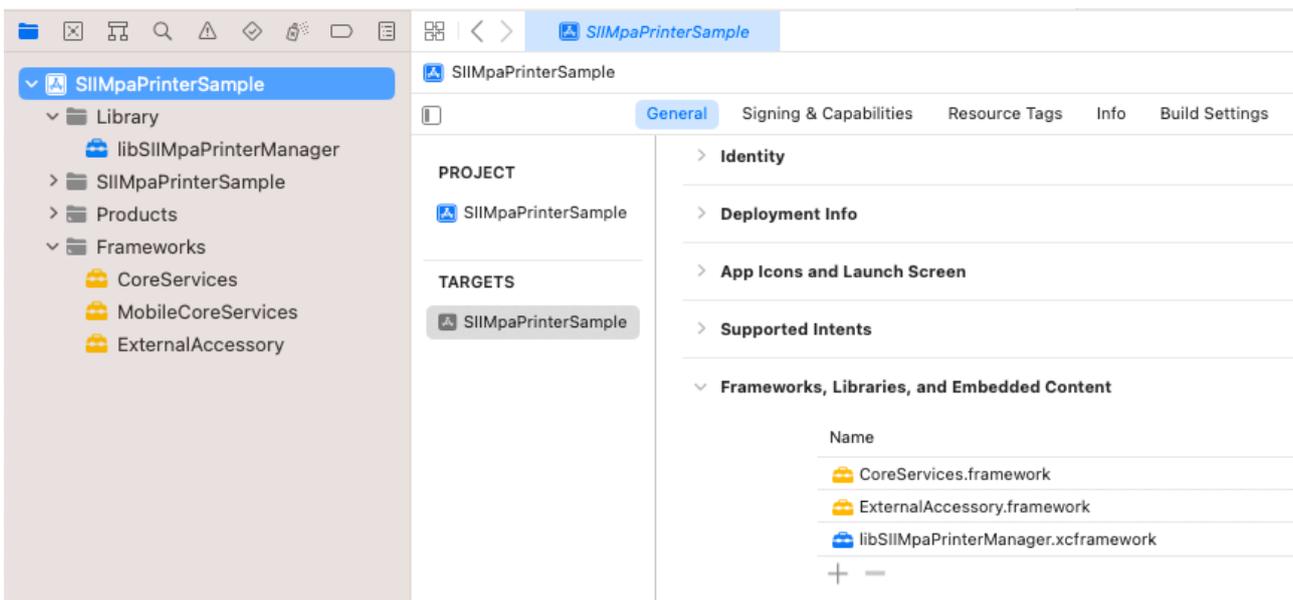
- Build ExternalAccessory.framework into the project.  
Select the target project in [Project Navigator], go [TARGETS] - [General] - [Frameworks, Libraries, and Embedded Content], open [Frameworks, Libraries, and Embedded Content].  
And then, click [+], select ExternalAccessory.framework from the list and click [Add].



- Build MobileCoreServices.framework into the project.  
As well as the previous procedure, open [Frameworks, Libraries, and Embedded Content].  
And then, click [+], select MobileCoreServices.framework from the list and click [Add].



- Build this library into the project.  
As well as the previous procedure, open [Frameworks, Libraries, and Embedded Content].  
And then, click [+], and select this library.



- (3) Add the import definition of \*.h header file to use this library or header file provided by \*.m source file as follows.

```
#import "SIIMpaPrinterManager.h"
```

- (4) Set the protocol name used by ExternalAccessory.framework.  
Select xxxx.plist in [Project Navigator].  
(For the sample program in the SDK, see SIIPrinterManagerSample-Info.plist.)

From the popup menu, select [Add Row] - [Supported external accessory protocols].

When open the added [Supported external accessory protocols], [Item 0] is displayed, then input "com.sii-ps.sieap" as the value.

▼ Supported external accessory protocols	▲	Array	(1 item)
Item 0	▼	String	com.sii-ps.sieap

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

## Chapter 4

# Function of Library

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

### 4.1 Overview of Library

The library provides the functions to use printers for iOS-enabled applications.

### 4.2 Structure of Library

The file format of the library is XCFramework. The file name of the library is libSIIMpaPrinterManager.xcframework.

In order to use the library in iOS applications, build the library into Xcode projects of iOS applications.

See "Chapter 3 How to Use the Library" for details about how to build the library into Xcode projects.

### 4.3 Receive Data Process and Limitations

This library buffers the receive data from the printer into the receive buffer in the SDK (hereinafter referred to as "the buffer") after starting to use the printer by `open`. Since the printer replies the auto status response every time the status changes, the receive data is buffered into the buffer sequentially. The maximum receive data to be buffered is 4096 bytes. When the printer is reconnected, the receive buffer in the SDK may collectively receive the data that was buffered in the printer before reconnecting.

The receive data buffered in the buffer can be retrieved by `read`. The receive data retrieved by `read` is deleted from the buffer.

When the buffered receive data exceeds 4096 bytes, the old data in buffer is discarded sequentially; therefore, execute `read` so that the receive data does not exceed 4096 bytes. The receive data size can be retrieved by `getReadSize`.

For the details of the each method, see "4.4 API Reference".

For the details of the each response, see "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE".

## 4.4 API Reference

The file name of the library is `SIIMpaPrinterManager.a`. `SIIMpaPrinterManager.a` includes the following classes.

For using these classes, add following command into \*.h, header file of the iOS application or \*.m source file.

```
#import "SIIMpaPrinterManager.h"
```

### • Class

Class Name	Description
<code>SIIMpaPrinterManager</code>	Class that provides the API used for communication with the printer and for printing.
<code>SIIMpaPrinterStatus</code>	Class that stores the printer status.
<code>SIIMpaPrinterDiscovery</code>	Class that searches the printer.
<code>SIIMpaDiscoveredPrinter</code>	Class that stores the printer information searched by printer searching.

### • Enumerated type (enum)

Class Name	Description
<code>PrinterInterface</code>	Enumerator used for specifying the communication interface of <code>open</code> .
<code>PrinterModel</code>	Enumerator used for specifying the printer model of <code>open</code> .
<code>Dithering</code>	Enumerator used for dithering of <code>resisterLogo</code> and <code>sendDataFile</code> .
<code>PrinterInformation</code>	Enumerator used for specifying the printer information of <code>getPrinterInformation</code> , <code>getPrinterInformationNumber</code> and <code>getPrinterInformationString</code> .
<code>TransactionFunction</code>	Enumerator used for specifying the batch process control method of <code>controlTransaction</code> .
<code>Direction</code>	Enumerator used for specifying the print direction of <code>selectPageMode</code> .
<code>Alignment</code>	Enumerator used for specifying the print position of <code>setStandardModeAlignment</code> .
<code>CharacterSet</code>	Enumerator used for specifying the character set of <code>selectCharacterSet</code> .
<code>InternationalCharacterSet</code>	Enumerator used for specifying the international character set of <code>selectInternationalCharacterSet</code> .
<code>CharacterType</code>	Enumerator used for specifying the character font of <code>setCharacterFormatting</code> .
<code>CharacterScale</code>	Enumerator used for specifying the character scale of <code>setCharacterFormatting</code> .
<code>Underline</code>	Enumerator used for specifying the underline of <code>setCharacterFormatting</code> .
<code>Bold</code>	Enumerator used for specifying the bold print of <code>setCharacterFormatting</code> .
<code>Reverse</code>	Enumerator used for specifying the reverse print of <code>setCharacterFormatting</code> .

Class Name	Description
<b>Rotate</b>	Enumerator used for specifying the character rotation print of <b>setCharacterFormatting</b> , and for specifying print barcode direction of <b>setStandardModeBarcodeDirection</b> .
<b>TypeBarcode</b>	Enumerator used for specifying the barcode type of <b>printBarcode</b> .
<b>ModuleWidthBarcode</b>	Enumerator used for specifying the barcode module width or narrow element of <b>printBarcode</b> .
<b>HriPositionBarcode</b>	Enumerator used for specifying the barcode HRI characters of <b>printBarcode</b> .
<b>NwRatioBarcode</b>	Enumerator used for specifying the barcode N:W ratio of <b>printBarcode</b> .
<b>Type2DCode</b>	Enumerator used for specifying the 2-dimensional barcode type of <b>print2DCode</b> .
<b>Mode2Dcode</b>	Enumerator used for specifying the 2-dimensional barcode mode of <b>print2DCode</b> .
<b>ModuleSize2Dcode</b>	Enumerator used for specifying the 2-dimensional barcode module size of <b>print2DCode</b> .
<b>ErrorCorrect2Dcode</b>	Enumerator used for specifying the 2-dimensional barcode error correction level of <b>print2DCode</b> .
<b>LogFileSize</b>	Enumerator used for specifying the maximum size of the log file of <b>setLog</b> .
<b>ErrorCode</b>	Enumerator used for retrieving the error code by <b>NSError</b> .

#### 4.4.1 Class

##### (1) SIIMpaPrinterManager

###### • Summary

This class provides the API used for communication with the printer and for printing.  
This class provides the following functions.

###### Public Methods

Method	Function Summary	Standard Mode*1	Page Mode*1
<b>SIIMpaPrinterManager</b>	Constructor	✓	✓
<b>init</b>	Instance	✓	✓
<b>open</b>	Start using printer	✓	✓
<b>close</b>	Finish using printer	✓	✓
<b>setWriteTimeout</b>	Set send timeout period	✓	✓
<b>getWriteTimeout</b>	Retrieve send timeout period	✓	✓
<b>setResponseTimeout</b>	Set receive timeout period	✓	✓
<b>getResponseTimeout</b>	Retrieve receive timeout period	✓	✓
<b>write</b>	Send binary data	✓	✓
<b>read</b>	Retrieve receive data	✓	✓
<b>getReadSize</b>	Retrieve available receive data size	✓	✓
<b>writeAndWaitResponse</b>	Send and receive binary data	✓	✓
<b>reset</b>	Reset printer	✓	✓
<b>getStatus</b>	Retrieve printer status	✓	✓
<b>startCallbackFunction</b>	Start callback of printer status change	✓	✓
<b>stopCallbackFunction</b>	Finish callback of printer status change	✓	✓
<b>registerStyleSheet</b>	Register style sheet to printer	✓	✓
<b>deleteStyleSheet</b>	Delete style sheet in printer	✓	✓
<b>registerLogo</b>	Register logo to printer	✓	✓
<b>deleteLogo</b>	Delete logo in printer	✓	✓
<b>getPrinterInformation</b>	Retrieve printer information	✓	✓
<b>getPrinterInformationNumber</b>		✓	✓
<b>getPrinterInformationString</b>		✓	✓
<b>getVersion</b>	Retrieve SDK version	✓	✓
<b>controlTransaction</b>	Start/finish print data batch sending	✓	✓
<b>selectStandardMode</b>	Start standard mode	-	✓
<b>selectPageMode</b>	Start page mode	✓	-
<b>printPageModeData</b>	Print page mode data	-	✓ <sup>+2</sup>
<b>setPageModeVerticalPosition</b>	Specify vertical absolute position in page mode	-	✓ <sup>+2</sup>

Method	Function Summary	Standard Mode*1	Page Mode*1
<code>setStandardModeArea</code>	Specify print area in standard mode	✓*3	-
<code>setStandardModeAlignment</code>	Alignment	✓*3	-
<code>setHorizontalPosition</code>	Specify absolute position	✓	✓
<code>setStandardModeBarcodeDirection</code>	Select print direction for barcode or 2-dimensional barcode	✓*3	-
<code>setLineSpacing</code>	Specify line space amount	✓*4	✓*4
<code>setCharacterRightSpace</code>	Specify character right space amount	✓*4	✓*4
<code>selectCharacterSet</code>	Select character set	✓	✓
<code>getCharacterSet</code>	Retrieve specified character set	✓	✓
<code>setInternationalCharacterSet</code>	Select international character set	✓	✓
<code>getInternationalCharacter</code>	Retrieve specified international character set	✓	✓
<code>setCharacterFormatting</code>	Format character	✓	✓
<code>printText</code>	Send text data	✓	✓
<code>printLogo</code>	Print logo registered in printer	✓	✓
<code>sendDataFile</code>	Send file data	✓	✓
<code>printBarcode</code>	Print barcode	✓	✓
<code>print2DCode</code>	Print 2-dimensional barcode	✓	✓
<code>printPageModeRectangle</code>	Draw rectangular	-	✓*2
<code>feedline</code>	Feed paper by line	✓	✓
<code>feedDotLine</code>	Feed paper by dot	✓	✓
<code>feedCutPosition</code>	Feed paper to cut position	✓	✓
<code>feedMarkPosition</code>	Marked paper form feed	✓	✓
<code>setLog</code>	Specify log output	✓	✓

\*1 ✓: Enable, -: Disable

\*2 When use this method, execute `SelectPageMode` beforehand to start page mode.

\*3 When use this method, execute `SelectStandardMode` beforehand to start standard mode.

\*4 Independent settings are available for standard mode and page mode respectively.

### Public Properties

Property	Function Summary	Standard Mode*1	Page Mode*1
<code>isOpened</code>	Retrieve printer using status	✓	✓

\*1 ✓: Enable, -: Disable

• Public Methods

**init** Instance

This method initializes the instance of **SIIMpaPrinterManager** class.

Syntax - (id) **init**;

Return When succeeded, the initialized instance of **SIIMpaPrinterManager** class is returned. When failed, **nil** is returned.

Example **SIIMpaPrinterManager \*printerManager**  
= **[[SIIMpaPrinterManager alloc]init];**

**open** Start using printer

Starts using a printer.

Syntax - (BOOL) **open:** (PrinterInterface) printerInterface  
printerModel: (PrinterModel) printerModel  
address: (NSString\*) address  
socketKeepingTime: (NSInteger) socketKeepingTime  
error: (NSError\*\*)error;

Parameter	<b>printerInterface</b>	Communication interface constant See "4.4.2(1) <b>PrinterInterface</b> " for available settings.
	<b>printerModel</b>	Printer model constant See "4.4.2(2) <b>PrinterModel</b> " for available settings.
	<b>address</b>	Varies depending on <b>printerInterface</b> setting. • When specify <b>SII_MPM_PRN_IF_TCP</b> : In <b>address</b> , specify IP address of the printer to connect. Example: "192.168.0.190", "host" • When specify <b>SII_MPM_PRN_IF_BT</b> : In <b>address</b> , specify Bluetooth address of the printer paired with iOS device. Example: "00:11:22:AA:BB:CC"
	<b>socketKeepingTime</b>	Varies depending on <b>printerInterface</b> setting. • When specify <b>SII_MPM_PRN_IF_TCP</b> : The range is 60 to 300. When the specified value is below 60, the value is set to 60, when the specified value exceeds 300, the value is set to 300. In <b>socketKeepingTime</b> , specify the same value as the timeout period of unconnected communication specified in printer wireless LAN setting. The default value of the timeout period of unconnected communication is 300 seconds. For the details, see "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE". • When specify <b>SII_MPM_PRN_IF_BT</b> : The specified value is ignored.
	<b>error</b>	Error object reference.

Return value	The following value may be thrown when an error occurs while calling this method. When an error occurs, see <b>NSError</b> object specified by <b>error</b> .
	YES Normal NO Error
Description	This method connects to a printer specified by <b>printerInterface</b> through a communication interface specified by <b>printerModel</b> .  Monitoring the printer status is started by this method. The latest printer status is retrieved by <b>getStatus</b> . The change of printer status can be notified as an event by <b>onStatusChanged</b> , <b>startCallbackFunction</b> , or <b>stopCallbackFunction</b> .
Note	Do not disable the automatic status response by printer command "Automatic Status Back Enable/Disable" or function settings. In that case, the printer status cannot be monitored, and the related function cannot be operated. For the automatic status response and the function settings, see "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE".  When data is sent to a printer through TCP/IP connection and the socket keeping time is passed, communication socket is discarded. After that, a communication socket is created again and connection starts. If the printer is requested to connect from the other host on the same network at the timing of the communication socket discarding, the printer establishes the communication with the other host and the reconnection may be failed.  A concurrent connection from multiple apps to one printer is not supported.

<b>close</b>	<b>Finish using printer</b>
--------------	-----------------------------

Finishes using the printer and monitoring the printer status.

Syntax	<code>- (BOOL) close: (NSError**) error;</code>
Return value	The following value may be thrown when an error occurs while calling this method. When an error occurs, see <b>NSError</b> object specified by <b>error</b> .  YES Normal NO Error
Description	This method stops communicating with the printer connected by <b>open</b> . When this method is executed during data transmission, the communication will be disconnected after all data is transmitted and printing operation is completed, or after the receive timeout period set by <b>setResponseTimeout</b> . Print data stored by <b>controlTransaction</b> is discarded by this method.
Note	In Bluetooth communication, set sufficient receive timeout period in consideration of the time required for printing. The receive timeout period needs approximately 10000 milliseconds for the print length 150 mm. If Bluetooth communication is disconnected while sending data, the data transmission and reception may not be possible due to abnormal communication between the iOS device and the printer.

Specifies the send timeout period.

Syntax - (void) **setWriteTimeout:** (NSInteger) writeTimeout;

Parameter **writeTimeout** Send timeout period (millisecond)  
The range is 1000 to 90000.  
When the specified value is below 1000, the value is set to 1000.  
When the specified value exceeds 90000, the value is set to 90000.  
When the value is not set in this method, the send timeout period is 10000 seconds (default value).

Description The specified value can be retrieved by **getWriteTimeout**.

This method is enabled in the following methods.

- **write**
- **writeAndWaitResponse** (Transmission process part)
- **registerLogo**
- **registerStyleSheet**
- **controlTransaction**  
(when **SII\_MPM\_TRANSACTION\_PRINT** is selected in **control**)
- **printText**
- **sendDataFile**
- **printBarcode**
- **print2DCode**

Retrieves the send timeout period.

Syntax - (NSInteger) **getWriteTimeout**;

Return value Send timeout period (millisecond)

Specifies the receive timeout period.

Syntax - (void) **setResponseTimeout:** (NSInteger) respTimeout;

Parameter **respTimeout** Receive timeout period (millisecond)  
The range is 1000 to 90000.  
When the specified value is below 1000, the value is set to 1000.  
When the specified value exceeds 90000, the value is set to 90000.  
When the value is not set in this method, the send timeout period is 10000 seconds (default value).

Description The specified value is retrieved by **getResponseTimeout**.

This method is enabled in the following methods.

- **writeAndWaitResponse**
- **getPrinterInformation**
- **getPrinterInformationNumber**
- **getPrinterInformationString**

Retrieves the receive timeout period.

Syntax - (NSInteger) **getResponseTimeout**;

Return value Receive timeout period (millisecond)

Sends the binary data.

Syntax - (BOOL) **write**: (NSData\*) binary  
offset: (NSInteger) offset  
error: (NSError\*\*) error;

Parameter **binary** Binary data to send to a printer  
A maximum of 16 KB (16384 bytes) of data size can be specified.

**offset** Specification of the starting position of the data send

**error** Error object reference

Return value The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see **NSError** object specified by **error**.

YES Normal

NO Error

Description When **controlTransaction** is not used, the timeout period specified in **setWriteTimeout** is valid.

Do not include a printer command that initializes the printer other than the printer command "Initialize Printer" in the data to send. When perform Hardware Reset, use **reset**. For printer initialization, see "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE".

This method is aborted by **reset**.

Retrieves the receive data which size is specified by **bufferSize** stored in **readBinary**.

Syntax - (BOOL) **read**: (NSMutableData\*\*) readBinary  
bufferSize: (NSInteger) bufferSize  
error: (NSError\*\*) error;

Parameter **bufferSize** Receive data size (byte)  
The range is 1 to 4096.  
When the specified value exceeds 4096, the value is set to 4096.  
When the specified value is below 0, sends the error notice.

Return value The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see **NSError** object specified by **error**.

YES Normal

NO Error

Description When entire receive data buffered in the buffer needs to be retrieved, specify the value in **bufferSize** retrieved by **getReadSize**.

When this method is reexecuted after retrieving receive data by this method, retrieving starts from the following receive data in the buffer.

For the procedure and the limitation, see "4.3 Receive Data Process and the Limitations".

**getReadSize** Retrieve available receive data size

Retrieves the available receive data size.

Syntax - (BOOL) **getReadSize:** (NSInteger\*) readSize  
error: (NSError\*\*) error;

Parameter **readsize** Receive data size (byte)  
**error** Error object reference

Return value The following value may be thrown when an error occurs while calling this method. When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

**writeAndWaitResponse** Send and receive binary data

Sends the binary data and retrieves the receive data after this method is executed.

Syntax - (BOOL) **writeAndWaitResponse:** (NSData\*) sendBinary  
receiveBinary: (NSMutableData\*\*) receiveBinary  
bufferSize: (NSInteger) bufferSize  
respControl: (BOOL) respControl  
incAsbData: (BOOL) incAsbData  
error: (NSError\*\*) error;

Parameter **sendBinary** Data to send  
A maximum data size is 16 KB (16384 bytes) can be specified.

**reweiveBinary** Data to receive

**bufferSize** Maximum size of the data to send  
The range is 1 to 10485760.  
When the specified value exceeds 10485760, the value is set to 10485760.

**respControl** Operation selection for receive process  
YES Receive some data or continue to receive data until timeout period is over  
NO Receive the specified sized data in **bufferSize** or continue to receive data until timeout period is over

**incAsbData** Include the automatic status response to the receive data or not  
YES Include  
Respond the receive data as it is.  
NO Not include  
Respond the receive data excluding the automatic status response.

Return value The following value may be thrown when an error occurs while calling this method. When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

Description This method is appropriate to send printer command for responding value of character string amount or capacity, and to retrieve the respond.

Next method execution after this method execution is not processed until completion of this method receiving. For retrieving the execution response or progress response, use **read** but not this method. For the details of execution response or progress response, see "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE".

For sending, the timeout period specified in **setWriteTimeout** is valid.

For receiving, the timeout period specified in **setResponseTimeout** is valid.

Do not include a printer command that initializes the printer other than the printer command "Initialize Printer" in the data to send. When perform Hardware Reset, use **reset**. For printer initialization, see "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE".

This method is aborted by **reset**.

## reset

## Reset printer

Resets the printer.

Syntax - (BOOL) **reset:** (NSError\*\*) error;

Parameter **error** Error object reference

Return value The following value may be thrown when an error occurs while calling this method. When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

Description When this method is executed while the following method is being processed, the process is aborted. The unsent or unreceived data of following methods are discarded.

- **write**
- **writeAndWaitResponse**
- **controlTransaction**  
(When **SII\_MPM\_TRANSACTION\_PRINT** is selected in **control**)
- **printText**
- **sendDataFile**
- **getPrinterInformation**
- **getPrinterInformationNumber**
- **getPrinterInformationString**

While this method is being executed, the printer status becomes offline.

After this method is executed, wait for a few seconds before data send method is executed. Data send during reset may cause data lost.

When this method is executed but the printer is in the condition of no data accepting, the printer reset may not be executed normally, and there is a possibility of character corruption.



Finishes the callback started by `startCallbackFunction`.

**Syntax** - (BOOL) `stopCallbackFunction:` (NSError\*\*) error;

**Parameter** `error` Error object reference

**Return value** The following value may be thrown when an error occurs while calling this method. When an error occurs, see `NSError` object specified by `error`.

YES Normal  
NO Error

Registers the style sheet to the printer.

**Syntax** - (BOOL) `registerStyleSheet:` (NSString\*) filePath  
registerNumber: (NSInteger) regNum  
error: (NSError\*\*) error;

**Parameter** `filePath` File path for style sheet

`regNum` Style sheet number  
The range is 1 to 4.

`error` Error object reference

**Return value** The following value may be thrown when an error occurs while calling this method. When an error occurs, see `NSError` object specified by `error`.

YES Normal  
NO Error

**Description** A maximum of 4 sheets can be registered.

The file extension for supporting style sheet is .css.

The maximum file size that can be registered is 1 MB (1048576 bytes).

The maximum number that can be registered in 1 style sheet is 64.

When specify a style sheet number which style sheet is already registered, the style sheet is overwritten.

For the available style sheet to register, see the printer command "Style Sheet Registration" in "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE".

The timeout period specified in `setWriteTimeout` is valid.





Description Based on the specification in `prnInfo`, sends printer command to the printer for responding the printer information, analyzes the response data by the response extension, and stores it into `prnInfoValue` in the format of the numeric array, numerical value, and character string.

In all `PrinterInformation`, the printer information can be retrieved in the numeric array by using the syntax (a).

In the following `PrinterInformation`, the printer information can be retrieved in the numerical value by using the syntax (b).

- `SII_MPM_GET_NV_MEM_CAP`
- `SII_MPM_GET_NV_MEM_REM_CAP`
- `SII_MPM_GET_REM_USER_MEM_CAP`
- `SII_MPM_GET_REM_USER_MEM_CAP_DEFRAG`
- `SII_MPM_GET_PRN_ID_MODEL`
- `SII_MPM_GET_PRN_ID_TYPE`
- `SII_MPM_GET_PRN_ID_ROM_VER`
- `SII_MPM_GET_PRN_ID_FIRM_CHECKSUM_BOOT`
- `SII_MPM_GET_PRN_ID_FIRM_CHECKSUM_MAIN`
- `SII_MPM_GET_PRN_ID_FIRM_CHECKSUM`
- `SII_MPM_GET_MAINT_NUM_FEED_LINE`
- `SII_MPM_GET_MAINT_NUM_HEAD_ACTIVE`
- `SII_MPM_GET_MAINT_DRIVE_TIME`
- `SII_MPM_GET_MAINT_NUM_FEED_LINE_INTEGRATION`
- `SII_MPM_GET_MAINT_NUM_HEAD_ACTIVE_INTEGRATION`
- `SII_MPM_GET_MAINT_DRIVE_TIME_INTEGRATION`
- `SII_MPM_GET_HFONT_24_CHECKSUM`
- `SII_MPM_GET_HFONT_16_CHECKSUM`
- `SII_MPM_GET_FFONT_CHECKSUM`
- `SII_MPM_GET_FFONT_DATA_SIZE`
- `SII_MPM_GET_FFONT_ROM_ID`

In the following `PrinterInformation`, the printer information can be retrieved in the character string by using the syntax (c).

- `SII_MPM_GET_NV_MEM_KEYCODE_LIST`
- `SII_MPM_GET_PRN_ID_FIRM_VER_MAIN`
- `SII_MPM_GET_PRN_ID_MFR`
- `SII_MPM_GET_PRN_ID_MODEL_NAME`
- `SII_MPM_GET_PRN_ID_FIRM_VER_BOOT`
- `SII_MPM_GET_HFONT_24_ID`
- `SII_MPM_GET_HFONT_24_INT_CHAR`
- `SII_MPM_GET_HFONT_16_ID`
- `SII_MPM_GET_HFONT_16_INT_CHAR`
- `SII_MPM_GET_FFONT_LANG`
- `SII_MPM_GET_FFONT_STANDARD`
- `SII_MPM_GET_FFONT_COMPANY`

The timeout period specified in `setResponseTimeout` is valid.

This method is aborted by `reset`.

Retrieves 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 **isOpen** is YES or NO.

Buffers the print data in the target method for batch process and sends the data in buffer to the printer.

Syntax - (BOOL) **controlTransaction**: (TransactionFunction) control  
error: (NSError\*\*) error;

Parameter **control** Operation selection of batch process  
See "4.4.2(5) TransactionFunction" for available settings.

**error** Error object reference

Return value The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see **NSError** object specified by **error**.

YES Normal

NO Error

Description The target method for the batch process is as follows.

- **write**
- **selectStandardMode**
- **selectPageMode**
- **printPageModeData**
- **setPageModeVerticalPosition**
- **setStandardModeArea**
- **setStandardModeAlignment**
- **setHorizontalPosition**
- **setStandardModeBarcodeDirection**
- **setLineSpacing**
- **setCharacterRightSpace**
- **setCharacterFormatting**
- **printText**
- **printLogo**
- **sendDataFile**
- **printBarcode**
- **print2DCode**
- **printPageModeRectangle**
- **feedLine**
- **feedDotLine**
- **feedCutPosition**
- **feedMarkPosition**

By **control**, buffering of the print data in the target method for batch process is started or finished.

- Start buffering  
When this method with **SII\_MPM\_TRANSACTION\_START** in `control` is executed, the buffering of the print data in the target method for batch process is started. The print data in the target method for batch process executed during buffering is not sent to the printer but stored in the buffer. Any method other than the target method for batch process is immediately executed.
- Finish buffering  
When this method with **SII\_MPM\_TRANSACTION\_PRINT** in `control` is executed, the buffering of the print data in the target method for batch process is finished, and the data in the buffer is sent to the printer.  
When this method with **SII\_MPM\_TRANSACTION\_CLEAR** in `control` is executed, the buffering is interrupted and the data in the buffer is discarded.

When this method with **SII\_MPM\_TRANSACTION\_PRINT** or **TRANSACTION\_CLEAR** in `control` is executed without starting buffering, an error occurs.

When this method with **SII\_MPM\_TRANSACTION\_START** in `control` is executed during buffering, the data in the buffer is discarded but the buffering is continued.

When no data exists in the buffer and this method with **SII\_MPM\_TRANSACTION\_PRINT** in `control` is executed, the data is not sent to the printer and the buffering is finished.

When this method with **SII\_MPM\_TRANSACTION\_PRINT** in `control` is being executed and this method with **SII\_MPM\_TRANSACTION\_START** in `control` is executed from another thread, the data sending by this method with **SII\_MPM\_TRANSACTION\_PRINT** in `control` is continued, this method with **SII\_MPM\_TRANSACTION\_START** in `control` is executed from another thread, and the buffering is newly started.

The maximum buffer size depends on the system.

When the data in the buffer exceeds the maximum size, the execution of the target method for batch process becomes error, but the data in the buffer is stored.

When the buffered data is sending by **SII\_MPM\_TRANSACTION\_PRINT**, the timeout period specified in `setWriteTimeout` is valid.

When an error occurs during sending data by **SII\_MPM\_TRANSACTION\_PRINT**, the remained data for sending is discarded.

When `reset` is executed during sending data **SII\_MPM\_TRANSACTION\_PRINT**, the remained data for sending is discarded.

`selectStandardMode`

Select standard mode

Starts standard mode.

Syntax        - (BOOL) **selectStandardMode**: (NSError\*\*) error;

Parameter    **error**                    Error object reference

Return value  The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see `NSError` object specified by **error**.

YES    Normal  
NO     Error

Description  Right after execution of `open`, standard mode is selected.

When page mode is interrupted by `selectPageMode`, the page mode data is discarded.



Prints the page mode data.

Syntax - (BOOL) **printPageModeData:** (NSError\*\*) error;

Parameter **error** Error object reference

Return value The following value may be thrown when an error occurs while calling this method. When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

Description Execute this method after starting page mode by **selectPageMode** and configuring the page mode data within the print area.

This method is ignored in standard mode.

Specify the absolute position of print data in vertical direction within the print area in page mode.

Syntax - (BOOL) **setPageModeVerticalPosition:**  
(NSInteger) verticalPosition  
error: (NSError\*\*) error;

Parameter **verticalPosition** Data mapping starting position in vertical direction (dot)  
The range is 0 to 2399.

**error** Error object reference

Return value The following value may be thrown when an error occurs while calling this method. When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

Description The start point varies depending on the print direction in page mode specified for **direction** in **selectPageMode**. For the print direction and the start point, see "4.4.2(6) **Direction**".

The setting of this method is disabled in standard mode.

When the specified value exceeds the print area, it is ignored.

When the printer is reset, the setting in this method is disabled.



Set the alignment in standard mode.

**Syntax** - (BOOL) **setStandardModeAlignment:** (Alignment) align  
error: (NSError\*\*) error;

**Parameter** **align** Alignment  
See "4.4.2(7) Alignment" for available settings.

**error** Error object reference

**Return value** The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

**Description** When the print area is specified in **setStandardModeArea**, the position is aligned within the specified print area.

The setting of this method is disabled in page mode. When this method is executed in page mode, the setting is reflected to the print after starting standard mode.

When the print data remains in the printer, this method is not executed. Execute this method after the printing is completed.

When the printer is reset, the setting in this method is back to the default value.

Specify the absolute horizontal position.

**Syntax** - (BOOL) **setHorizontalPosition:** (NSInteger) horizontalPosition  
error: (NSError\*\*) error;

**Parameter** **horizontalPosition** Horizontal print starting position (dot)  
The range is 0 to 2399.

**error** Error object reference

**Return value** The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

**Description** In standard mode, the left margin is based on the one specified in **setStandardModeArea**.

In page mode, the start point changes depend on the specified print direction in **direction** of **selectPageMode**. For print direction and start point, see "4.4.2(6) Direction".

The value specified in **setStandardModeArea** and **selectPageMode** that exceeds the print area is ignored.

When the printer is reset, the setting in this method is disabled.

## setStandardModeBarcodeDirection

### Select print direction for barcode or 2-dimensional barcode

Specify the print direction for barcode or 2-dimensional barcode in standard mode.

**Syntax** - (BOOL) **setStandardModeBarcodeDirection:** (Rotate) rotate  
error: (NSError\*\*) error;

**Parameter** **rotate** Print direction  
See "4.4.2(15) Rotate" for available settings.

**error** Error object reference

**Return value** The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

**Description** By executing **printBarcode** or **print2DCode**, the setting of this method is back to the default value.

The setting of this method is disabled in page mode. When this method is executed in page mode, the setting is reflected to the print after starting standard mode.

When **SII\_MPM\_ROTATE\_90\_TO\_RIGHT** or **SII\_MPM\_ROTATE\_90\_TO\_LEFT** is specified in *rotate*, the available print width of barcode or 2-dimensional barcode is max. 300 mm. When the value exceeds 300 mm, barcode or 2-dimensional barcode is not printed.

When the printer is reset, the setting in this method is back to the default value.

## setLineSpacing

### Specify line space amount

Specify the line spacing.

**Syntax** - (BOOL) **setLineSpacing:** (NSInteger) lineSpacing  
error: (NSError\*\*) error;

**Parameter** **lineSpacing** Line spacing (dot)  
The range is 0 to 255.

**error** Error object reference

**Return value** The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

**Description** The line spacing can be independently set in the standard mode and the page mode.

When the printer is reset, **lineSpacing** is set to 34.



Retrieves the specified character set.

Syntax - (NSInteger) **getCharacterSet**;

Return value Character set

Description For the available setting to retrieve, see "4.4.2(8) **CharacterSet**".

Select the international character set.

Syntax - (BOOL) **selectInternationalCharacterSet**:  
 (InternationalCharacterSet) intCharSet  
 error: (NSError\*\*) error;

Parameter **intCharSet** International character set  
 See "4.4.2(9) **InternationalCharacterSet**" for available settings.

Return value The following value may be thrown when an error occurs while calling this method.  
 When an error occurs, see **NSError** object specified by **error**.

YES Normal  
 NO Error

Description According to the language setting in iOS device, the default setting of the International character set is as follows.

Japanese: **SII\_MPM\_INT\_CHAR\_SET\_JAPAN**  
 Other than Japanese: **SII\_MPM\_INT\_CHAR\_SET\_USA**

When this method is executed and then the printer is reset by **reset** or turned off, the setting in this method is enabled.

Retrieves the specified international character set.

Syntax - (NSInteger) **getInternationalCharacterSet**;

Return value International character set

Description For the available setting to retrieve, see "4.4.2(9) **InternationalCharacterSet**".





Sends the file data to the printer.

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

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

Syntax (a)- (BOOL) **sendDataFile:** (NSString\*) filePath  
 dithering: (Dithering) dithering  
 error: (NSError\*\*) error;

(b)- (BOOL) **sendDataFile:** (NSString\*) filePath  
 error: (NSError\*\*) error;

Parameter	<b>filePath</b>	File path to send to the printer
	<b>dithering</b>	Dithering It is enabled when the extension of the file specified at <code>filePath</code> is <code>.bmp</code> , <code>.jpg</code> , <code>.jpeg</code> , or <code>.png</code> . See "4.4.2(3) Dithering" for available settings.
	<b>error</b>	Error object reference

Return value The following value may be thrown when an error occurs while calling this method.  
 When an error occurs, see **NSError** object specified by **error**.

YES Normal  
 NO Error

Description Depending on the specified file extension, the followings are processed.

- When the file extension is `.bmp`, `.jpg`, `.jpeg`, or `.png`:  
 The image data is converted to printable format for the printer and is sent to the printer.  
 The color image data is converted to monochrome image by binarization.
- When the file extension is `.txt`:  
 Text data format supports UTF-8.  
 This method sends the text data after encoding it to recognizable text data for the printer based on the character set specified in **selectCharacterSet**.  
 Based on the setting in **selectCharacterSet** and **selectInternationalCharacterSet**, printer commands "Character Code Table Select", "International Character Select", "Kanji Code System Selection", and "Kanji Mode Cancel" are added to the send data as the header.  
 For the details of printer commands, see "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE".  
 This method does not add any line feed code in the last of the text data.
- When the file extension is `.bin`, or `.dat`  
 The text data is sent to printer without conversion.
- When the file extension is `htm`, or `.html`  
 The text data is sent to printer without conversion.  
 Be sure to add an HTML end tag in the last of file data.

A maximum of 1 MB (1048576 bytes) of file size can be specified.

When **controlTransaction** is not used, the timeout period specified in **setWriteTimeout** is valid.

Do not include a printer command that initializes the printer other than the printer command "Initialize Printer" in the data to send. When perform Hardware Reset, use `reset`. For printer initialization, see "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE".

This method is aborted by **reset**.

## printBarcode

## Print barcode

Prints the barcode.

**Syntax**

(a) - (BOOL) **printBarcode:** (TypeBarcode) type  
       text: (NSString\*) text  
       moduleWidth: (ModuleWidthBarcode) moduleWidth  
       moduleHeight: (NSInteger) moduleHeight  
       hri: (HriPositionBarcode) hri  
       nwRatio: (NwRatioBarcode) nwRatio  
       error: (NSError\*\*) error;

(b) - (BOOL) **printBarcode:** (TypeBarcode) type  
       binary: (NSData\*) binary  
       moduleWidth: (ModuleWidthBarcode) moduleWidth  
       moduleHeight: (NSInteger) moduleHeight  
       hri: (HriPositionBarcode) hri  
       nwRatio: (NwRatioBarcode) nwRatio  
       error: (NSError\*\*) error;

**Parameter**     **type**                   Barcode type  
                   See "4.4.2(16) **TypeBarcode**" for available settings.  
                   (a) **text**             : Barcode text data  
                   (b) **binary**         : Barcode binary data

The available values in **text** and **binary** are as follows.

Barcode Type	Data Size	Barcode Data to Input
UPC-A	11 to 12 bytes	'0' to '9' (0x30 to 0x39)
UPC-E	11 to 12 bytes	'0' to '9' (0x30 to 0x39)
JAN13 (EAN13)	12 to 13 bytes	'0' to '9' (0x30 to 0x39)
JAN8 (EAN8)	7 to 8 bytes	'0' to '9' (0x30 to 0x39)
CODE39	1 to 150 bytes	' ' (0x20)
		'\$' (0x24)
		'%' (0x25)
		'+' (0x2B)
		'-' (0x2D)
		'.' (0x2E)
		'/' (0x2F)
		'0' to '9' (0x30 to 0x39)
'A' to 'Z' (0x41 to 0x54)		
ITF	2 to 15 bytes (Even number only)	'0' to '9' (0x30 to 0x39)

Barcode Type	Data Size	Barcode Data to Input
CODABAR	1 to 150 bytes	'\$' (0x24)
		'+' (0x2B)
		'-' (0x2D)
		'.' (0x2E)
		'/' (0x2F)
		'0' to '9' (0x30 to 0x39)
		':' (0x3A)
'A' to 'D' (0x41 to 0x44)		
CODE93	1 to 150 bytes	(0x00 to 0x7F)
CODE128	2 to 150 bytes	(0x00 to 0x7F)*1
JAN13 (EAN13) add-on 2	14 to 15 bytes	'0' to '9' (0x30 to 0x39)
JAN13 (EAN13) add-on 5	17 to 18 bytes	'0' to '9' (0x30 to 0x39)
GS1 Databar Omni-directional	13 bytes	'0' to '9' (0x30 to 0x39)
GS1 Databar Truncated	13 bytes	'0' to '9' (0x30 to 0x39)
GS1 Databar Limited	13 bytes	'0' to '9' (0x30 to 0x39)
GS1 Databar Expanded	2 to 150 bytes	' ' to ''' (0x20 to 0x22)
		'%' to '?' (0x25 to 0x3F)
		'A' to 'Z' (0x41 to 0x5A)
		'_' (0x5F)
		'a' to 'z' (0x61 to 0x7A)
		'{' (0x7B)

\*1: The available barcode for input varies depending on the specified code set.

CODE A : 0x00 to 0x50

CODE B : 0x00 to 0x7F

CODE C : 2 digit numbers from 00 to 99 (0x00 to 0x63)

**moduleWidth** Barcode module width or fine element  
See "4.4.2(17) ModuleWidthBarcode".

**moduleHeight** Barcode module height(dot)  
See the following table for available settings.

Barcode Type	moduleHeight (dot)
UPC-A	0: Initial value (162 dots), 1 to 255
UPC-E	
JAN13 (EAN13)	
JAN8 (EAN8)	
CODE39	
ITF	
CODABAR	
CODE93	
CODE128	
JAN13 (EAN13) add-on 2	
JAN13 (EAN13) add-on 5	

Barcode Type	moduleHeight (dot)	
GS1 Databar Omni-directional	0: Initial value (162 dots)	66 to 255 <sup>*1</sup>
		99 to 255 <sup>*2</sup>
		132 to 255 <sup>*3</sup>
		165 to 255 <sup>*4</sup>
		198 to 255 <sup>*5</sup>
GS1 Databar Truncated	0: Initial value (162 dots)	26 to 255 <sup>*1</sup>
		39 to 255 <sup>*2</sup>
		52 to 255 <sup>*3</sup>
		65 to 255 <sup>*4</sup>
		78 to 255 <sup>*5</sup>
GS1 Databar Limited	0: Initial value (162 dots)	20 to 255 <sup>*1</sup>
		30 to 255 <sup>*2</sup>
		40 to 255 <sup>*3</sup>
		50 to 255 <sup>*4</sup>
		60 to 255 <sup>*5</sup>
GS1 Databar Expanded	0: Initial value (162 dots)	68 to 255 <sup>*1</sup>
		102 to 255 <sup>*2</sup>
		136 to 255 <sup>*3</sup>
		170 to 255 <sup>*4</sup>
		204 to 255 <sup>*5</sup>

\*1: When `moduleWidth` is `SII_MPM_MODULE_WIDTH_BARCODE_2`.

\*2: When `moduleWidth` is `SII_MPM_MODULE_WIDTH_BARCODE_3`.

\*3: When `moduleWidth` is `SII_MPM_MODULE_WIDTH_BARCODE_4`.

\*4: When `moduleWidth` is `SII_MPM_MODULE_WIDTH_BARCODE_5`.

\*5: When `moduleWidth` is `SII_MPM_MODULE_WIDTH_BARCODE_6`.

**hri** Barcode HRI character  
See "4.4.2(18) `HriPositionBarcode`" for available settings.

**nwRatio** Barcode N:W ratio  
The available setting varies depending on the setting of `type`.  
For the details, see "4.4.2(19) `NwRatioBarcode`".

**error** Error object reference

Return value The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see `NSError` object specified by `error`.

YES Normal  
NO Error

Description In standard mode, when the print data remains in the printer, this method is not executed.  
Execute this method after the printing is completed.

When the barcode width exceeds the print area, the barcode is not printed.

This method sends the text data specified in syntax (a) `text` after encoding it to recognizable text data for the printer.

The binary data specified in syntax (b) `binary` is sent to the printer as it is.

Special Codes specified in CODE128 are as follows.

Input Data	Special Code per Code Set		
	CODE A	CODE B	CODE C
'{S' (0x7B, 0x53)	SHIFT	SHIFT	SHIFT
'{A' (0x7B, 0x41)	-	CODE A	CODE A
'{B' (0x7B, 0x42)	CODE B	-	CODE B
'{C' (0x7B, 0x43)	CODE C	CODE C	-
'{1' (0x7B, 0x31)	FNC1	FNC1	FNC1
'{2' (0x7B, 0x32)	FNC2	FNC2	FNC2
'{3' (0x7B, 0x33)	FNC3	FNC3	FNC3
'{4' (0x7B, 0x34)	FNC4	FNC4	FNC4
'{' (0x7B, 0x7B)	-	'{'	-

Check digits for the following barcode are automatically calculated.

- UPC-A
- UPC-E
- JAN13 (EAN13)
- JAN8 (EAN8)
- JAN13 (EAN13) add-on 2
- JAN13 (EAN13) add-on 5
- GS1 Databar Omni-directional
- GS1 Databar Truncated
- GS1 Databar Limited

When the data including the check digit is specified for the following barcodes, the check digit is ignored and recalculated on the printer.

- UPC-A
- UPC-E
- JAN13 (EAN13)
- JAN8 (EAN8)

Specifying the start code and stop code (\*\*) of CODE39 is not required since the codes are added automatically.

When odd number of data is specified in ITF barcode data, the last data is discarded.

In CODABAR barcode data, input 'A' to 'D' as the start code and stop code.

In GS1 Databar Expanded barcode data, use '{' only for specifying FNC1. When specify FNC1, input '{1'(0x7B, 0x31).

When specified value in any one of **text**, **binary**, **moduleWidth**, **moduleHeight**, or **nwRatio** is not corresponded to the barcode type specified in **type**, an error occurs.

When **controlTransaction** is not used, the timeout period specified in **setWriteTimeout** is valid.

Prints the 2-dimensional barcode.

**Syntax**            (a) - (BOOL) **print2DCode:** (Type2DCode) type  
                               text: (NSString\*) text  
                               mode: (Mode2Dcode) mode  
                               moduleSize: (ModuleSize2Dcode) moduleSize  
                               moduleHeight: (NSInteger) moduleHeight  
                               column: (NSInteger) column  
                               row: (NSInteger) row  
                               errorCorrect: (ErrorCorrect2Dcode) errorCorrect  
                               error: (NSError\*\*) error;

(b) - (BOOL) **print2DCode:** (Type2DCode) type  
                               binary: (NSData\*) binary  
                               mode: (Mode2Dcode) mode  
                               moduleSize: (ModuleSize2Dcode) moduleSize  
                               moduleHeight: (NSInteger) moduleHeight  
                               column: (NSInteger) column  
                               row: (NSInteger) row  
                               errorCorrect: (ErrorCorrect2Dcode) errorCorrect  
                               error: (NSError\*\*) error;

<b>Parameter</b>	<b>type</b>	2-dimensional barcode type See "4.4.2(20) <b>Type2DCode</b> " for available settings. (a) <b>text</b> : Barcode text data (b) <b>binary</b> : Barcode binary data
	<b>mode</b>	2-dimensional barcode mode The available setting varies depending on the setting of <b>type</b> . For the details, see "4.4.2(21) <b>Mode2Dcode</b> ". When select <b>SII_MPM_MODE_2DCODE_MAXI_CODE_2</b> , add the service class (3 digits), the country code (3 digits), and the postal code (9 digits) data in the beginning of <b>text</b> or <b>binary</b> . When select <b>SII_MPM_MODE_2DCODE_MAXI_CODE_3</b> , add the service class (3 digits), the country code (3 digits), and the postal code (6 digits) data in the beginning of <b>text</b> or <b>binary</b> .
	<b>moduleSize</b>	2-dimensional barcode module size The available setting varies depending on the setting of <b>type</b> . For the details, see "4.4.2(22) <b>ModuleSize2DCode</b> ".
	<b>moduleHeight</b>	2-dimensional barcode module height (dot) <b>moduleHeight</b> is enabled in PDF417 and GS1 Databar Stacked Omni-directional. <ul style="list-style-type: none"> <li>• PDF417       Specifies the row height of PDF. The valid range is 2 to 127.</li> <li>• GS1 Databar Stacked Omni-directional       Specifies the height of 1 row. The valid range is 33 to 255.</li> </ul>

<b>column</b>	<p>Number of columns in 2-dimensional barcode  <b>column</b> is enabled in PDF417 and GS1 Databar Expanded Stacked.</p> <ul style="list-style-type: none"> <li>• PDF417 <ul style="list-style-type: none"> <li>Specifies the number of columns in the data area.  The valid range is 0 to 30.  When 0 is specified, the number of column is set automatically.</li> </ul> </li> <li>• GS1 Databar Stacked Expanded <ul style="list-style-type: none"> <li>Specifies an even number of columns per line.  The valid range is 2 to 20.</li> </ul> </li> </ul>
<b>row</b>	<p>Number of rows in 2-dimensional barcode  <b>row</b> is enabled in PDF417 only. The valid range is 0, and 3 to 90.  When 0 is specified, the number of row is set automatically.</p>
<b>errorCorrect</b>	<p>Error correction level of 2-dimensional barcode  The available setting varies depending on the setting of <b>type</b>.  For the details, see "4.4.2(23) <b>ErrorCorrect2DCode</b>".</p>
<b>error</b>	<p>Error object reference</p>
Return value	<p>The following value may be thrown when an error occurs while calling this method.  When an error occurs, see <b>NSError</b> object specified by <b>error</b>.</p> <p>YES    Normal  NO     Error</p>
Description	<p>In standard mode, when the print data remains in the printer, this method is not executed.  Execute this method after the printing is completed.</p> <p>This method sends the text data specified in syntax (a) <b>text</b> after encoding it to recognizable text data for the printer.  In <b>text</b>, input the corresponded character data in ASCII style, according to the standard 2-dimensional barcode type specified in <b>type</b>.  The binary data specified in syntax (b) <b>binary</b> is sent to the printer as it is.  In <b>binary</b>, input the corresponded character data in ASCII style character code, according to the standard 2-dimensional barcode type specified in <b>type</b>.</p> <p>When specified value in any one of <b>text</b>, <b>binary</b>, <b>mode</b>, <b>moduleSize</b>, <b>moduleHeight</b>, <b>column</b>, or <b>errorCorrect</b> is not corresponded to the 2-dimensional barcode type specified in <b>type</b>, an error occurs.</p> <p>When the 2-dimensional barcode width exceeds the print area width, this method is ignored.</p> <p>When <b>controlTransaction</b> is not used, the timeout period specified in <b>setWriteTimeout</b> is valid.</p>



Return value The following value may be thrown when an error occurs while calling this method. When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

Description In standard mode, feeds the paper by the specified number of lines. When data exists in the line buffer of the printer, paper feed is performed after printing 1 line.  
In page mode, the vertical data mapping starting position is shifted by the specified number of lines.

The paper feed length for 1 line (line feed space) can be specified in **setLineSpacing**.

## feedDotLine

## Feed paper by dot

Feed the paper by dot.

Syntax - (BOOL) **feedDotLine:** (NSInteger) dotLines  
error: (NSError\*\*) error;

Parameter **dotLines** Number of dots to feed (dot)  
In the standard mode, the range is -48 to 8192.  
In page mode, the range is 0 to 8192.  
When the specified value is within -48 to -1, this method is ignored.

**error** Error object reference

Return value The following value may be thrown when an error occurs while calling this method. When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

Description In standard mode, feeds the paper by the specified number of dots. When data exists in the line buffer of the printer, paper feed is performed after printing 1 line.  
In page mode, the vertical data mapping starting point is shifted by the specified number of dots.

## feedCutPosition

## Feed paper to cut position

Feeds the paper to the paper cut position.

Syntax - (BOOL) **feedCutPosition:** (NSError\*\*) error;

Parameter **error** Error object reference

Return value The following value may be thrown when an error occurs while calling this method. When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

Description In standard mode, when the print data remains in the printer, this method is not executed. Execute this method after the printing is completed.

Performs the marked paper form feed and the form feed position correct.

**Syntax** - (BOOL) **feedMarkPosition:** (NSInteger) dotLines  
error: (NSError\*\*) error;

**Parameter** **dotLines** Correction amount (dot)  
The range is -48 to 255.  
When correction is not needed, specify 0.

**error** Error object reference

**Return value** The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

**Description** In standard mode, when the print data remains in the printer, this method is not executed.  
Execute this method after the printing is completed.

This method is effective only when marked paper is selected.  
See "MP-A40 SERIES THERMAL PRINTER TECHNICAL REFERENCE" for details about how to use the marked paper.

Specify the log output.

**Syntax** - (BOOL) **setLog:** (NSInteger) logLevel  
logFileSize: (LogFileSize) logFileSize  
error: (NSError\*\*) error;

**Parameter** **logLevel** Log output level  
Specify 0. When other than 0 is specified, the contents of output log is not guaranteed.

**logFileSize** Maximum size of log file  
See "4.4.2(24) **LogFileSize**" for the available setting.

**error** Error object reference

**Return value** The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

**Description** Log file is saved as a local file of iOS application with programmed this library.

Log file name: PrinterManager.log.x (x range is 0 to 4)

First of all, the log file is created called PrinterManager.log.0.  
When the file size exceeds the maximum size of the log file, changes the file name to PrinterManager.log.1, and creates the new file called PrinterManager.log.0.  
The number of created file is up to 5.

• **Public Property**

`isOpened`

Retrieve printer using status

Retrieves that the printer's open status by `open`.

Syntax            `@property(readonly) BOOL isOpened;`

Parameter        **`isOpened`**            Using printer

Return value    YES    Using printer is started  
                 NO    Using printer is not started.

## (2) SIIMpaPrinterStatus

### • Summary

This class stores the printer status.  
This class provides following functions.

### Public Properties

Method	Function Summary
<code>errOffline</code>	Retrieve offline error status
<code>errHardware</code>	Retrieve hardware error status
<code>errVoltage</code>	Retrieve Vp Voltage error status
<code>errHeadTemperature</code>	Retrieve head temperature error status
<code>errOutOfPaper</code>	Retrieve out-of-paper error status
<code>errMarkPaperJam</code>	Retrieve paper jam error status while detecting marked paper.
<code>errCoverOpen</code>	Retrieve paper cover open error status
<code>errBattery</code>	Retrieve battery error status
<code>stateFeedSwitch</code>	Retrieve feed switch status
<code>statePaperFeed</code>	Retrieve paper feed status
<code>stateReturnWaiting</code>	Retrieve return waiting status
<code>stateFlashMemoryRewriting</code>	Retrieve FLASH memory rewrite status
<code>stateBattery</code>	Retrieve battery voltage status

### • Public Properties

`errOffline` Retrieve offline error status

Retrieves the offline error status.

Syntax            @property(readonly) BOOL `errOffline`;

Return value    YES    Offline error  
                  NO    Online

`errHardware` Retrieve hardware error status

Retrieves the hardware error status.

Syntax            @property(readonly) BOOL `errHardware`;

Return value    YES    error  
                  NO    OK

**errVoltage****Retrieve Vp Voltage error status**

Retrieves the Vp Voltage error status.

Syntax            @property(readonly) BOOL **errVoltage**;

Return value    YES    error  
                 NO     OK

**errHeadTemperature****Retrieve head temperature error status**

Retrieves the head temperature error status.

Syntax            @property(readonly) BOOL **errHeadTemperature**;

Return value    YES    error  
                 NO     OK

**errOutOfPaper****Retrieve out-of-paper error status**

Retrieves the out-of-paper error status.

Syntax            @property(readonly) BOOL **errOutOfPaper**;

Return value    YES    error  
                 NO     OK

**errMarkPaperJam****Retrieve paper jam error status while detecting marked paper.**

Retrieves the paper jam error status while detecting marked paper.

Syntax            @property(readonly) BOOL **errMarkPaperJam**;

Return value    YES    error  
                 NO     OK

**errCoverOpen****Retrieve paper cover open error status**

Retrieves the paper cover open error status.

Syntax            @property(readonly) BOOL **errCoverOpen**;

Return value    YES    error  
                 NO     OK

**errBattery****Retrieve battery error status**

Retrieves the battery error status.

Syntax            @property(readonly) BOOL **errBattery**;

Return value    YES    error  
                 NO     OK

**stateFeedSwitch****Retrieve feed switch status**

Retrieves the feed switch status.

Syntax            @property(readonly) BOOL **stateFeedSwitch**;

Return value	YES	ON
	NO	OFF

**statePaperFeed****Retrieve paper feed status**

Retrieves the paper feed status.

Syntax            @property(readonly) BOOL **statePaperFeed**;

Return value	YES	Feeding
	NO	Stopped

**stateReturnWaiting****Retrieve return waiting status**

Retrieves the return waiting status.

Syntax            @property(readonly) BOOL **stateReturnWaiting**;

Return value	YES	In return waiting status
	NO	Not in return waiting status

**stateFlashMemoryRewriting****Retrieve FLASH memory rewrite status**

Retrieves the FLASH memory rewrite status.

Syntax            @property(readonly) BOOL **stateFlashMemoryRewriting**;

Return value	YES	In rewrite status
	NO	Not in rewrite status

**stateBattery****Retrieve battery voltage status**

Retrieves the battery voltage status.

Syntax            @property(readonly) NSInteger **stateBattery**;

Return value	0	No battery
	1	Battery remaining capacity level 4 or 5 (Need to charge or battery remaining capacity is 0%)
	2	Battery remaining capacity level 3 (battery remaining capacity: approx. 10%)
	3	Battery remaining capacity level 2 (battery remaining capacity: approx. 40%)
	4	Battery remaining capacity level 1 (battery remaining capacity: approx. 80%)

### (3) SIIMpaPrinterDiscovery

#### • Summary

This class provides printer search functions.  
This class provides the following functions.

#### Public Methods

Method	Function Summary
<code>startDiscoveryPrinter</code>	Start printer search
<code>cancelDiscoveryPrinter</code>	Cancel printer search
<code>getFoundPrinter</code>	Retrieve information list of searched printer

Constants used when retrieving the events are shown in the following table.

#### Constants

Method	Function Summary
<code>SII_MPM_EVENT_FINISHED_DISCOVERY</code>	Finish printer search Value = 0
<code>SII_MPM_EVENT_CANCELED_DISCOVERY</code>	Cancel printer search Value = 1

#### • Public Methods

### `startDiscoveryPrinter` Start printer search

Starts the printer search.

Syntax        - (BOOL) **startDiscoveryPrinter**: (SEL) method  
                   target: (NSObject\*) target  
                   prnIf: (PrinterInterface) prnIf  
                   retry: (NSInteger) retry  
                   timeout: (NSInteger) timeout  
                   error: (NSError\*\*) error;

Parameter    **method**                    Specification of selector  
   Specify the selector of method to execute when the printer search is finished or the search is canceled by `cancelDiscoveryPrinter`. The sample of execution method by the callback is follows.

- (void)onDiscoveryFinished: (NSNumber \*)event;

  When this method is called by search finish, **SII\_MPM\_EVENT\_FINISHED\_DISCOVERY** is assigned to `event`.  
   When this method is called by search cancel, **SII\_MPM\_EVENT\_CANCELED\_DISCOVERY** is assigned to `event`.

**target**                    Specification of object  
   Specify the object including the method specified by `method`.

**prnIf**                    Constants of communication interface  
   See "4.4.2(1) `PrinterInterface`" for the available setting.

<b>retry</b>	<p>Number of retry times (time)</p> <p>The performance varies depending on the setting of <b>prnIf</b>.</p> <ul style="list-style-type: none"> <li>When <b>SII_MPM_PRN_IF_TCP</b> is specified: <ul style="list-style-type: none"> <li>Sends local broadcast packet as much as the specified times in <b>retry</b>.</li> <li>The range is 1 to 5.</li> <li>When the specified value is below 1, the value is processed as 1.</li> <li>When the specified value exceeds 5, the value is processed as 5.</li> </ul> </li> <li>When <b>SII_MPM_PRN_IF_BT</b> is specified: <ul style="list-style-type: none"> <li>The specified value is ignored, and the search is performed 1 time only.</li> </ul> </li> </ul>
<b>timeout</b>	<p>Timeout period for 1 time search</p> <p>The performance varies depending on the setting of <b>prnIf</b>.</p> <ul style="list-style-type: none"> <li>When <b>SII_MPM_PRN_IF_TCP</b> is specified: <ul style="list-style-type: none"> <li>Every time of sending local broadcast packet, wait for a response from the printer until the time specified by <b>timeout</b>.</li> <li>The range is 3 to 60.</li> <li>When the specified value is below 3, the value is processed as 3.</li> <li>When the specified value exceeds 60, the value is processed as 60.</li> </ul> </li> <li>When <b>SII_MPM_PRN_IF_BT</b> is specified: <ul style="list-style-type: none"> <li>The specified value is ignored.</li> </ul> </li> </ul>
<b>error</b>	Error object reference
Return value	<p>The following value may be thrown when an error occurs while calling this method.</p> <p>When an error occurs, see <b>NSError</b> object specified by <b>error</b>.</p> <p>YES Normal NO Error</p>
Description	<p>Cancel is available by <b>cancelDiscoveryPrinter</b>.</p> <p>Retrieve the search result by <b>getFoundPrinter</b>.</p>

## cancelDiscoveryPrinter

## Cancel printer search

Cancels the printer search started by **startDiscoveryPrinter**.

Syntax - (BOOL) **cancelDiscoveryPrinter**: (NSError\*\*) error

Parameter **error** Error object reference

Return value The following value may be thrown when an error occurs while calling this method.  
When an error occurs, see **NSError** object specified by **error**.

YES Normal  
NO Error

Description When the search is canceled, the method specified in **method** of **startDiscoveryPrinter** is executed.

The search result by cancellation can be retrieved by **getFoundPrinter**.



#### (4) `SIIMpaDiscoveredPrinter`

##### • Summary

This class stores the printer information searched by `startDiscoveryPrinter`. By the printer information searched, the printer model name, Bluetooth address, IP address, MAC address and serial number can be retrieved.

This class provides the following functions.

##### Public Properties

Property	Function Summary
<code>printerModel</code>	Retrieve printer model name
<code>bluetoothAddress</code>	Retrieve Bluetooth address
<code>ipAddress</code>	Retrieve IP address
<code>macAddress</code>	Retrieve MAC address
<code>serialNumber</code>	Retrieve serial number

##### • Public Properties

`printerModel` Retrieve printer model name

Retrieves the character string of printer model name.

Syntax `@property(readonly) NSString *printerModel;`

Return value Printer model name

`bluetoothAddress` Retrieve Bluetooth address

Retrieves the character string of Bluetooth address.

Syntax `@property(readonly) NSString *bluetoothAddress;`

Return value Bluetooth address

`ipAddress` Retrieve IP address

Retrieves the character string of IP address.

Syntax `@property(readonly) NSString *ipAddress;`

Return value IP address

`macAddress` Retrieve MAC address

Retrieves the character string of MAC address.

Syntax `@property(readonly) NSString *macAddress;`

Return value MAC address

Retrieves the character string of Serial Number.

Syntax            @property (readonly) NSString \***serialNumber**;

Return value    Serial Number

#### 4.4.2 Enumerated Type (Enum)

##### (1) PrinterInterface

Enumerator used for specifying the communication interface of `open`.

Constant Name	Description
<code>SII_MPM_PRN_IF_TCP</code>	TCP/IP
<code>SII_MPM_PRN_IF_BT</code>	Bluetooth

##### (2) PrinterModel

Enumerator used for specifying the printer model of `open`.

Constant Name	Description
<code>SII_MPM_PRN_MODEL_MP_A40</code>	MP-A40

##### (3) Dithering

Enumerator used for dithering of `resisterLogo` and `sendDataFile`.

Constant Name	Description
<code>SII_MPM_DITHERING_DISABLE</code>	Dithering is disabled
<code>SII_MPM_DITHERING_ERRORDIFFUSION</code>	Dithering is enabled

##### (4) PrinterInformation

Enumerator used for specifying the printer information of `getPrinterInformation`, `getPrinterInformationNumber` and `getPrinterInformationString`. See "MP-A40 THERMAL PRINTER TECHNICAL REFERENCE" for details of printer information to retrieve.

Constant Name	Description (Printer Information)
<code>SII_MPM_GET_NV_MEM_CAP</code>	NV graphics memory capacity
<code>SII_MPM_GET_NV_MEM_REM_CAP</code>	NV graphics memory remaining capacity
<code>SII_MPM_GET_NV_MEM_KEYCODE_LIST</code>	NV graphics key code list
<code>SII_MPM_GET_REM_USER_MEM_CAP_DEFRAG</code>	Remaining user area after defragment
<code>SII_MPM_GET_REM_USER_MEM_CAP</code>	Remaining user area
<code>SII_MPM_GET_FUNC_SET_RESP</code>	Function setting response
<code>SII_MPM_GET_PRN_ID_MODEL</code>	Printer ID send (Model ID)
<code>SII_MPM_GET_PRN_ID_TYPE</code>	Printer ID send (Type ID)
<code>SII_MPM_GET_PRN_ID_ROM_VER</code>	Printer ID send (ROM version ID)
<code>SII_MPM_GET_PRN_ID_FIRM_VER_MAIN</code>	Printer ID send (Firmware version (main))
<code>SII_MPM_GET_PRN_ID_MFR</code>	Printer ID send (Manufacturer)
<code>SII_MPM_GET_PRN_ID_MODEL_NAME</code>	Printer ID send (Model name)
<code>SII_MPM_GET_PRN_ID_FIRM_VER_BOOT</code>	Printer ID send (Firmware version (boot))
<code>SII_MPM_GET_PRN_ID_FIRM_CHECKSUM_BOOT</code>	Printer ID send (Firmware checksum (boot))

Constant Name	Description (Printer Information)
SII_MPM_GET_PRN_ID_FIRM_CHECKSUM_MAIN	Printer ID send (Firmware checksum (main))
SII_MPM_GET_PRN_ID_FIRM_CHECKSUM	Printer ID send (Firmware checksum (main+boot))
SII_MPM_GET_MAINT_NUM_FEED_LINE	Maintenance counter (Paper feed line count (in 100 dot-lines))
SII_MPM_GET_MAINT_NUM_HEAD_ACTIVE	Maintenance counter (Number of thermal head activation times (in 100 dot-lines))
SII_MPM_GET_MAINT_DRIVE_TIME	Maintenance counter (Drive time of printer mechanism (minute))
SII_MPM_GET_MAINT_NUM_FEED_LINE_INTEGRATION	Maintenance counter (Paper feed line count (in 100 dot-lines) (integrated value))
SII_MPM_GET_MAINT_NUM_HEAD_ACTIVE_INTEGRATION	Maintenance counter (Number of thermal head activation times (in 100 dot-lines) (integration))
SII_MPM_GET_MAINT_DRIVE_TIME_INTEGRATION	Maintenance counter (Drive time of printer mechanism (minute) (integration))
SII_MPM_GET_HFONT_24_CHECKSUM	1-byte font ID send (24 dots font, checksum)
SII_MPM_GET_HFONT_24_ID	1-byte font ID send (24 dots font, ID)
SII_MPM_GET_HFONT_24_INT_CHAR	1-byte font ID send (24 dots font, registered international character)
SII_MPM_GET_HFONT_16_CHECKSUM	1-byte font ID send (16 dots font, checksum)
SII_MPM_GET_HFONT_16_ID	1-byte font ID send (16 dots font, ID)
SII_MPM_GET_HFONT_16_INT_CHAR	1-byte font ID send (16 dots font, registered international character)
SII_MPM_GET_FFONT_LANG	2-byte font ID send (Language)
SII_MPM_GET_FFONT_STANDARD	2-byte font ID send (Standard)
SII_MPM_GET_FFONT_COMPANY	2-byte font ID send (Company name)
SII_MPM_GET_FFONT_CHECKSUM	2-byte font ID send (Checksum)
SII_MPM_GET_FFONT_DATA_SIZE	2-byte font ID send (Data size)
SII_MPM_GET_FFONT_ROM_ID	2-byte font ID send (ROMID)

(5) **TransactionFunction**

Enumerator used for specifying the batch process control method of **controlTransaction**.

Constant Name	Description
SII_MPM_TRANSACTION_CLEAR	Interrupt batch process
SII_MPM_TRANSACTION_START	Begin batch process
SII_MPM_TRANSACTION_PRINT	End batch print and batch process

(6) **Direction**

Enumerator used for specifying the print direction of `selectPageMode`. The default value is shown by the shaded enumerated value in the following table.

When the start point is "top left" or "bottom right", the printer maps the print data in a vertical direction to the paper feed direction.

When the start point is "top right" or "bottom left", the printer maps the print data in a parallel direction to the paper feed direction.

Constant Name	Description
<b>SII_MPM_DIRECTION_LEFT_TO_RIGHT</b>	Print direction: left to right, Start point: top left (Figure 4-2 A)
<b>SII_MPM_DIRECTION_BOTTOM_TO_TOP</b>	Print direction: bottom to top, Start point: bottom left (Figure 4-2 B)
<b>SII_MPM_DIRECTION_RIGHT_TO_LEFT</b>	Print direction: right to left, Start point: bottom right (Figure 4-2 C)
<b>SII_MPM_DIRECTION_TOP_TO_BOTTOM</b>	Print direction: top to bottom, Start point: top right (Figure 4-2 D)

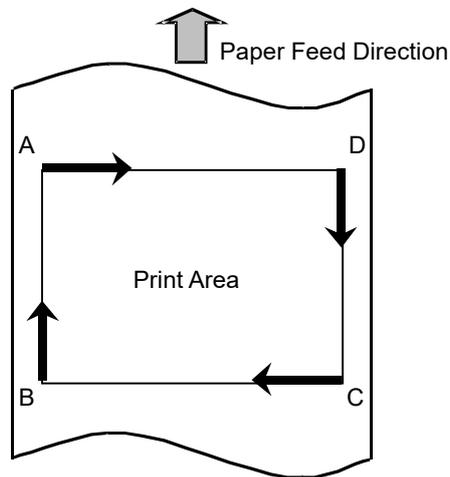


Figure 4-2

(7) **Alignment**

Enumerator used for specifying the print position of `setStandardModeAlignment`. The default value is shown by the shaded enumerated value in the following table.

Constant Name	Description
<b>SII_MPM_ALIGN_LEFT</b>	Left aligned
<b>SII_MPM_ALIGN_CENTER</b>	Centered
<b>SII_MPM_ALIGN_RIGHT</b>	Right aligned

(8) **CharacterSet**

Enumerator used for specifying the character set of `selectCharacterSet` and `getCharacterSet`. The default value varies depending on the language setting of iOS device.

Japanese: **SII\_MPM\_CODEPAGE\_KATAKANA**  
Other than Japanese: **SII\_MPM\_CODEPAGE\_1252**

Constant Name	Description
<b>SII_MPM_CODEPAGE_437</b>	USA, Standard Europe (Code Page 437)
<b>SII_MPM_CODEPAGE_KATAKANA</b>	Katakana
<b>SII_MPM_CODEPAGE_850</b>	Multilingual (Code Page 850)
<b>SII_MPM_CODEPAGE_860</b>	Portuguese (Code Page 860)
<b>SII_MPM_CODEPAGE_863</b>	Canadian-French (Code Page 863)
<b>SII_MPM_CODEPAGE_865</b>	Nordic (Code Page 865)
<b>SII_MPM_CODEPAGE_857<sup>*1</sup></b>	Turkish (Code Page 857)
<b>SII_MPM_CODEPAGE_737</b>	Greek (Code Page 737)
<b>SII_MPM_CODEPAGE_1252</b>	Latin (Code Page 1252)
<b>SII_MPM_CODEPAGE_866</b>	Russian (Code Page 866)
<b>SII_MPM_CODEPAGE_852</b>	Eastern Europe (Code Page 852)
<b>SII_MPM_CODEPAGE_858</b>	Euro (Code Page 858)
<b>SII_MPM_CODEPAGE_855</b>	Cyrillic (Code Page 855)
<b>SII_MPM_CODEPAGE_864<sup>*1</sup></b>	Arabic (Code Page 864)
<b>SII_MPM_CODEPAGE_1250</b>	Central European (Code Page 1250)
<b>SII_MPM_CODEPAGE_1251</b>	Cyrillic (Code Page 1251)
<b>SII_MPM_CODEPAGE_1253<sup>*2</sup></b>	Greek (Code Page 1253)
<b>SII_MPM_CODEPAGE_1254</b>	Turkish (Code Page 1254)

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

\*2: 00AAh of the Unicode cannot be printed.

(9) **InternationalCharacterSet**

Enumerator used for specifying the international character set of `selectInternationalCharacterSet` and `getInternationalCharacter`. The default value varies depending on the language setting of iOS device.

Japanese: **SII\_MPM\_INT\_CHAR\_SET\_JAPAN**  
Other than Japanese: **SII\_MPM\_INT\_CHAR\_SET\_USA**

Constant Name	Description
<b>SII_MPM_INT_CHAR_SET_USA</b>	USA
<b>SII_MPM_INT_CHAR_SET_FRANCE</b>	France
<b>SII_MPM_INT_CHAR_SET_GERMANY</b>	Germany
<b>SII_MPM_INT_CHAR_SET_UNITED_KINGDOM</b>	United Kingdom
<b>SII_MPM_INT_CHAR_SET_DENMARK_1</b>	Denmark
<b>SII_MPM_INT_CHAR_SET_SWEDEN</b>	Sweden
<b>SII_MPM_INT_CHAR_SET_ITALY</b>	Italy
<b>SII_MPM_INT_CHAR_SET_SPAIN_1</b>	Spain I
<b>SII_MPM_INT_CHAR_SET_JAPAN</b>	Japan
<b>SII_MPM_INT_CHAR_SET_NORWAY</b>	Norway
<b>SII_MPM_INT_CHAR_SET_DENMARK_2</b>	Denmark II
<b>SII_MPM_INT_CHAR_SET_SPAIN_2</b>	Spain II
<b>SII_MPM_INT_CHAR_SET_LATIN_AMERICA</b>	Latin America
<b>SII_MPM_INT_CHAR_SET_ARABIA</b>	Arabia

(10) **CharacterType**

Enumerator used for specifying the character font of `setCharacterFormatting`. The default value is shown by the shaded enumerated value in the following table.

Constant Name	Description
<b>SII_MPM_CHAR_TYPE_FONT_CURRENT*1</b>	Current Setting (without sending the setting printer command)
<b>SII_MPM_CHAR_TYPE_FONT_A</b>	Font A (24 × 12), Kanji font A (24 × 24)
<b>SII_MPM_CHAR_TYPE_FONT_B*1</b>	Font B (16 × 8), Kanji font B (16 × 16)

\*1: When **SII\_MPM\_CODEPAGE\_864** is selected in `selectCharacterSet`, the text is printed in FontA (24 × 12) regardless of specifying the character font in `setCharacterFormatting`.

(11) **CharacterScale**

Enumerator used for specifying the character scale of **setCharacterFormatting**. The default value is shown by the shaded enumerated value in the following table.

Constant Name	Description
<b>SII_MPM_CHAR_SCALE_CURRENT</b>	Current Setting (without sending the setting printer command)
SII_MPM_CHAR_SCALE_X1	× 1 (Standard)
SII_MPM_CHAR_SCALE_X2	× 2 (double)
SII_MPM_CHAR_SCALE_X3	× 3 (triple)
SII_MPM_CHAR_SCALE_X4	× 4 (quadruple)
SII_MPM_CHAR_SCALE_X5	× 5 (quintuple)
SII_MPM_CHAR_SCALE_X6	× 6 (sextuple)
SII_MPM_CHAR_SCALE_X7	× 7 (septuple)
SII_MPM_CHAR_SCALE_X8	× 8 (octuple)

(12) **Underline**

Enumerator used for specifying the underline of **setCharacterFormatting**. The default value is shown by the shaded enumerated value in the following table.

Constant Name	Description
<b>SII_MPM_CHAR_UNDERLINE_CURRENT</b>	Current Setting (without sending the setting printer command)
SII_MPM_CHAR_UNDERLINE_NONE	No underline
SII_MPM_CHAR_UNDERLINE_1DOT	Specify 1 dot width underline
SII_MPM_CHAR_UNDERLINE_2DOT	Specify 2 dots width underline

(13) **Bold**

Enumerator used for specifying the bold print of **setCharacterFormatting**. The default value is shown by the shaded enumerated value in the following table.

Constant Name	Description
<b>SII_MPM_CHAR_BOLD_CURRENT</b>	Current Setting (without sending the setting printer command)
SII_MPM_CHAR_BOLD_OFF	No bold print
SII_MPM_CHAR_BOLD_ON	Specify bold print

(14) **Reverse**

Enumerator used for specifying the reverse print of **setCharacterFormatting**. The default value is shown by the shaded enumerated value in the following table.

Constant Name	Description
<b>SII_MPM_CHAR_REVERSE_CURRENT</b>	Current Setting (without sending the setting printer command)
SII_MPM_CHAR_REVERSE_OFF	No reverse print
SII_MPM_CHAR_REVERSE_ON	Specify reverse print

(15) Rotate

Enumerator used for specifying the character rotation print of `setCharacterFormatting`, and for specifying print barcode direction of `setStandardModeBarcodeDirection`. The default value is shown by the shaded enumerated value in the following table.

When the character rotation print is specified `setCharacterFormatting`, the print position is changed. The print position and direction of text is shown in the Figure 4-3, Figure 4-4, Figure 4-5 and Figure 4-6.

Constant Name	Description
<b>SII_MPM_ROTATE_CURRENT</b>	Current Setting (without sending the setting printer command)
<b>SII_MPM_ROTATE_NONE</b>	No rotation
<b>SII_MPM_ROTATE_90_TO_RIGHT</b>	Rotate 90 degrees to right
<b>SII_MPM_ROTATE_180</b>	Rotate 180 degrees
<b>SII_MPM_ROTATE_90_TO_LEFT</b>	Rotate 90 degrees to left

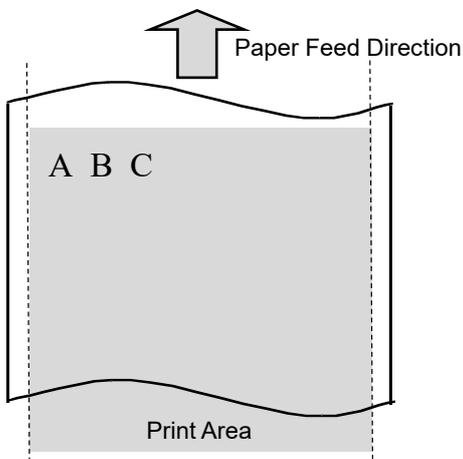


Figure 4-3 No rotation

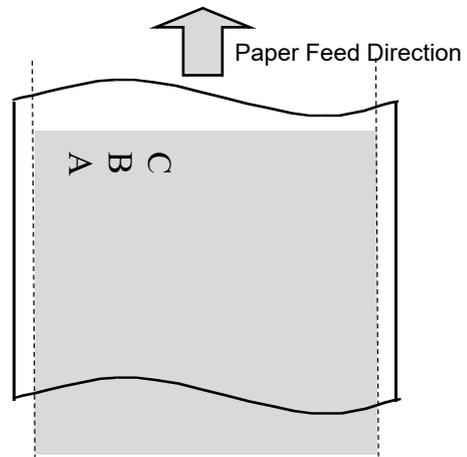


Figure 4-4 Rotate 90 degrees to right

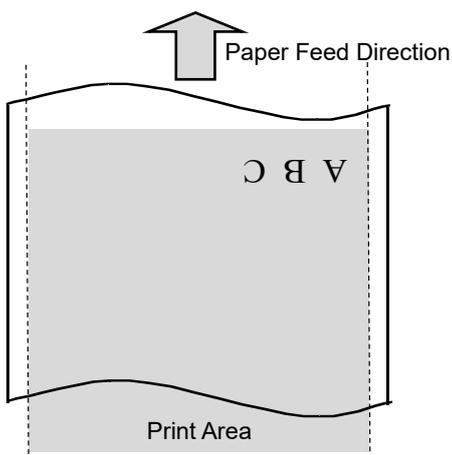


Figure 4-5 Rotate 180 degrees

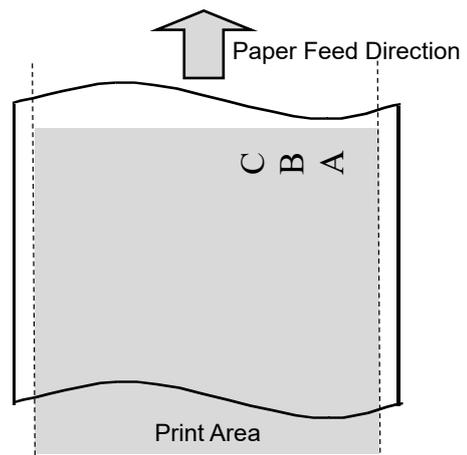


Figure 4-6 Rotate 90 degrees to left

(16) **TypeBarcode**

Enumerator used for specifying the barcode type of `printBarcode`.

Constant Name	Description	
<b>SII_MPM_TYPE_BARCODE_UPC_A</b>	UPC-A	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_UPC_E</b>	UPC-E	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_JAN13</b>	JAN13 (EAN13)	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_JAN8</b>	JAN8 (EAN8)	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_CODE39</b>	CODE39	Binary level barcode
<b>SII_MPM_TYPE_BARCODE_ITF</b>	ITF	Binary level barcode
<b>SII_MPM_TYPE_BARCODE_CODABAR</b>	CODABAR	Binary level barcode
<b>SII_MPM_TYPE_BARCODE_CODE128</b>	CODE128	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_CODE93</b>	CODE93	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_JAN13_ADDON2</b>	JAN13 (EAN13) add-on 2	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_JAN13_ADDON5</b>	JAN13 (EAN13) add-on 5	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_GS1_OMNI_DIRECTIONAL</b>	GS1 Databar Omni-directional	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_GS1_TRUNCATED</b>	GS1 Databar Truncated	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_GS1_LIMITED</b>	GS1 Databar Limited	Multilevel barcode
<b>SII_MPM_TYPE_BARCODE_GS1_EXPANDED</b>	GS1 Databar Expanded	Multilevel barcode

(17) **ModuleWidthBarcode**

Enumerator used for specifying the barcode module width or narrow element of `printBarcode`.

Constant Name	Description
<b>SII_MPM_MODULE_WIDTH_BARCODE_2</b>	2 dots
<b>SII_MPM_MODULE_WIDTH_BARCODE_3</b>	3 dots
<b>SII_MPM_MODULE_WIDTH_BARCODE_4</b>	4 dots
<b>SII_MPM_MODULE_WIDTH_BARCODE_5</b>	5 dots
<b>SII_MPM_MODULE_WIDTH_BARCODE_6</b>	6 dots

(18) **HriPositionBarcode**

Enumerator used for specifying the barcode HRI characters of `printBarcode`.

Constant Name	Description
<b>SII_MPM_HRI_BARCODE_NONE</b>	No HRI character
<b>SII_MPM_HRI_BARCODE_TOP_FONT_A</b>	Above barcode (font A)
<b>SII_MPM_HRI_BARCODE_BOTTOM_FONT_A</b>	Below barcode (font A)
<b>SII_MPM_HRI_BARCODE_FONT_A</b>	Above and below barcode (font A)
<b>SII_MPM_HRI_BARCODE_TOP_FONT_B</b>	Above barcode (font B)
<b>SII_MPM_HRI_BARCODE_BOTTOM_FONT_B</b>	Below barcode (font B)
<b>SII_MPM_HRI_BARCODE_FONT_B</b>	Above and below barcode (font B)

(19) **NwRatioBarcode**

Enumerator used for specifying the barcode N:W ratio of `printBarcode`.

Constant Name	Description
<b>SII_MPM_NWRATIO_BARCODE_1TO2</b>	1:2
<b>SII_MPM_NWRATIO_BARCODE_1TO2_5</b>	1:2.5
<b>SII_MPM_NWRATIO_BARCODE_1TO3</b>	1:3

(20) **Type2DCode**

Enumerator used for specifying the 2-dimensional barcode type of `print2DCode`.

Constant Name	Description
<b>SII_MPM_TYPE_2DCODE_QR_CODE</b>	QR Code
<b>SII_MPM_TYPE_2DCODE_PDF417</b>	PDF417
<b>SII_MPM_TYPE_2DCODE_DATA_MATRIX</b>	Data Matrix
<b>SII_MPM_TYPE_2DCODE_MAXI_CODE</b>	Maxi Code
<b>SII_MPM_TYPE_2DCODE_GS1_STACKED</b>	GS1 Databar Stacked
<b>SII_MPM_TYPE_2DCODE_GS1_OMNI_DIRECTIONAL</b>	GS1 Databar Stacked Omni-directional
<b>SII_MPM_TYPE_2DCODE_GS1_EXPANDED_STACKED</b>	GS1 Databar Expanded Stacked

(21) **Mode2Dcode**

Enumerator used for specifying the 2-dimensional barcode mode of `print2DCode`.

Constant Name	Description	
<b>SII_MPM_MODE_2DCODE_QR_CODE_MODEL1</b>	QR Code	Model1
<b>SII_MPM_MODE_2DCODE_QR_CODE_MODEL2</b>	QR Code	Model2
<b>SII_MPM_MODE_2DCODE_PDF417_STANDARD</b>	PDF417	Normal Mode
<b>SII_MPM_MODE_2DCODE_PDF417_COMPACT</b>	PDF417	Simple Mode
<b>SII_MPM_MODE_2DCODE_DATA_MATRIX_AUTO</b>	Data Matrix	Module numbers: Automatic
<b>SII_MPM_MODE_2DCODE_DATA_MATRIX_10_10</b>	Data Matrix	Module numbers: 10 × 10

Constant Name	Description	
SII_MPM_MODE_2DCODE_DATA_MATRIX_12_12	Data Matrix	Module numbers: 12 × 12
SII_MPM_MODE_2DCODE_DATA_MATRIX_14_14	Data Matrix	Module numbers: 14 × 14
SII_MPM_MODE_2DCODE_DATA_MATRIX_16_16	Data Matrix	Module numbers: 16 × 16
SII_MPM_MODE_2DCODE_DATA_MATRIX_18_18	Data Matrix	Module numbers: 18 × 18
SII_MPM_MODE_2DCODE_DATA_MATRIX_20_20	Data Matrix	Module numbers: 20 × 20
SII_MPM_MODE_2DCODE_DATA_MATRIX_22_22	Data Matrix	Module numbers: 22 × 22
SII_MPM_MODE_2DCODE_DATA_MATRIX_24_24	Data Matrix	Module numbers: 24 × 24
SII_MPM_MODE_2DCODE_DATA_MATRIX_26_26	Data Matrix	Module numbers: 26 × 26
SII_MPM_MODE_2DCODE_DATA_MATRIX_32_32	Data Matrix	Module numbers: 32 × 32
SII_MPM_MODE_2DCODE_DATA_MATRIX_36_36	Data Matrix	Module numbers: 36 × 36
SII_MPM_MODE_2DCODE_DATA_MATRIX_40_40	Data Matrix	Module numbers: 40 × 40
SII_MPM_MODE_2DCODE_DATA_MATRIX_44_44	Data Matrix	Module numbers: 44 × 44
SII_MPM_MODE_2DCODE_DATA_MATRIX_48_48	Data Matrix	Module numbers: 48 × 48
SII_MPM_MODE_2DCODE_DATA_MATRIX_52_52	Data Matrix	Module numbers: 52 × 52
M SII_MPM_ODE_2DCODE_DATA_MATRIX_64_64	Data Matrix	Module numbers: 64 × 64
SII_MPM_MODE_2DCODE_DATA_MATRIX_72_72	Data Matrix	Module numbers: 72 × 72
SII_MPM_MODE_2DCODE_DATA_MATRIX_80_80	Data Matrix	Module numbers: 80 × 80
SII_MPM_MODE_2DCODE_DATA_MATRIX_88_88	Data Matrix	Module numbers: 88 × 88
SII_MPM_MODE_2DCODE_DATA_MATRIX_96_96	Data Matrix	Module numbers: 96 × 96
SII_MPM_MODE_2DCODE_DATA_MATRIX_104_104	Data Matrix	Module numbers: 104 × 104
SII_MPM_MODE_2DCODE_DATA_MATRIX_120_120	Data Matrix	Module numbers: 120 × 120
SII_MPM_MODE_2DCODE_DATA_MATRIX_132_132	Data Matrix	Module numbers: 132 × 132
SII_MPM_MODE_2DCODE_DATA_MATRIX_144_144	Data Matrix	Module numbers: 144 × 144
SII_MPM_MODE_2DCODE_DATA_MATRIX_8_18	Data Matrix	Module numbers: 8 × 18
SII_MPM_MODE_2DCODE_DATA_MATRIX_8_32	Data Matrix	Module numbers: 8 × 32
SII_MPM_MODE_2DCODE_DATA_MATRIX_12_26	Data Matrix	Module numbers: 12 × 26
SII_MPM_MODE_2DCODE_DATA_MATRIX_12_36	Data Matrix	Module numbers: 12 × 36
SII_MPM_MODE_2DCODE_DATA_MATRIX_16_36	Data Matrix	Module numbers: 16 × 36
SII_MPM_MODE_2DCODE_DATA_MATRIX_16_48	Data Matrix	Module numbers: 16 × 48
SII_MPM_MODE_2DCODE_MAXI_CODE_2	Maxi Code	Mode2
SII_MPM_MODE_2DCODE_MAXI_CODE_3	Maxi Code	Mode3
SII_MPM_MODE_2DCODE_MAXI_CODE_4	Maxi Code	Mode4
SII_MPM_MODE_2DCODE_MAXI_CODE_5	Maxi Code	Mode5
SII_MPM_MODE_2DCODE_NONE	GS1 Databar Stacked GS1 Databar Stacked Omni-directional GS1 Databar Expanded Stacked	No settings

(22) `ModuleSize2DCode`

Enumerator used for specifying the 2-dimensional barcode module size of `print2DCode`.

Constant Name	Description	
<b>SII_MPM_MODULE_SIZE_2DCODE_DEFAULT</b>	QR Code	Default (6 dots)
	PDF417	Default (4 dots)
	Data Matrix	Default (6 dots)
	Maxi Code	No settings
	GS1 Databar Stacked	Default (6 dots)
	GS1 Databar Stacked Omni-directional	Default (6 dots)
	GS1 Databar Expanded Stacked	Default (6 dots)
<b>SII_MPM_MODULE_SIZE_2DCODE_2</b>	QR Code	2 dots
	PDF417	
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_3</b>	QR Code	3 dots
	PDF417	
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_4</b>	QR Code	4 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_5</b>	QR Code	5 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_6</b>	QR Code	6 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	

Constant Name	Description	
<b>SII_MPM_MODULE_SIZE_2DCODE_7</b>	QR Code	7 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_8</b>	QR Code	8 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_9</b>	QR Code	9 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_10</b>	QR Code	10 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_11</b>	QR Code	11 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_12</b>	QR Code	12 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_13</b>	QR Code	13 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	

Constant Name	Description	
<b>SII_MPM_MODULE_SIZE_2DCODE_14</b>	QR Code	14 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_15</b>	QR Code	15 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	
<b>SII_MPM_MODULE_SIZE_2DCODE_16</b>	QR Code	16 dots
	Data Matrix	
	GS1 Databar Stacked	
	GS1 Databar Stacked Omni-directional	
	GS1 Databar Expanded Stacked	

(23) **ErrorCorrect2DCode**

Enumerator used for specifying the 2-dimensional barcode error correction level of `print2DCode`.

Constant Name	Description	
<b>SII_MPM_ERR_CORRECTION_2DCODE_QR_CODE_L</b>	QR Code	L
<b>SII_MPM_ERR_CORRECTION_2DCODE_QR_CODE_M</b>	QR Code	M
<b>SII_MPM_ERR_CORRECTION_2DCODE_QR_CODE_Q</b>	QR Code	Q
<b>SII_MPM_ERR_CORRECTION_2DCODE_QR_CODE_H</b>	QR Code	H
<b>SII_MPM_ERR_CORRECTION_2DCODE_PDF417_0</b>	PDF417	0
<b>SII_MPM_ERR_CORRECTION_2DCODE_PDF417_1</b>	PDF417	1
<b>SII_MPM_ERR_CORRECTION_2DCODE_PDF417_2</b>	PDF417	2
<b>SII_MPM_ERR_CORRECTION_2DCODE_PDF417_3</b>	PDF417	3
<b>SII_MPM_ERR_CORRECTION_2DCODE_PDF417_4</b>	PDF417	4
<b>SII_MPM_ERR_CORRECTION_2DCODE_PDF417_5</b>	PDF417	5
<b>SII_MPM_ERR_CORRECTION_2DCODE_PDF417_6</b>	PDF417	6
<b>SII_MPM_ERR_CORRECTION_2DCODE_PDF417_7</b>	PDF417	7
<b>SII_MPM_ERR_CORRECTION_2DCODE_PDF417_8</b>	PDF417	8
<b>SII_MPM_ERR_CORRECTION_2DCODE_NONE</b>	Data Matrix Maxi Code GS1 Databar Stacked GS1 Databar Stacked Omni-directional GS1 Databar Expanded Stacked	No settings

(24) **LogFileSize**

Enumerator used for specifying the maximum size of the log file of `setLog`.

Constant Name	Description
<b>SII_MPM_LOG_FILE_SIZE_1MB</b>	1 MB (1048576 bytes)
<b>SII_MPM_LOG_FILE_SIZE_5MB</b>	5 MB (5242880 bytes)
<b>SII_MPM_LOG_FILE_SIZE_10MB</b>	10 MB (10485760 bytes)
<b>SII_MPM_LOG_FILE_SIZE_50MB</b>	50 MB (52428800 bytes)

(25) **ErrorCode**

Enumerator used for retrieving the error code by `NSError`.

Constant Name	Description
<b>SII_MPM_ERR_PARAM</b>	Parameter is incorrect.
<b>SII_MPM_ERR_OPENED</b>	Specified printer has already been opened.
<b>SII_MPM_ERR_NOT_OPENED</b>	Specified printer is not opened.
<b>SII_MPM_ERR_TIMEOUT</b>	Timeout or busy state occurs.
<b>SII_MPM_ERR_OFFLINE</b>	Printer is disconnected or offline.
<b>SII_MPM_ERR_CLOSE_FAIL</b>	Failed to disconnect printer.
<b>SII_MPM_ERR_NOT_MONITORING</b>	Monitoring of connecting status is not performed.
<b>SII_MPM_ERR_INIT_FAILED</b>	Failed to initialize.
<b>SII_MPM_ERR_DATA_SIZE_ZERO</b>	0 byte size data is specified.
<b>SII_MPM_ERR_OVER_MAX_DATA_SIZE</b>	Maximum data size is exceeded.
<b>SII_MPM_ERR_INVALID_DATA</b>	Invalid data is specified.
<b>SII_MPM_ERR_INVALID_STATE</b>	Specified to access PrinterManager object for callback.
<b>SII_MPM_ERR_ACCESS</b>	Printer cannot be accessed.
<b>SII_MPM_ERR_CANCELED</b>	Function is canceled.
<b>SII_MPM_ERR_WRITE_FAULT</b>	Data cannot be sent to printer.
<b>SII_MPM_ERR_FILE_INVALID</b>	Specified file is invalid.
<b>SII_MPM_ERR_ENCODE_FAILED</b>	Error has occurred in encoding text data.
<b>SII_MPM_ERR_NOT_FOUND</b>	Specified file cannot be found.
<b>SII_MPM_ERR_TRANSACTION_STOPPED</b>	Batch process is not started.
<b>SII_MPM_ERR_PRINTER_STATUS_ERROR</b>	Printer status is abnormal.

# Chapter 5

## Sample Program

This chapter describes the sample programs provided by the SDK.

### 5.1 Sample Program Overview

The SDK includes a sample program of XCode project format.

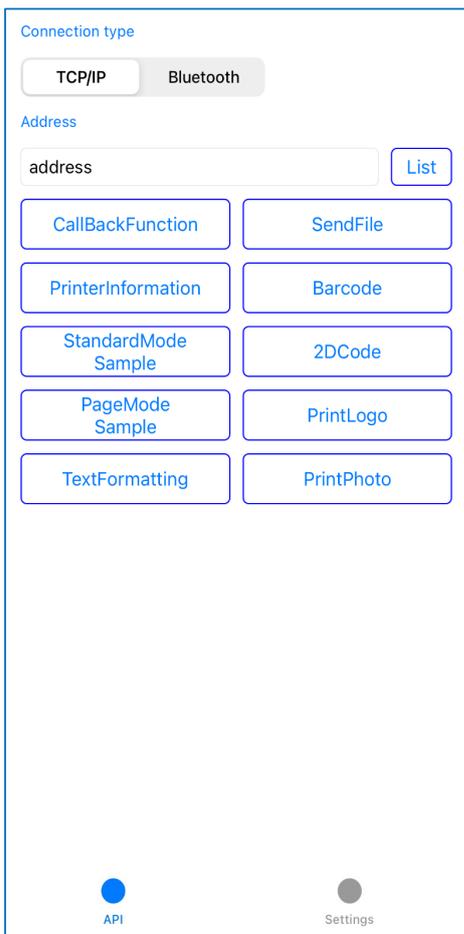


Figure 5-1

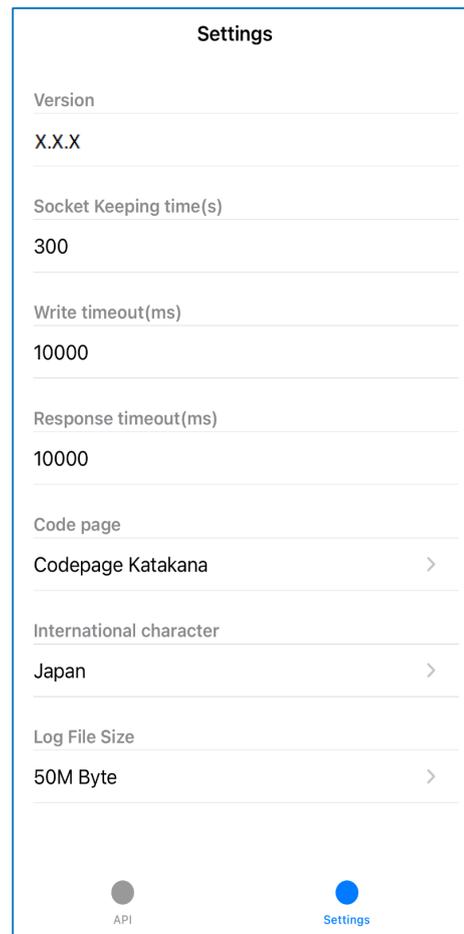


Figure 5-2

## 5.2 Sample Program Function

This section describes the functions of the sample program.

### 5.2.1 API Window

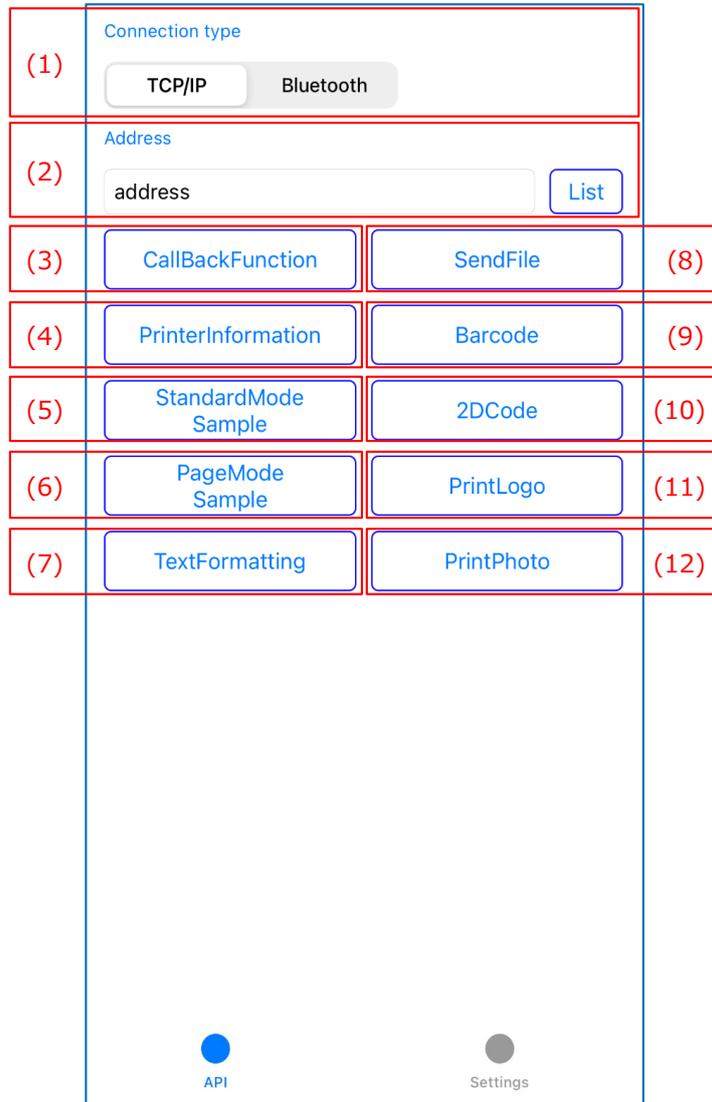


Figure 5-3

The functions of the sample program are as shown in Table 5-1.

**Table 5-1 Function of Sample Program**

No.	Description	Remarks
(1)	Connection type	Selects connection type to a printer.
(2)	Address	<p>Specifies printer address.</p> <p>When use Bluetooth connection, enter Bluetooth address of a printer. By tapping [List] button, the list of devices searched by <code>startDiscoveryPrinter</code> (Bluetooth) is displayed. By selecting a printer to connect from the list, Bluetooth address can be entered. Example: "00:11:22:AA:BB:CC"</p> <p>When use [TCP/IP] connection, enter IP address of a printer. By tapping [List] button, the list of devices searched by <code>startDiscoveryPrinter</code> (TCP/IP) is displayed. By selecting a printer to connect from the list, IP address can be entered. Example: "192.168.0.190"</p>
(3)	CallbackFunction	Registers the callback of the printer status change in <code>startCallbackFunction</code> , and displays the change of status information in a dialog.
(4)	PrinterInformation	Retrieves the printer information from the printer by using <code>getPrinterInformation</code> , <code>getPrinterInformationNumber</code> and <code>getPrinterInformationString</code> .
(5)	StandardModeSample	In the standard mode, sends the sample receipt printing command created by various printing method to the printer.
(6)	PageModeSample	In the page mode, sends the sample receipt printing command created by various printing method to the printer.
(7)	TextFormatting	Sends the printing command formatted by various characters formatting to the printer.
(8)	SendFile	Sends the specified file by using <code>sendDataFile</code> to the printer.
(9)	Barcode	Sends the barcode printing command by using <code>printBarcode</code> to the printer.
(10)	2DCode	Sends the 2-dimensional barcode printing command by using <code>print2Dcode</code> to the printer.
(11)	PrintLogo	Sends the specified image file without dithering by using <code>sendDataFile</code> to the printer.
(12)	PrintPhoto	Sends the specified image file with dithering by using <code>sendDataFile</code> to the printer.

## 5.2.2 Settings Window

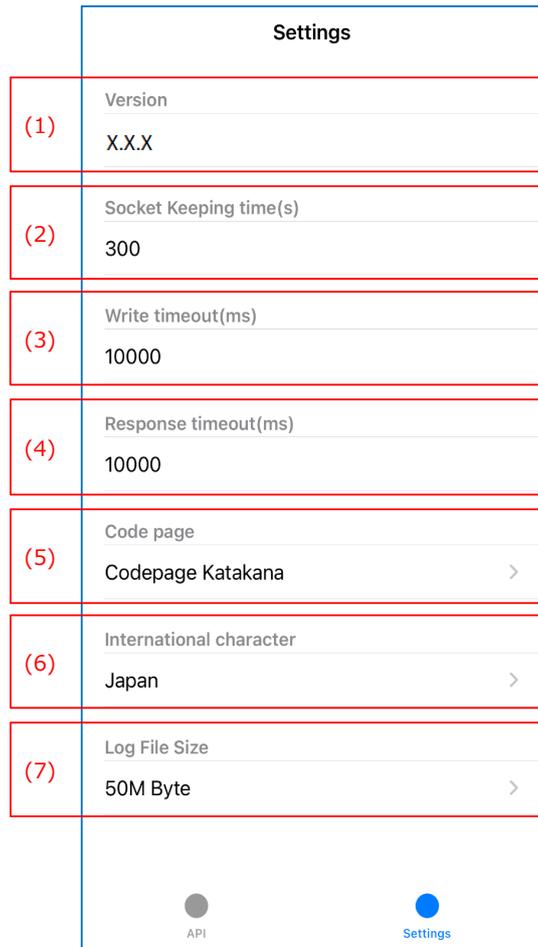


Figure 5-4

The functions of the sample program are as shown in Table 5-2.

Table 5-2 Settings Window

No.	Description	Remarks
(1)	Version	Displays the SDK version built in the sample program.
(2)	Socket Keeping time(s)	Sets the socket keeping time of TCP/IP connection in s (milliseconds). This setting value is used in <code>socketKeepingTime</code> which is the parameter of <code>open</code> .
(3)	Write timeout(ms)	Sets the time until the send timeout occurrence in ms (milliseconds).
(4)	Response timeout(ms)	Sets the time until the receive timeout occurrence in ms (milliseconds).
(5)	Code page	Sets the codepage. This is the encoding when printing texts (when text files are specified by <code>TextFormatting</code> or <code>sendFile</code> ) and the character setting value for printer side.
(6)	International character	Sets the international character set. This is the international character setting value for printer side when printing texts (when text files are specified by <code>TextFormatting</code> or <code>sendFile</code> ).
(7)	Log File Size	Sets the log file size to be stored by using <code>setLog</code> .

### **5.3 Precaution**

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

Sample programs are subject to change without notice.

## **Chapter 6**

### **Disclaimer**

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

## Appendix A

### Character Sets (Character Code Table)

#### A.1 Character Code Table

(When SII\_MPM\_INT\_CHAR\_SET\_USA is set in the setting of international character set)

	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	¢	£	¥	ℙ	ƒ
A0	á	í	ó	ú	ñ	Ñ	á	ó	¿	¬	½	¼	¡	«	»	
B0	☐	☐	☐		†	‡	§	¶	§		¶		¶		¶	
C0	L	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
D0	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
E0	α	β	Γ	π	Σ	σ	μ	τ	φ	θ	Ω	δ	∞	φ	ε	Π
F0	≡	±	≥	≤		J	÷	≈	°	•	•	√	n	²	■	

Figure A-1 SII\_MPM\_CODEPAGE\_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	ハ	ホ	マ
D0	ミ	ム	メ	モ	ヤ	ユ	ヨ	ラ	リ	ル	レ	ロ	ワ	ン	°	
E0																
F0																

Figure A-2 SII\_MPM\_CODEPAGE\_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	á	ó	í	®	¬	½	¼	¡	«	»
B0	☼	☼	☼		†	Á	Â	À	©	¶		¶	¶	¶	¥	γ
C0	L	L	T	†	†	ã	Ã	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	=	ℓ	α
D0	ð	Ð	Ê	Ë	È	Í	Î	Ï	↓	↑	■	■	■	■	■	■
E0	ó	β	ô	ò	õ	õ	μ	β	β	ú	û	ù	ý	Ý	-	´
F0	-	±	=	¾	¶	§	÷	,	°	..	.	1	3	2	■	

Figure A-3 SII\_MPM\_CODEPAGE\_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	ª	º	¿	Ò	¬	½	¼	¡	«	»
B0	☐	☐	☐		†	‡	§	¶	‡	§	¶	§	¶	§	¶	§
C0	L	L	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-4 SII\_MPM\_CODEPAGE\_860 (Portuguese)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
20	!	”	#	\$	%	&	'	(	)	*	+	,	-	.	/	
30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
80	Ç	ü	é	â	Â	à	¶	ç	ê	ë	è	ï	î	=	À	§
90	É	È	Ê	ô	Ë	Ï	Û	ù	¶	Ô	Ü	¢	£	Ù	Û	f
A0		'	ó	ú	·	·	³	-	î	¬	½	¼	¾	«	»	
B0	☐	☐	☐		†	‡	§	¶	‡	§	¶	§	¶	§	¶	§
C0	L	L	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-5 SII\_MPM\_CODEPAGE\_863 (Canadian-French)

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

Figure A-6 SII\_MPM\_CODEPAGE\_865 (Nordic)

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

Figure A-7 SII\_MPM\_CODEPAGE\_857 (Turkish)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
20	!	”	#	\$	%	&	'	(	)	*	+	,	-	.	/	
30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
80	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	⋮	⋮	⋮		†	‡	§	¶	⌘	⌚	⌛	⌜	⌝	⌞	⌟	⌠
C0	L	⊥	T	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
D0	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
E0	ω	ά	έ	ή	ϊ	ί	ό	ύ	ϋ	ώ	Ά	Έ	Ή	Ί	Ό	Υ
F0	Ω	±	≥	≤	ï	ÿ	÷	≈	°	•	•	√	n	²	■	

Figure A-8 SII\_MPM\_CODEPAGE\_737 (Greek)

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

Figure A-9 SII\_MPM\_CODEPAGE\_1252 (Latin)

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

Figure A-10 SII\_MPM\_CODEPAGE\_866 (Russian)

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

Figure A-11 SII\_MPM\_CODEPAGE\_852 (Eastern Europe)

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

Figure A-12 SII\_MPM\_CODEPAGE\_858 (Euro)

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

Figure A-13 SII\_MPM\_CODEPAGE\_855 (Cyrillic)

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

Figure A-14 SII\_MPM\_CODEPAGE\_864 (Arabic)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
20	!	”	#	\$	%	&	'	(	)	*	+	,	-	.	/	
30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
80	€	‘	;	“	”	…	†	†	‡	§	š	<	š	ř	ž	ž
90		˘	˘	ł	α	À		§	™	š	>	ś	ř	ž	ž	
A0	˘	˘	ł	α	À		§	™	š	>	ś	ř	ž	ž		
B0	°	±	˘	˘	μ	¶	•	•	•	•	•	•	•	•	•	•
C0	ř	á	â	ã	ä	í	č	ç	č	é	ę	ë	ě	í	î	ď
D0	đ	ń	ň	ó	ô	õ	ö	×	ř	ů	ú	ű	ü	ý	ı	ß
E0	ř	á	â	ã	ä	í	č	ç	č	é	ę	ë	ě	í	î	ď
F0	đ	ń	ň	ó	ô	õ	ö	÷	ř	ů	ú	ű	ü	ý	ı	·

Figure A-15 SII\_MPM\_CODEPAGE\_1250 (Central European)

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

Figure A-16 SII\_MPM\_CODEPAGE\_1251 (Cyrillic)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
20	!	”	#	\$	%	&	'	(	)	*	+	,	-	.	/	
30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
80	€	‘	’	“	”	•	-	-	™	‹						
90	“	À	£	¤	¥	¦	§	¨	©	«	¬	®	¯			
A0	°	±	²	³	´	μ	¶	·	ε	η	ι	»	ó	½	γ	Ω
C0	í	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
D0	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	İ	ÿ	ά	έ	ή	ί	
E0	ύ	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	ό	ύ	ώ	

Figure A-17 SII\_MPM\_CODEPAGE\_1253 (Greek)

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

Figure A-18 SII\_MPM\_CODEPAGE\_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	\$	@	í	Ñ	¿	^	`	¨	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	í	Ñ	¿	é	`	í	ñ	ó	ú
COUNTRY_LATIN_AMERICA	#	\$	á	í	Ñ	¿	é	ü	í	ñ	ó	ú
COUNTRY_ARABIA	#	\$	@	[	\	]	^	`	{		}	~

Figure A-19 International Character Set

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(Specifications are subject to change without notice.)