SyncSign BLE Display

Product Introduction

The E-ink Display provided by SyncSign is with the features of:

- Low power consumption
- Real-time update
- Easy installation

SyncSign BLE Display is a new solution launched to simplify the deployment structure and to optimize the usage scenarios of the E-ink Display, making it no longer dependent on the SyncSign Hub and Cloud Server, and only the mobile device that supports Bluetooth can push the content and refresh the Display.

This document mainly introduces the screen content updating method and communication protocol of SyncSign BLE Display.

Workflow

- SyncSign BLE Display has Bluetooth Low Energy (BLE) connectivity capability
- SyncSign BLE Display built-in BLE is always runs on power
- How to update: when new content needs to be sent to the Display, please make sure the template was already imported. Then the App (mobile device) push the content to the Display via BLE, and the screen will be refreshed.

Note: Currently, the template was already built in the flash memory of the Display. If needed to be changed, please contact SyncSign Support. The Display can support up to five built-in templates.

Protocol Specification

Description of BLE advertising

Local Name: SyncSign

Interval of data advertising:0.5s - 2s

Format of data advertising:

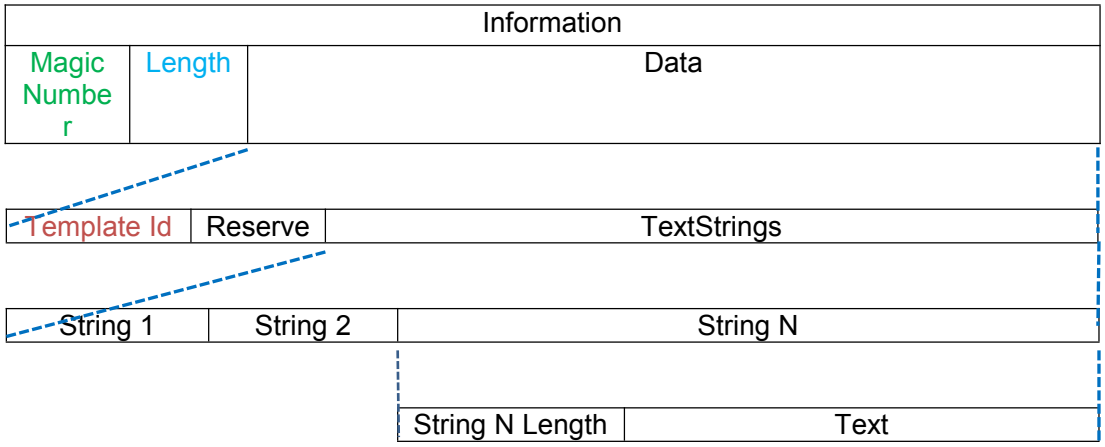
LEN	TYPE	VALUE
2	0x01	0x04
9	0x09	0x53796E635369676E
13	0xFF	[Reserved:1 Byte][MAC:6 Byte][Reserved:6 Byte]

Send Text Strings Content to Display over BLE

Display UUID

Name	Incomplete	Complete
Service UUID	0xFFF0	0000fff0-0000-1000-8000-00805f9b34fb
Write Characteristics	0xFFF2	0000fff2-0000-1000-8000-00805f9b34fb

The format of information frame is defined as：



Length in byte(s)	Variable name	Explain
1	Magic Number	Must be 0x0D
2	Length	Little-endian
1	Template Id	0x00 ~ 0x04
3	Reserve	0x00 0x00 0x00
Length-4	TextStrings	Content to be displayed
1	String N Length	Length of field content
String N Length	Text	Corresponding to field N defined in the template

Example:

Send the following five strings to the screen and specify the template with ID 0：

['Field 1', 'Field 2', 'D8290C349175', 'Field 3', 'https://sync-sign.com']

0xd 0x3f 0x0 0x0 0x0 0x0 0x0 0x7 0x46 0x69 0x65 0x6c 0x64 0x20 0x31 0x7 0x46 0x69 0x65 0x6c 0x64 0x20 0x32 0xc 0x44 0x38 0x32 0x39 0x30 0x43 0x33 0x34 0x39 0x31 0x37 0x35 0x7 0x46 0x69 0x65 0x6c 0x64 0x20 0x33 0x15 0x68 0x74 0x74 0x70 0x73 0x3a 0x2f 0x2f 0x73 0x79 0x6e 0x63 0x2d 0x73 0x69 0x67 0x6e 0x2e 0x63 0x6f 0x6d

Note: the length of data sent each time cannot exceed MTU (the default value is 20)

Receiving BLE Notification of Display Render Status

Device UUID

Name	Incomplete	Complete
Service UUID	0xFFF0	0000fff0-0000-1000-8000-00805f9b34fb
Notify Characteristics	0xFFF2	0000fff2-0000-1000-8000-00805f9b34fb

The format of information frame is defined as：

Information				
Magic Number	Length	Scope	Result	ErrorCode

LEN(byte)	Variable name	Explain
1	Magic Number	Must be 0x0D
2	Length	Little-endian
1	Scope	0x00: Results of data transmission 0x01: Result of screen rendering
1	Result	0x00: Transfer successful or Render successful 0x01: Transmission failed or Render failed
1	ErrorCode	Provides details of the failure

Example:

Results of data transmission:

0x0d 0x03 0x00 0x00 0x00 0x00

Result of screen rendering:

0x0d 0x03 0x00 0x01 0x00 0x00