CipherLab
User Guide

MIRROR Browser

For 9 Series Mobile Computers:
9300 / 9400 / 9500 / 9600

DOC Version 2.27

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RELEASE NOTES

Version	Date	Notes
2.27	Jun. 21, 2011	▸ Modified: Features — Remove auto-submit a webpage
2.26	Nov. 30, 2010	▸ Modified: Appendix I~V — Add more GS1 DataBar symbologies
2.25	July 12, 2010	▸ Modified: 2.5.2 RFID Reader Settings — UI updated ▸ Modified: 3.1 System Information — Change return value for "getScannerTypeOnCom1" and "getScannerTypeOnCom2" ▸ Modified: Appendixes V — Add "Intercharacter Gap Size" for 4407 and move the setting under Codabar and Code 39, and add "ISBT Concatenation" and "ISBT Concatenation Redundancy" for 4507
2.24	Feb. 04, 2010	▸ Modified: Chapter 1 Installing MIRROR Browser — Change default install directory to "\Program Files\Browser" and update screenshots ▸ Modified: 2.4 Changing Symbology Settings — Renamed "Pharmacode" with "I/F Pharma." and updated the screenshot ▸ Modified: 2.5.2 RFID Reader Settings — Rename Tag Type "Mifare Ultralight" with "Mifare" and change the Start Page to "4" ▸ Modified: 2.5.3 Data Output — Add "Display code type", "Display code length", "Display RFID UID", "Display RFID user data", and "Field delimiter" and update screenshot ▸ Modified: Appendix III — GS1 DataBar (RSS) default settings
2.23	Jan. 04, 2010	▸ Modified: 2.5.4 Notifications (For Good Read) — Good Read via vibrator ▸ Modified: 2.4 Changing Symbology Settings — Update screenshots ▸ Modified: Appendix I, II — Support ISBT 128 and UPC-E1 for CCD/Laser ▸ Modified: Appendix III — Redundancy Level default setting ▸ Modified: Appendix III — Add "UPC/EAN Security Level" for SE955 ▸ Modified: Appendix II~IV — "Read Redundancy" changed to "Redundancy Level"
2.22	Dec. 21, 2009	▸ Modified: Appendix I — ID_MOD_MP_RFID table updated
2.21	Dec. 15, 2009	▸ Update screenshots
2.20	Oct. 21, 2009	▸ Modified: update screenshots (Win CE 6.0) ▸ Modified: 2.5.2 RFID Reader Settings — remove write operation ▸ Modified: Appendix III — Add "Timeout between Same Barcode" for SE955 ▸ Modified: Appendix V — Add "Intercharacter Gap Size" for 4507
2.19	Aug. 25, 2009	▸ New: change icons ▸ New: add new feature "Supports SSL communications protocol" ▸ New: add new feature "Supports 9300 & 9600" ▸ Modified: 2.3.1 Changing Settings - add new feature "Disable pictures" and update screenshots

		▸ Modified: Appendixes I~V – updated
2.18	Mar. 12, 2009	▸ Modified: add new feature "Full Screen" and update screenshots ▸ Modified: 1. Installing MIRROR Browser — SetupApp.exe provided ▸ Modified: 2.2.2 Toolbar — add "Full Screen" icon
2.17	Mar. 03, 2009	▸ Modified: 9500PPC removed ▸ Modified: section 3.2 onScanBarcode() — GS1-128 (EAN-128), GS1 DataBar Omnidirectional (RSS-14), GS1 DataBar Limited (RSS Limited), GS1 DataBar Expanded (RSS Expanded) ▸ Modified: Appendixes I~IV — GS1-128 (EAN-128), GS1 DataBar Omnidirectional (RSS-14), GS1 DataBar Limited (RSS Limited), GS1 DataBar Expanded (RSS Expanded)
2.16	May 02, 2008	▸ Modified: section 2 – Move [About] to Tools Menu ▸ Modified: section 2.3.1 – Add [Show wireless signal strength], [Show battery status] ▸ Modified: section 2.5.3 Notifications – remove warning beep and add Good Read via buzzer ▸ New: section 3.2 Device Control – add getBatteryStatus() ▸ New: Appendix III, IV – AIM Code ID ▸ Modified: Appendix II~IV – update default values
2.15	Feb. 25, 2008	▸ New: Graphic user interface implemented
2.14	Dec. 06, 2007	▸ Modified: 2.5.5 Emulating Keyboard Input – added
2.13	Nov. 23, 2007	▸ Modified: 2.5.5 Emulating Keyboard Input – removed ▸ Modified: Appendix II~IV – default values updated
2.12	Oct. 31, 2007	▸ Modified: 1. Installation – screenshots updated ▸ Modified: 2.3 Browser Tab – sample webpage updated ▸ Modified: 2.5.5 Emulating Keyboard Input – enabled automatically when the Browser is minized
2.11	Sep. 03, 2007	▸ Modified: 1. Installation – Power Suite CD-ROM ▸ Modified: 3.2 onScanBarcode() – Code Type for LR, ELR and 2D
2.10	Aug. 27, 2007	New Word template applied; supports 9400 and new RFID module ▸ New: Supports 9400 ▸ Modified: RFID Reader Settings
2.02	June 12, 2007	▸ Modified: Appendix I – RFID Tags Supported ▸ New: Appendix II – CCD/Laser Scan Engine ▸ New: Appendix III – LR/ELR Scan Engine ▸ New: Appendix IV – 2D Scan Engine
2.01	May 14, 2007	▸ Modified: 20-minute trial before activation
2.00	Apr. 18, 2007	▸ New: Installer program provided ▸ New: Product Activation Key implemented
1.02	Mar. 07, 2007	▸ Modified: 3.4.1 Browser Settings – Home Page
1.01	Mar. 01, 2007	▸ Modified: UI to provide SIP button and remove Backward/Forward buttons ▸ New: Browser settings – screen lock, password, homepage, import/export initial settings ▸ New: JavaScript functions for device control on 9500

1.00	Dec. 28, 2006	Initial release

CONTENTS

INTRODUCTION

CipherLab 9300/9400/9500/9600 Series Mobile Computers ship with a built-in Web Browser application, the Internet Explorer. Because more and more data collection solutions are implemented by web-based applications, an urgent need arises for a simple method of manipulating our barcode and RFID readers in the client applications. The MIRROR Browser software is provided to answer your demands by delivering a ready-for-use client application.

This user guide describes the ready-to-go application MIRROR Browser and a set of APIs for programming. We recommend that you read the document thoroughly before use and keep it at hand for quick reference.

Thank you for choosing CipherLab products!

FEATURES

- Supports CipherLab Windows CE 5.0 mobile computers — 9400 / 9500 Series
- Supports CipherLab Windows CE 6.0 mobile computers — 9300 / 9600 Series
- Can browse a webpage from a web server
- Simplified browser interface specifically designed for real-time data collection with web servers
- Can automatically insert data into a webpage, by means of reading barcodes or RFID tags
- Can maximize to full screen in one click
- Prevent unwanted user interference by locking the screen and applying password
- Easy cloning by exporting/importing the initial settings
- Provides JavaScript functions for device control
- Supports SSL communications protocol

DEVELOPMENT TOOLS

- A plain text editor, such as Notepad in Windows, can be used to create an HTML file, .htm or .html.
- JavaScript

LICENSING

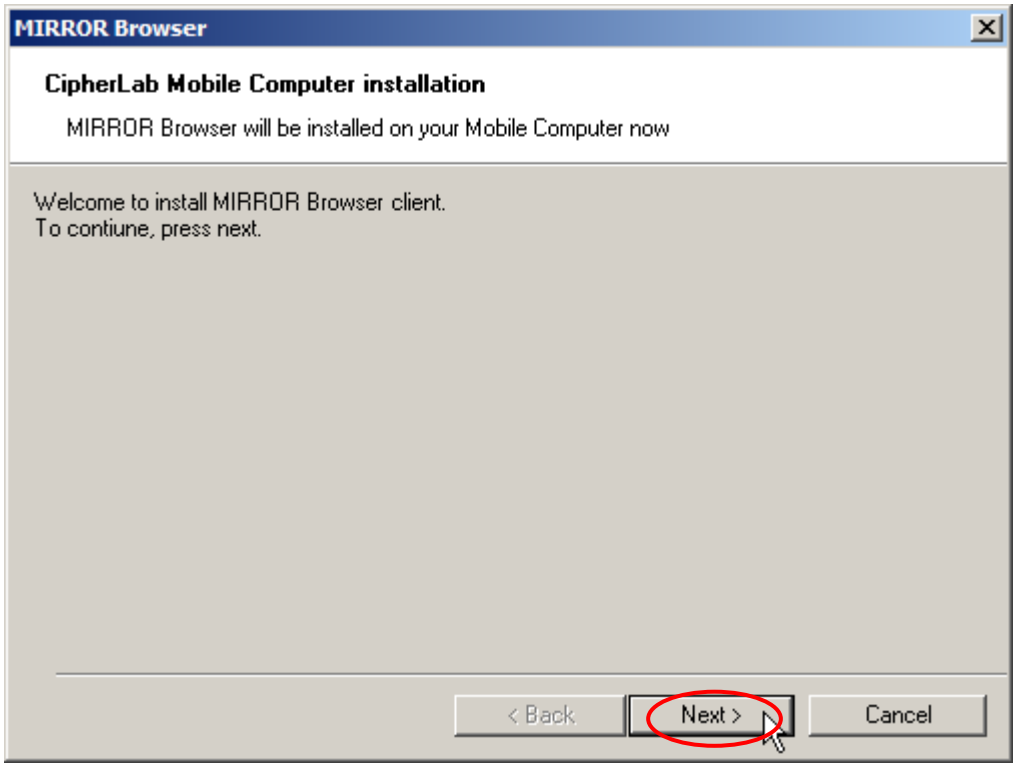
MIRROR Browser requires a product key for activation, and the trial version allows 20-minute use before activation. Please contact our sales representative for license terms and price information.

Chapter 1

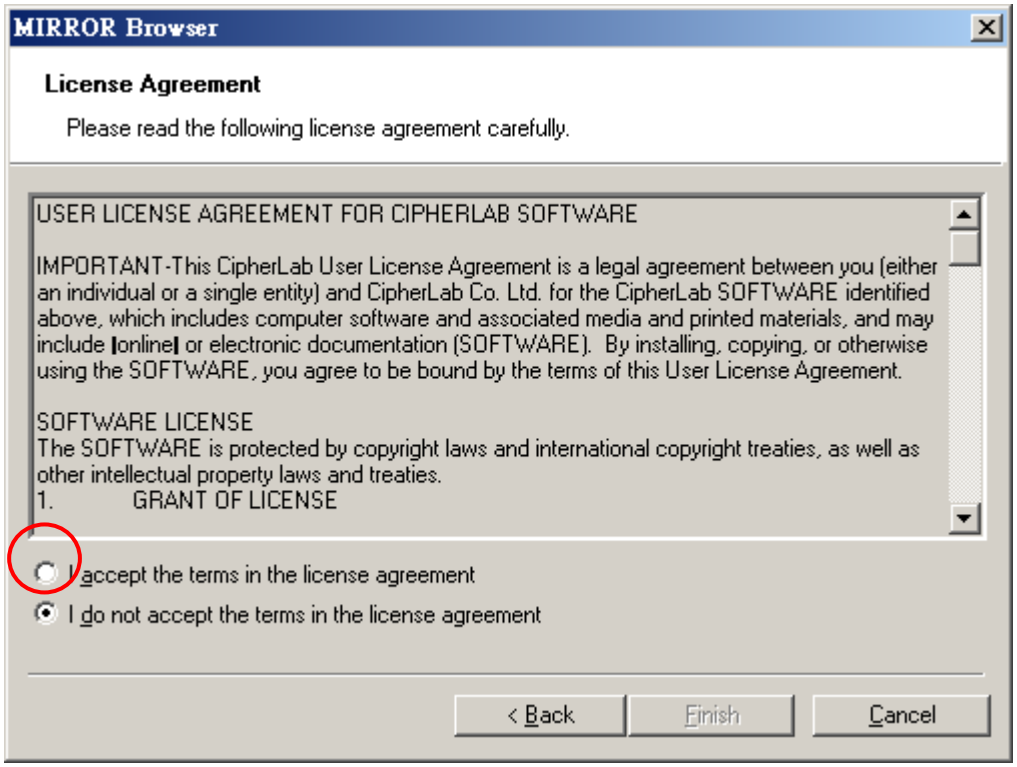
INSTALLING MIRROR BROWSER

Follow the steps below to install the MIRROR Browser software on the mobile computer.

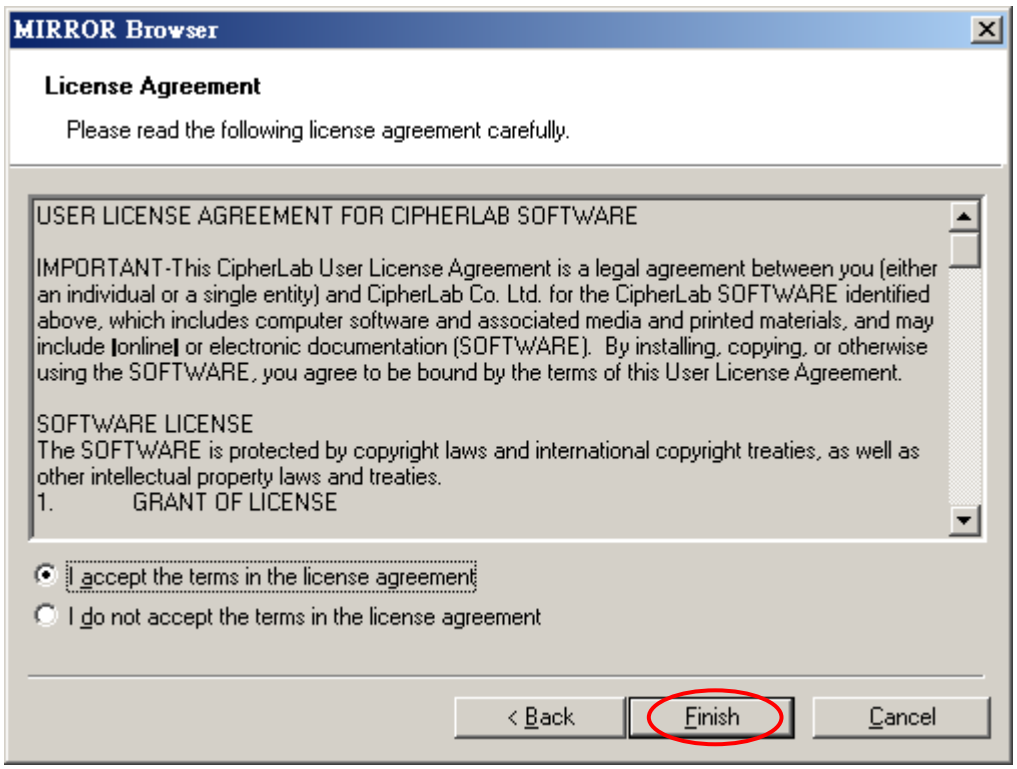
1) Seat the mobile computer in the cradle for ActiveSync operation.
2) Run the setup program "SetupApp.exe".
3) Click **Next**.



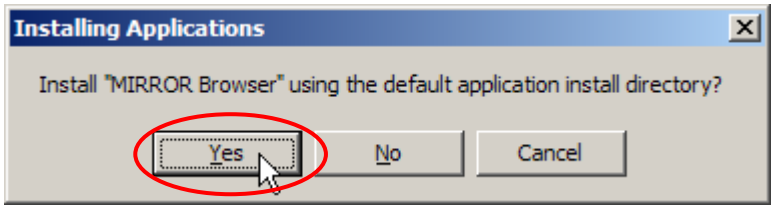
4) Click to select [I accept the terms in the license agreement].



5) Click **Finish**.

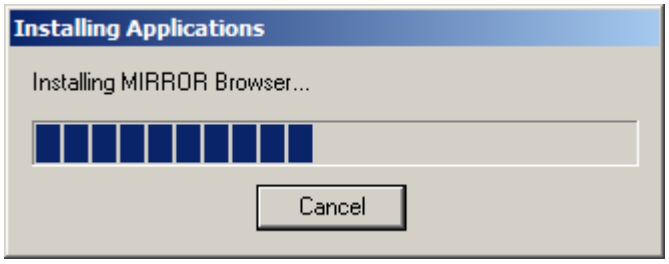


6) Click **Yes** to install the application to the default install directory "\Program Files\Browser". In addition, it will automatically save a copy of the application in DiskOnChip for program restore purpose.

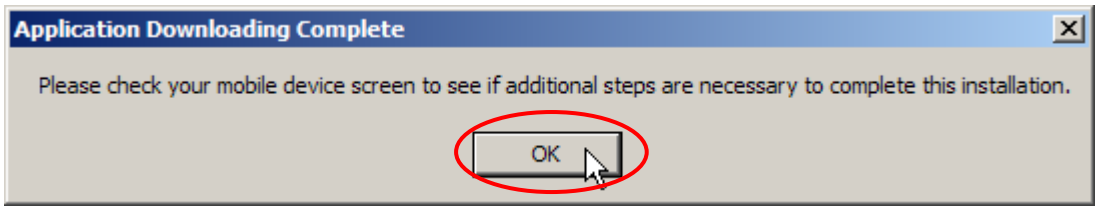


Note: The application installed in "\Program Files\" will be cleared after you perform a cold boot, however, it will automatically restore the application from DiskOnChip.

7) Wait for a few seconds.



8) Click **OK** to complete this installation.



On the desktop of your mobile computer, a shortcut to the application has been created. Also, you will find the following files in the destination directory – "\Program Files\Browser".

Directory	\Program Files\Browser
Application Program	Browser.exe
Sample File	test.htm

9) Double-tap the Browser shortcut on the desktop.

Chapter 2

USING MIRROR BROWSER

It can be laborious and time-consuming integrating the mobile computer into a legacy web-based application, e.g. an inventory system. MIRROR Browser is a simple client browser that enables users to complete their data collection task on the mobile computer when browsing a web page from the web server.

Warning:	MIRROR Browser allows for the configuration and activation of the scan engine(s) installed on the mobile computer. You cannot run other programs performing the same functions, such as the Reader Configuration Utility (ReaderConfig.exe) and AG applications.

IN THIS CHAPTER

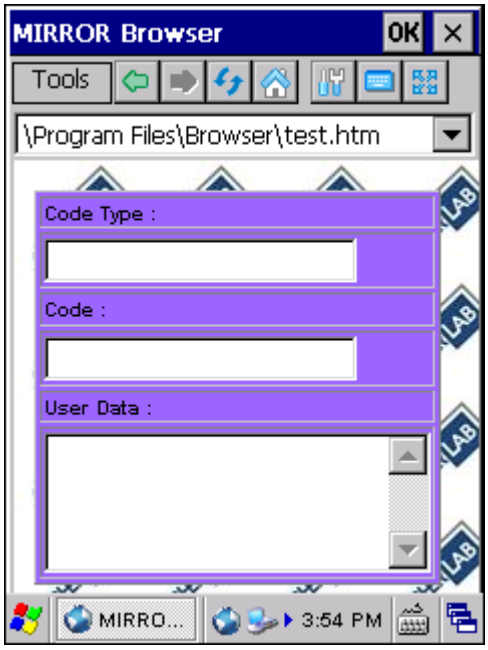
2.1 PRODUCT ACTIVATION

If you are using MIRROR Browser for the first time, it requires a set of legal product key for activation.

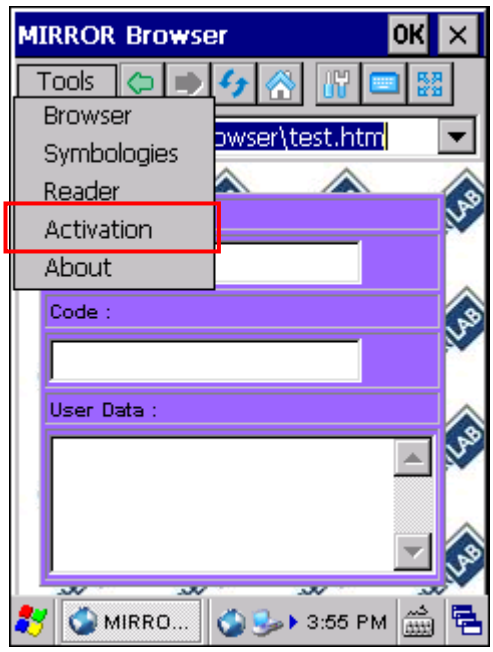
1) Double-tap the Browser shortcut on the desktop.

2) The program starts with a dialog box requesting for the activation key.

3) Tap **OK** to close the dialog box.

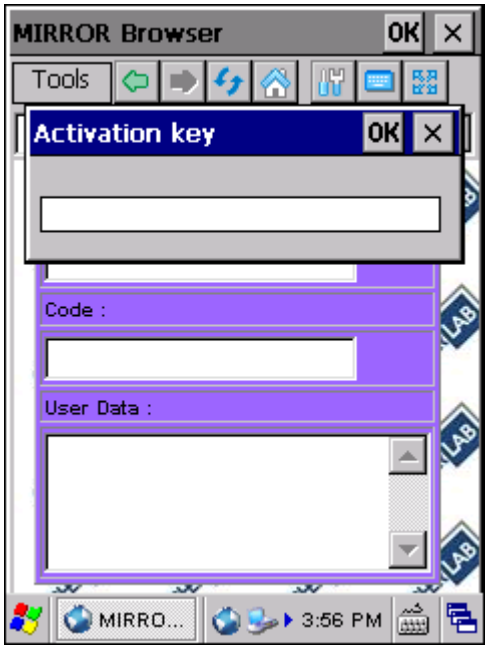


4) Tap **Tools Menu** and select **Activation**.



5) A dialog box pops up, requesting the activation key. You can either scan the barcode of activation key or type the activation key manually.

Press the [SCAN] button to read the barcode of activation key. Alternatively, you can use the keypad to type the activation key.



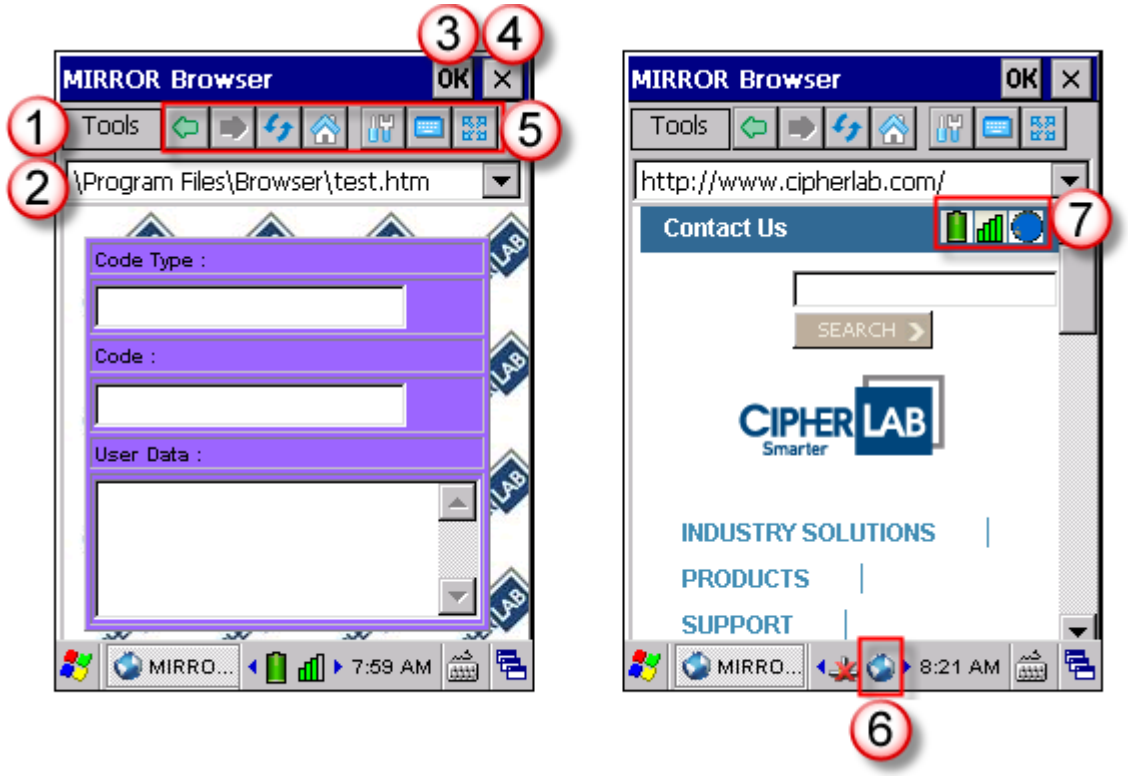
6) Press the [Enter] key for verification. A dialog box appears to inform you the activation is completed. Tap **OK** to close the dialog box.

If the software has not been activated, it will remain as a trial version and stop working after 20 minutes. Tap **Tools Menu** and select **About** to view the version information.

2.2 GRAPHIC USER INTERFACE

The Browser provides Tools Menu, toolbar, and the address bar for accessing web-based data collection application.

Note: General browser settings must be configured in Internet Explorer.



① Tools menu

② Address bar

③ Tap OK to minimize the window.

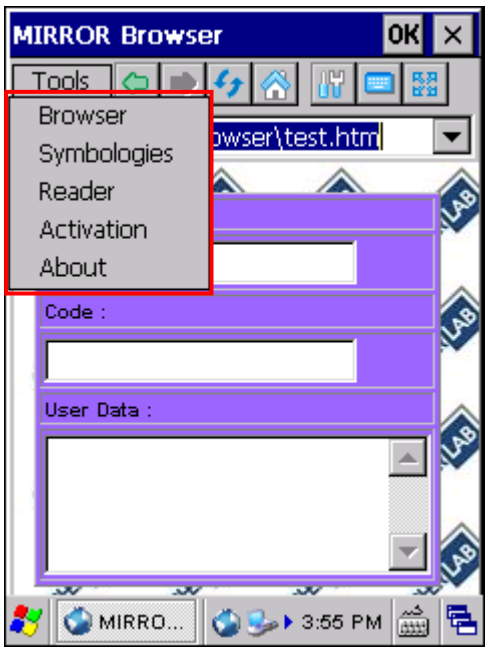
④ Tap ✕ to close the program.

⑤ Toolbar

⑥ Tap the program icon to view the active scan engines, maximize the window, or exit the program.

⑦ Icons from left to right: Battery status icon, Wi-Fi signal strength icon, earth icon spinning while opening a webpage.

2.2.1 TOOLS MENU



Command	To Do...
Browser	Return to the browser window.
Symbologies	Configure symbology settings.
Reader	Configure reader settings and perform reader test.
Activation	Activate the software by entering the product key.

2.2.2 TOOLBAR

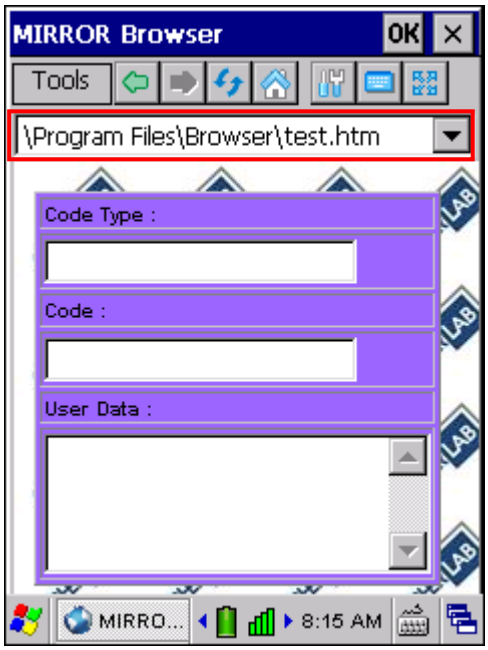
Icon	To Do...
	**Back** button – To return to the last page you viewed.
	**Forward** button – To return to the page you were on before you clicked the **Back** button.
	**Refresh** button – To update the current page, or try loading a page again when you get a message that a webpage cannot be displayed.
	**Home** button – To return to the page that appears each time you open the Browser.
	**Configure** button – To configure the browser settings specific to MIRROR Browser.
	**SIP** button – To toggle on/off the Soft Input Panel (SIP)
	**Full Screen** button – To maximize the browser window to full screen. Press [ESC] to exit the full-screen mode.

2.3 BROWSER WINDOW

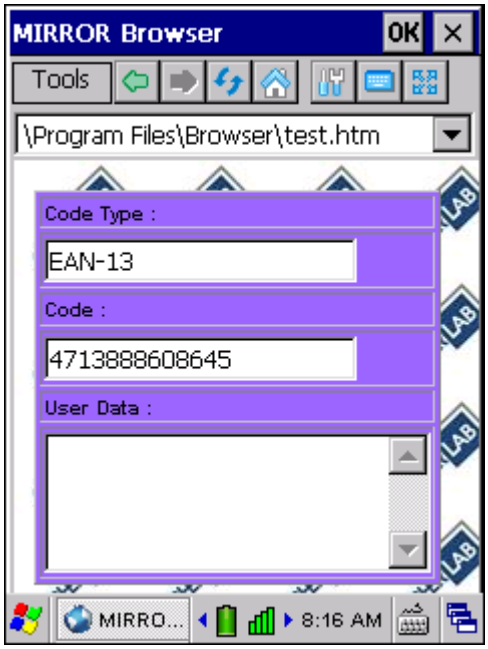
To demonstrate the capabilities of the Browser, a sample webpage "test.htm" is provided in the same directory where the Browser has been installed to.

1) Double-tap the Browser shortcut on the desktop.

2) The sample webpage will be loaded automatically. Tap  and select any webpage you have visited.

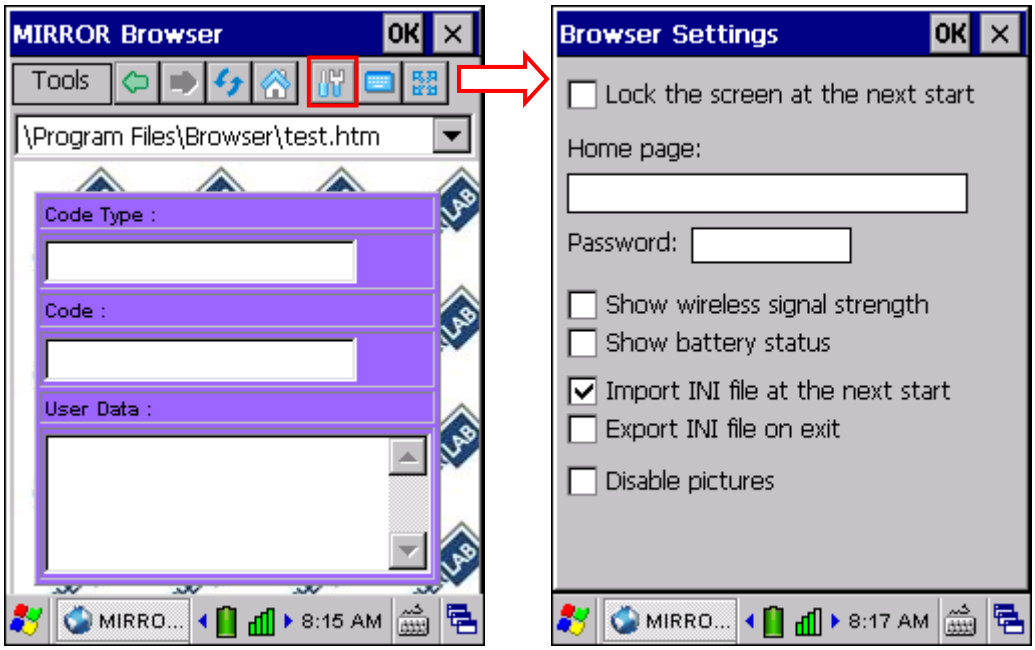


3) In the sample webpage, press the [SCAN] button to read a barcode in position or an RFID tag in proximity.



2.3.1 CHANGING SETTINGS

Tap  to configure the browser settings, such as screen lock, homepage, password, and import/export the initial settings.



Lock the screen at the next start

Select the check box to automatically lock down the screen at the next launch of the Browser.

- The taskbar at the bottom of the screen and the buttons  at the top of the screen will become inaccessible. Therefore, you cannot exit the program or launch another program at will.
- The Address bar on the browser window will become inaccessible. Therefore, you can only open the current page or home page.

Note: (1) To prevent unexpected user interference with the Browser application, it is suggested that you lock down the screen and apply password-protection.
(2) When "Lock down Screen" is enabled, the Export INI file setting will be enabled simultaneously.

Home page

Create a home page for the Browser to load the webpage automatically by default.

Note: For "Home page" to take effect, you must enable the Export INI file setting before restarting the Browser.

Password

Apply password-protection to your configuration. You will need to input the password in order to change the settings.

Show wireless signal strength

Select the check box to display the Wi-Fi signal strength icon on top of a webpage.

Show battery status

Select the check box to display the battery status icon on top of a webpage.

Import INI file at the next start

Because the [Import INI file at the next start] option in the Browser is enabled by default, the initial settings will be cloned to each mobile computer as long as you have copied the file "browserINI.txt" before running the Browser.

Export INI file on exit

The Browser can be configured to export all the settings on exit to a file named "browserINI.txt" or import the file at the next launch. When deploying hundreds of mobile computers, this file can be very helpful.

1. Configure one mobile computer and have the settings exported on exit automatically.
2. Copy the file "browserINI.txt" to each of the rest mobile computers.
3. Run the Browser on each of the mobile computer.

   Because the [Import INI file at the next start] option in the Browser is enabled by default, the initial settings will be cloned to each mobile computer as long as you run the Browser.

Disable pictures

Select the check box to disable the displaying for the images on the webpage.

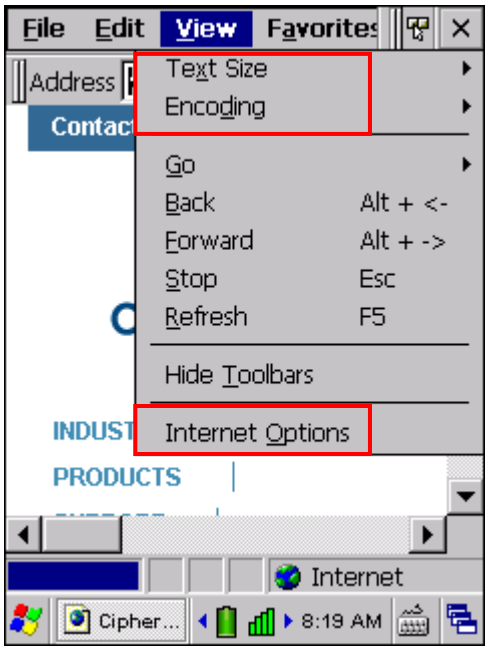
Warning: The file browserINI.txt must be copied to the same directory where the Browser has been installed to. It cannot be renamed!

2.3.2 CHANGING BROWSER SETTINGS

Because the Browser is intended to provide a simplified user interface, you will need to change the general browser settings through Internet Explorer.

1) Tap OK to minimize the Browser window.

2) Start Internet Explorer.



3) Go to the View menu in Internet Explorer, and change the text size, code page, as well as the internet options, if necessary.

2.3.3 USING SOFT INPUT PANEL (SIP)

When the screen is locked down, the original SIP button  (Windows CE 5.0)  (Windows CE 6.0) on the taskbar will become inaccessible.

In this case, tap  on the toolbar so that you can type via the soft input panel or hide it.

2.3.4 OPENING A WEBPAGE

Generally, you type the Internet address (URL) to open a specific webpage. For example, type www.cipherlab.com in the Address bar. Then, tap [Enter] or press the [Enter] key to go.

Note: Only one browser session is allowed because the COM ports can only be occupied by an application.

The Address bar can list up to 20 different webpages you recently visited. However, when the screen is locked down, it will become inaccessible.

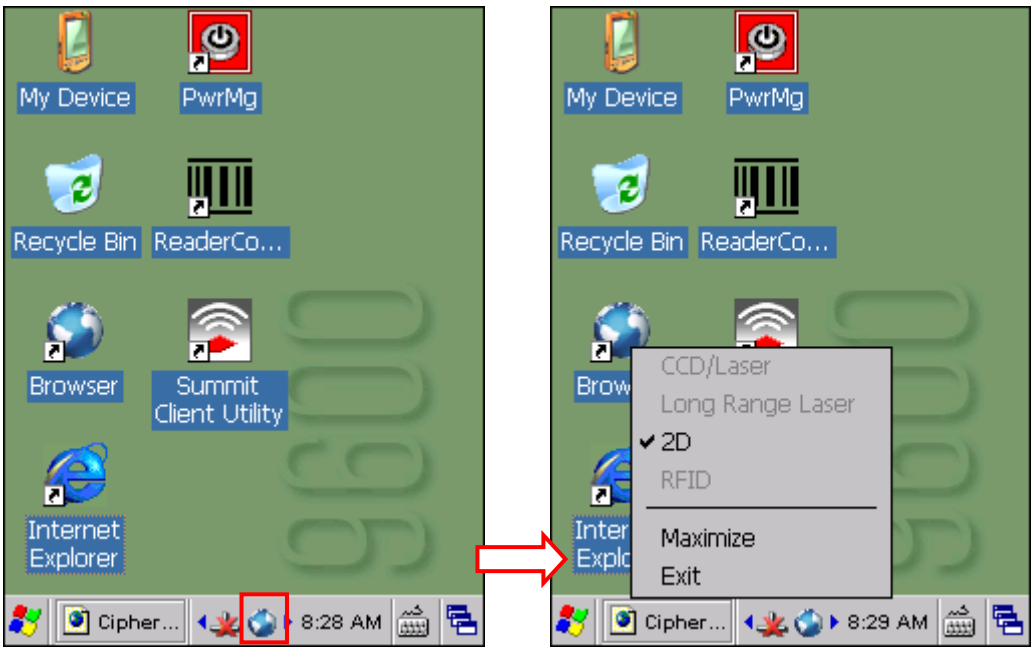
- To see the list of pages you recently visited, tap  next to the Address bar.

2.3.5 MANIPULATING SCAN ENGINE(S)

The Browser will automatically detect the scan engine(s) installed on the mobile computer. Instead of manipulating the scan engine(s) from the **Tools Menu** | **Reader**, you can quickly view and change their status –

1) Tap the program icon on the taskbar at the bottom of the screen.

   The detected scan engines will be displayed in black, and they are supposed to be enabled by default. A check mark in front of an available scan engine indicates it has been enabled.



2) Select from the list of available scan engines. The selected scan engine will become disabled.

Note: When the screen is locked down, the program icon on the taskbar will become inaccessible.

When the scan engine seems working abnormally

Take steps to verify its behavior as follows:

1. Make sure the scan engine is enabled.
2. Tap **Tools** | **Symbologies** and make sure the symbology of the target barcode is enabled.
3. Tap **Tools** | **Reader** and perform a reader test.
4. If it passes the reader test, the problem may be with the barcode or RFID tag.

   Check whether they are defaced, damaged, etc.

Note: Because it is possible to read barcode and RFID tag at the same time, it is recommended that only one scan engine is enabled at a time to prevent from misreading.

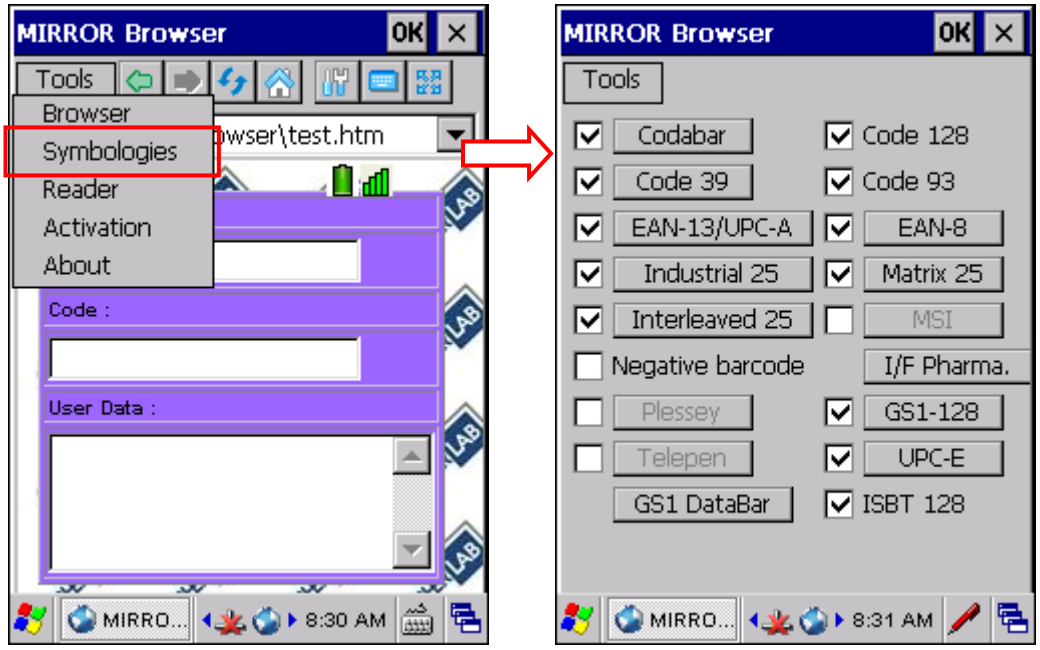
2.3.6 SAMPLE CODE

The sample code is provided in the file named "test.htm". You can include the sample code in your own code. If so, data collection will be carried out by the active scan engine(s), which need to be put into action by pressing the [SCAN] button on the mobile computer.

2.4 CHANGING SYMBOLOGY SETTINGS

Tap **Tools** | **Symbologies** and configure the settings of a specific type of barcode. The symbologies displayed here vary by the scan engine detected.

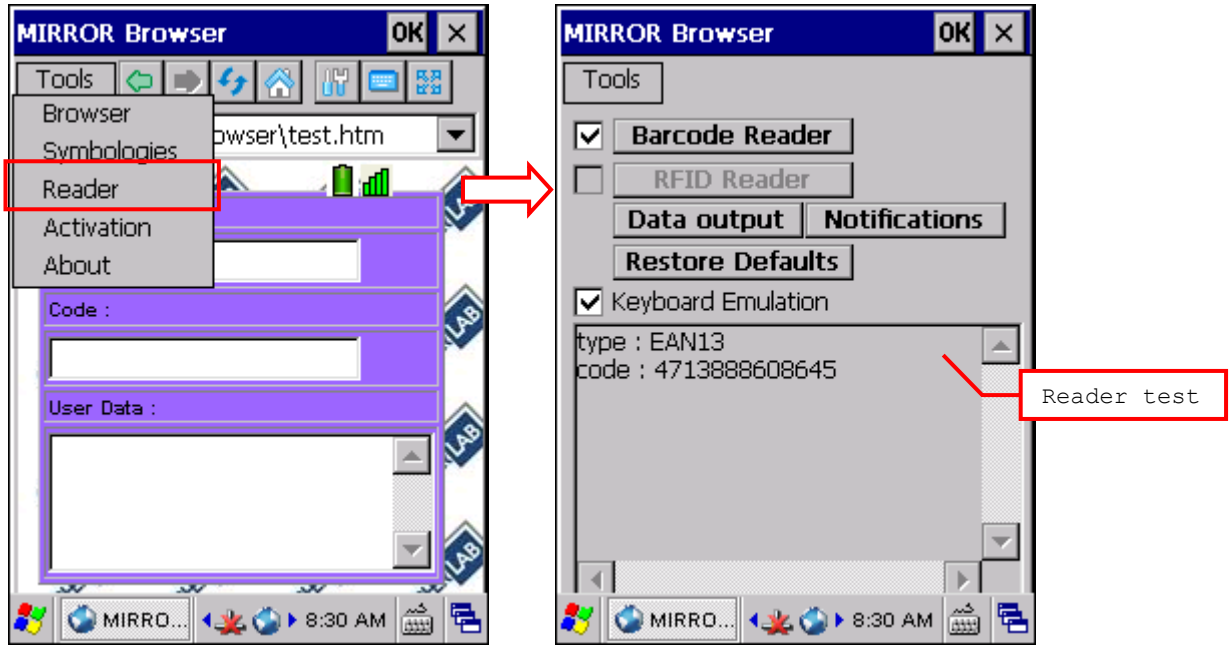
Scan Engine	Related Mobile Computers	Reference
Linear Imager (CCD)	9400, 9500, 9600	Appendix II — Linear Imager (CCD), Laser (SE950)
Laser (SE950)	9400, 9500, 9600	Appendix II — Linear Imager (CCD), Laser (SE950)
Laser (SE955)	9300	Appendix III — Laser (SE955)
Long Range/Extra Long Ranger Laser	9500	Appendix IV — LR/ELR Laser
2D Imager (PL4407)	9400, 9500	Appendix V — 2D Imager
2D Imager (PL4507)	9300, 9600	Appendix V — 2D Imager



Example	Symbology Status ☑ ☐	Advanced Settings
☑ Codabar	Enabled	Tap the button for symbology settings.
☐ Plessey	Disabled	Tap to select the check box first!
☑ Code 128	Enabled	None
Postal	Unknown	Tap the button for symbology settings.

2.5 CHANGING READER SETTINGS

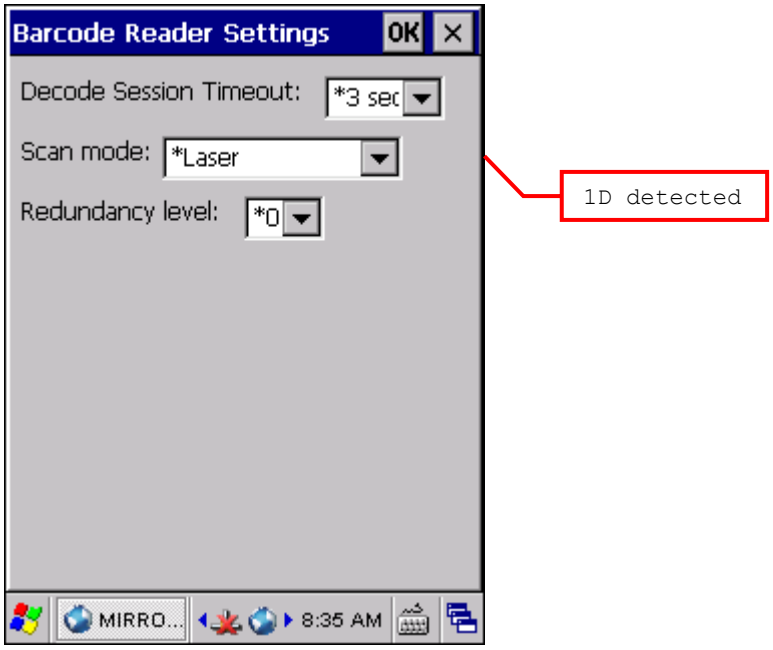
Tap **Tools** | **Reader** and view more configurable options. You may test the reader here.



Example	Reader Status ☑ ☐ ▢	Advanced Settings
☑ Barcode Reader	Enabled	Tap the button for configurable options.
☐ Barcode Reader	Disabled	Tap to select the check box first!
▢ Notifications	Unknown	Tap the button for configurable options.
☐ RFID Reader	Unavailable	Unavailable

2.5.1 BARCODE READER SETTINGS

The Browser will automatically detect the scan engine(s) installed on the mobile computer. Refer to 2.3.5 Manipulating Scan Engine(s). Configurable options associated with the specific barcode reader will be displayed here. The options vary by the barcode scan engine installed on the mobile computer.



Scan Engine	Related Mobile Computers	Reference
Linear Imager (CCD)	9400, 9500, 9600	Appendix II — Linear Imager (CCD), Laser (SE950)
Laser (SE950)	9400, 9500, 9600	Appendix II — Linear Imager (CCD), Laser (SE950)
Laser (SE955)	9300	Appendix III — Laser (SE955)
Long Range/Extra Long Ranger Laser	9500	Appendix IV — LR/ELR Laser
2D Imager (PL4407)	9400, 9500	Appendix V — 2D Imager
2D Imager (PL4507)	9300, 9600	Appendix V — 2D Imager

Note: Because it is possible to read barcode and RFID tag at the same time, it is recommended that only one scan engine is enabled at a time to prevent from misreading.

2.5.2 RFID READER SETTINGS

If the RFID scan engine is present, configurable options will be displayed. Refer to 2.3.5 Manipulating Scan Engine(s).

Note: (1) For ID_MOD_RFID (ACG) or ID_MOD_MP_RFID module, the power to the RFID reader will be automatically turned off when the read/write operation is completed.
(2) For ID_MOD_TI_RFID module, the power to the RFID reader will be automatically turned off only when the default timeout, 20 seconds, expires.
(3) Because it is possible to read barcode and RFID tag at the same time, it is recommended that only one scan engine is enabled at a time to prevent from misreading.

It supports read RFID tags on a page-by-page basis. You may find it necessary to define your own read operation. For reference only, the table below lists the start page for read operation on a number of RFID tags.

Start Page	Tag Type	
-1	Start from byte 0 of the default page (see below) for all tags	
4	Mifare	(ISO 14443A)
4	SR176	(ISO 14443B)
3	ICODE SLI	(ISO 15693)
0	LRI512	(ISO 15693)
3	SRF55VxxP	(ISO 15693)
0	EM4135	(ISO 15693)
0	Tag-it HF-I	(ISO 15693)
0	Others	(ISO 15693)
5	ICODE	(Phillips)

Note: Please refer to the specifications of your RFID tags for memory organization.

Login Key

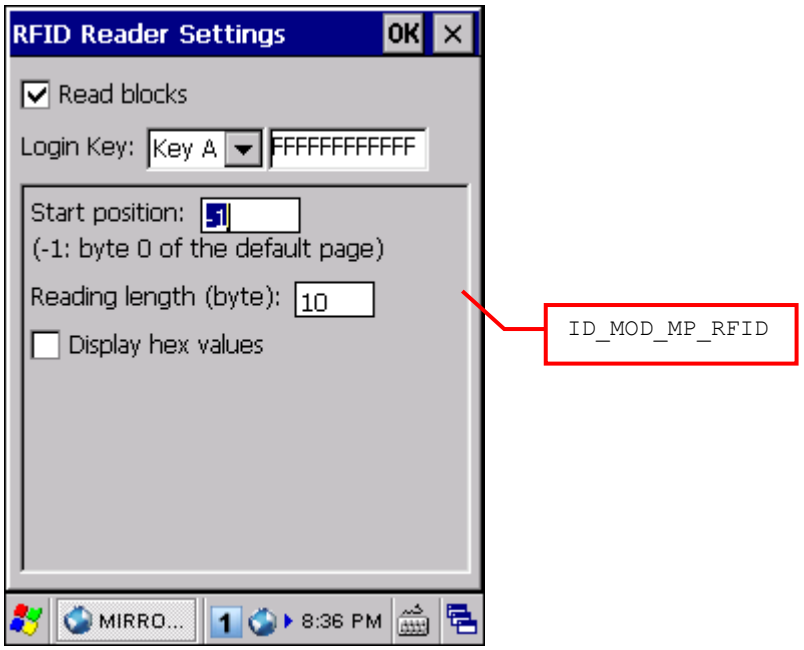
RFID tags may support authentication for security concerns, such as Mifare Standard 1K/4K and SLE66R35 tags. The security key, Key A or Key B, is used to access a specific RFID tag.

- By default, it is set to use "FFFFFFFFFFFF" for a new Mifare tag, regardless of Key A or Key B.
- Modify the key string if necessary. It must be a hex string with 12 bytes length.

Read Settings

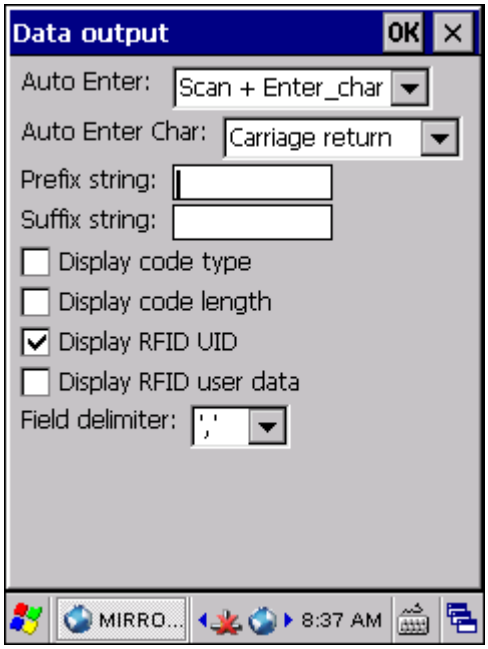
By default, the RFID tag is read from byte 0 of the default page. However, the default page, amount of bytes and number of pages of each tag may be different. Specify how many bytes of data you want to read from the tag.

Generally, the read data is user data obtained from the user block. If you are sure that the data is to be read from a non-user block, such as the lock block, you need to select the check box of [Display hex values] first.



2.5.3 DATA OUTPUT

Tap the [Data Output] button to configure how to handle the decoded data.

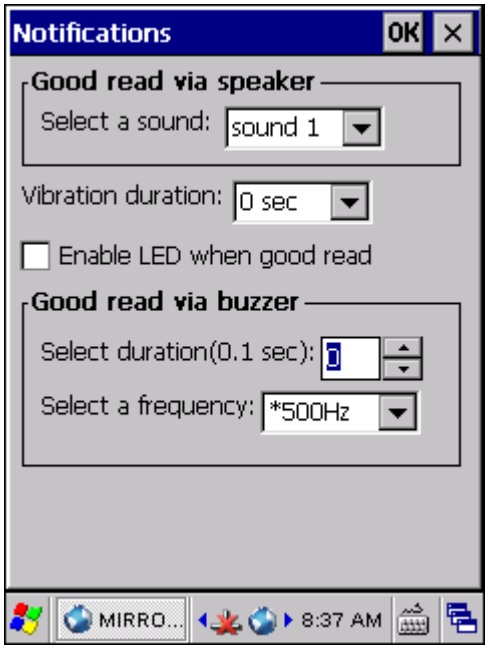


Data Output		Default
Auto ENTER	This function can spare you the trouble of pressing the [Enter] key on the mobile computer to confirm each scan. It will automatically add an ENTER character in front or to the end of one scan. ▸ No ▸ Scan + ENTER ▸ ENTER + Scan	Scan + ENTER
Auto ENTER Character	*Auto ENTER must be enabled. ▸ None ▸ Carriage Return ▸ Tab ▸ Space ▸ Comma ▸ Semicolon	Carriage Return
Prefix String	0~10 characters	NULL
Suffix String	0~10 characters	NULL
Display Code Type	Select the check box to prefix the code type to barcode data after decoding a barcode.	Disabled
Display Code Length	Select the check box to suffix the code length to barcode data after decoding a barcode.	Disabled

Display RFID UID	Select the check box to display UID after decoding an RFID tag.	Enabled
Display RFID User Data	Select the check box to display user data after decoding an RFID tag.	Disabled
Field Delimiter	Decide whether or not to use a delimiter to separate data fields after decoding a barcode or an RFID tag — ▸ Code type, barcode data, and code length if more than one field is displayed ▸ UID and user data if both are displayed	` , ' (comma)

2.5.4 NOTIFICATIONS (FOR GOOD READ)

Tap the [Notifications] button to configure associated settings.

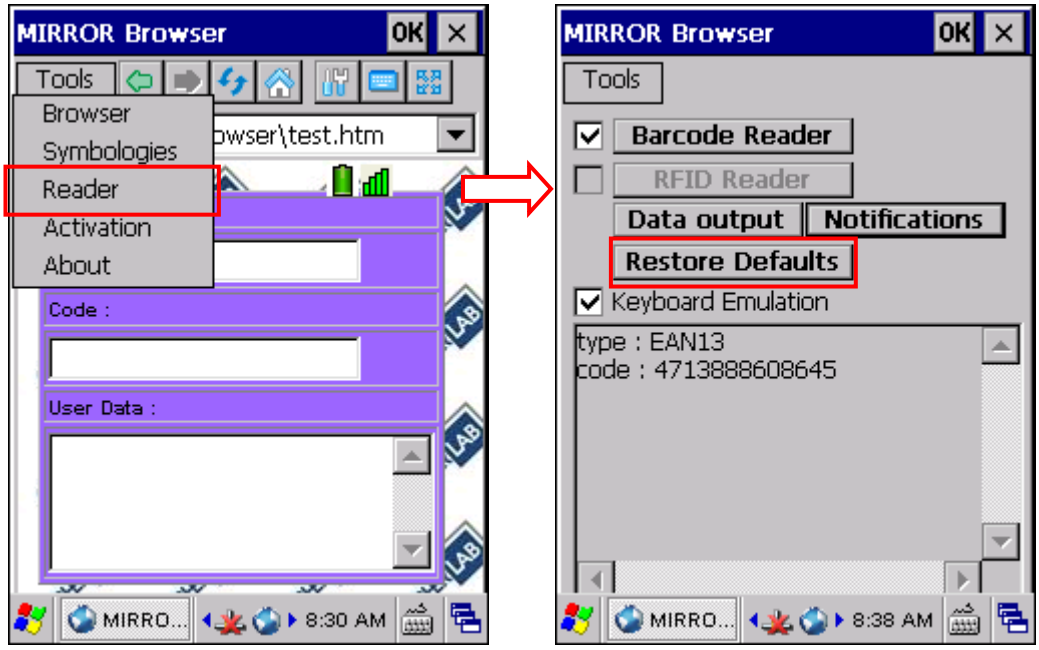


Sound / Vibration		Default
Good Read via speaker	Mute, or Sound 1~9	Sound 1
Good Read via vibrator	0~5.0 (sec.) ▸ 0 = Disable the vibrator	0 (= Disable)
Good Read via buzzer[Note]	Specify frequency and duration ▸ Duration 0~255 (0.1 sec.); 0 = Disable the buzzer	0 (= Disable)
Good Read LED[Note]	Select the check box to enable Good Read LED. The LED will become green to indicate a successful reading of barcode data.	Disable

Note: Good Read via buzzer and Good Read LED are for 9300/9400/9600.

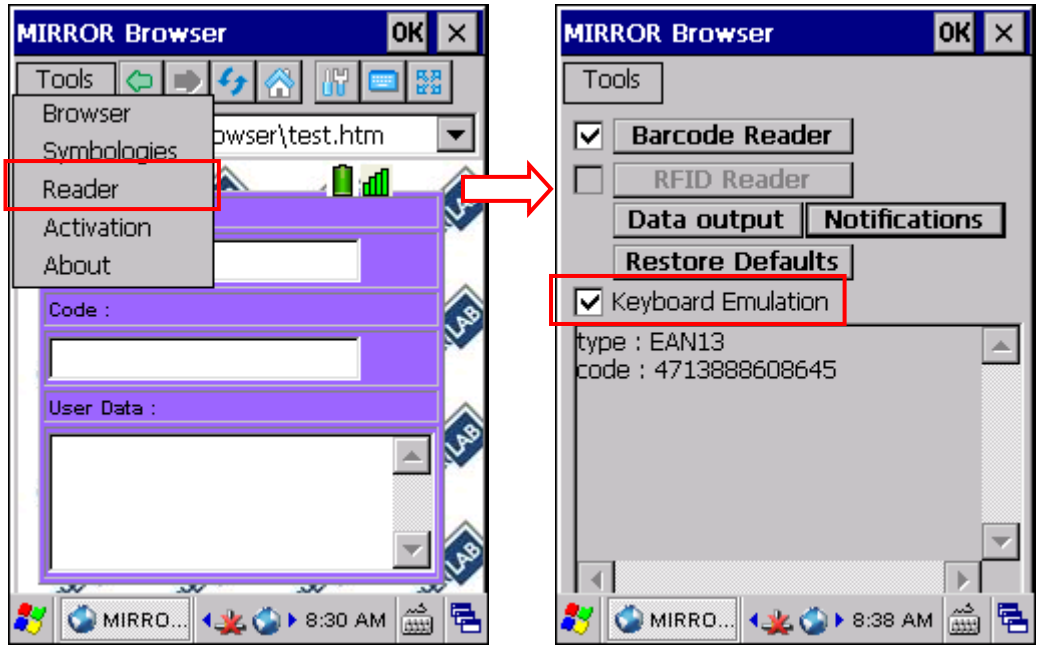
2.5.5 RESTORE DEFAULTS

Tap the [Restore Defaults] button if you wish to reload the default settings. However, the prefix/suffix string for the data output settings will not be cleared.



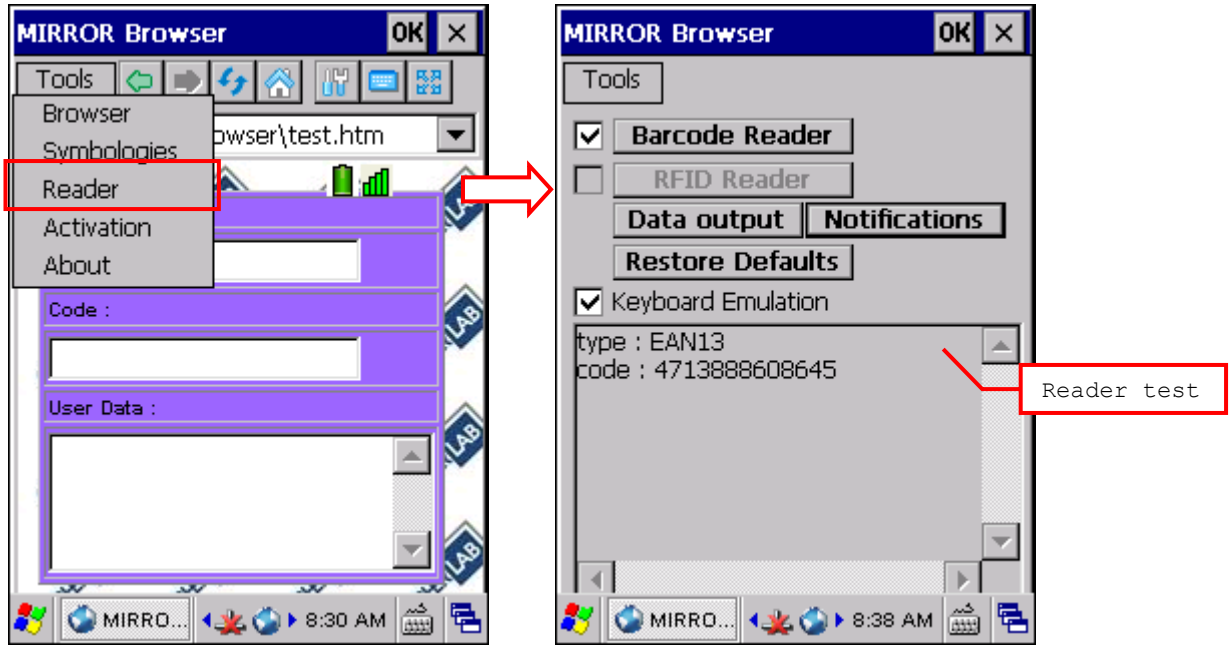
2.5.6 KEYBOARD EMULATION

Configure whether keyboard emulation is enabled or not. When enabled, you can scan a barcode to any input field on a webpage that allows keyboard input only.



2.5.7 READER TEST

In the bottom window pane, you can test whether the barcode or RFID reader is working properly.



Present a barcode in position...

After having configured the symbologies and barcode reader settings to meet your needs, press the [SCAN] button to read a barcode in position.

Note: Configurable options in the Barcode Reader Settings vary by the scan engine detected.

Present an RFID tag in proximity...

After having configured the RFID reader settings to meet your needs, press the [SCAN] button to read an RFID tag in proximity.

1. When the RFID scan engine is enabled, tap the [RFID Reader] button.
2. Select "Read" operation and configure associated settings.
3. Tap OK to close the window.
4. Press the [SCAN] button to read an RFID tag in proximity. The tag data will be displayed in the bottom window pane.

Note: (1) For ID_MOD_RFID (ACG) or ID_MOD_MP_RFID module, the power to the RFID reader will be automatically turned off when the read/write operation is completed. (2) For ID_MOD_TI_RFID module, the power to the RFID reader will be automatically turned off only when the default timeout, 20 seconds, expires.

Chapter 3

JavaScript APIs

MIRROR Browser JavaScript APIs let you embed the Browser functions in your own webpages, such as retrieving system information as well as manipulating scan engine(s), buzzer and vibrator. Basic functions have been implemented in the sample webpage "test.htm". It can be used as a template to build your own web application.

Take the example of the Browser itself. When you press the [SCAN] button on the mobile computer, the Browser will read a barcode in position or an RFID tag in proximity.

- If it succeeds, onScanBarcode() or onScanRFID() inside a webpage will be invoked, and the decoded data will be passed to the arguments of onScanBarcode() or onScanRFID().
- If it fails, onScanBarcodeError() or onScanRfidError() inside a webpage will be invoked, and the error code will be passed to onScanBarcodeError() or onScanRfidError().

Note: All the functions invoked by the Browser are JavaScript functions, and their function names are case-sensitive.

IN THIS CHAPTER

3.1 SYSTEM INFORMATION

getBatteryStatus

Purpose	To retrieve the battery status.
Syntax	Result = window.external.getBatteryStatus()
Parameters	None
Example	The example below is to display and refresh the battery status every second.

```
<HTML>
<BODY onload="OnLoad();">
<SCRIPT>
var power;
function OnLoad() {
    power=document.getElementById("battery");
    setInterval(updateBattery, 1000);
}

function updateBattery() {
    battery.innerHTML=window.external.getBatteryStatus();
}
</SCRIPT>
<span id="battery">0</span>
</HTML>
```

Remarks	The result is an integer variable that receives the battery power, ranging from 0 to 100.

getManufactureDate

Purpose	To get the manufacturing date of the mobile computer.
Syntax	Result = window.external.getManufactureDate()
Parameters	None
Example	

```
<HTML>
<BODY onload="test()">
<SCRIPT>
function test() {
y=window.external.getManufactureDate();
   alert(y);
}
</SCRIPT>
</BODY>
</HTML>
```

Remarks

The result is a string that receives the manufacturing date.

- This information is identical to the one displayed in **Start** | **Settings** | **Control Panel** | **System** – Device Name tab on the mobile computer.

getOsVersion	
Purpose	To get the OS version information of the system.
Syntax	Result = window.external.getOsVersion()
Parameters	None

Example	<HTML>
	<BODY onload="test()">
	<SCRIPT>
	function test() {
	y=window.external.getOsVersion();
	alert(y);
	}
	</SCRIPT>
	</BODY>
	</HTML>

Remarks	The result is a string that receives the version number of the OS image. ▸ This information is identical to the one displayed in **Start** | **Settings** | **Control Panel** | **System** – Device Name tab on the mobile computer.

getScannerTypeOnCom1

Purpose	To find out whether and which barcode reader is present on COM1.
Syntax	Result = window.external.getScannerTypeOnCom1()
Parameters	None
Example	

```
<HTML>
<BODY onload="test()">
<SCRIPT>
function test() {
    y=window.external.getScannerTypeOnCom1();
switch(y) {
    case 0:
        alert('No scanner found');
        break;
   case 1:
        alert('1D scanner');
        break;
    case 2:
        alert('2D scanner');
        break;
    case 3:
        alert('1D long range');
        break;
   }
}
</SCRIPT>
</BODY>
</HTML>
```

Remarks — The result is an integer variable that receives the identification of scan engine.

0	NO_SCANNER
1	SCANNER_ALL
2	SCANNER_1D
3	SCANNER_2D
4	SCANNER_1D_LR
8	SCANNER_2D_4507
9	SCANNER_1D_955

getScannerTypeOnCom2

Purpose: To find out whether the RFID reader is present on COM2.

Syntax: Result = window.external.getScannerTypeOnCom2()

Parameters: None

Example:

```
<HTML>
<BODY onload="test()">
<SCRIPT>
function test() {
    y=window.external.getScannerTypeOnCom2();
    switch(y) {
    case 0:
        alert('No scanner found');
        break;
    case 4:
        alert('RFID scanner');
        break;
    }
}
</SCRIPT>
</BODY>
</HTML>
```

Remarks: The result is an integer variable that receives the identification of scan engine.

0	NO_SCANNER
5	SCANNER_ACG_RFID
6	SCANNER_TI_RFID
7	SCANNER_MP_RFID

getSerialNumber	
Purpose	To get the unique identification of the mobile computer.
Syntax	Result = window.external.getSerialNumber()
Parameters	None

Example	<HTML>
	<BODY onload="test()">
	<SCRIPT>
	function test() {
	y=window.external.getSerialNumber();
	alert(y);
	}
	</SCRIPT>
	</BODY>
	</HTML>

Remarks	The result is a string that receives the serial number. ▸ This information is identical to the one displayed in **Start** | **Settings** | **Control Panel** | **System** – Device Name tab on the mobile computer.

getSignalStrength	
Purpose	To retrieve the wireless signal strength.
Syntax	Result = window.external.getSignalStrength()
Parameters	None
Example	The example below is to display and refresh the wireless signal strength every second.

```
<HTML>
<BODY onload="OnLoad();">
<SCRIPT>
var strength;
function OnLoad() {
    strength=document.getElementById("strength");
    setInterval(updateStrength, 1000);
}

function updateStrength() {
    strength.innerHTML=window.external.getSignalStrength();
}
</SCRIPT>
<span id="strength">0</span>
</HTML>
```

Remarks	The result is an integer variable that receives the signal strength, ranging from 0 to 100.

getVendor	
Purpose	To get the vendor information (the manufacturer of the mobile computer).
Syntax	Result = window.external.getVendor()
Parameters	None

Example	<HTML>
	<BODY onload="test()">
	<SCRIPT>
	function test() {
	y=window.external.getVendor();
	alert(y);
	}
	</SCRIPT>
	</BODY>
	</HTML>

Remarks	The result is a string that receives the vendor information (="CIPHERLAB"). ▶ This information is identical to the one displayed in **Start** | **Settings** | **Control Panel** | **System** – Device Name tab on the mobile computer.

3.2 DEVICE CONTROL

enableBarcodeScanner

Purpose: To manipulate the barcode reader.

Syntax: window.external.enableBarcodeScanner (*enable*)

Parameters: *enable*

[in] Integer that determines whether to turn on the barcode reader or not.

0	Disable
1	Enable

Example

```
<HTML>
<BODY onload="test()">
<SCRIPT>
function test() {
window.external.enableBarcodeScanner(1);     // enable the scanner
}
…
</SCRIPT>
</BODY>
</HTML>
```

enableRFIDScanner

Purpose: To manipulate the RFID reader.

Syntax: window.external.enableRFIDScanner (*enable*)

Parameters: *enable*

[in] Integer that determines whether to turn on the RFID reader or not.

0	Disable
1	Enable

Example

```
<HTML>
<BODY onload="test()">
<SCRIPT>
function test() {
    window.external.enableRFIDScanner(1);        // enable the scanner
}
…
</SCRIPT>
</HTML>
```

onScanBarcode	
Purpose	To decode a barcode.
Syntax	function onScanBarcode(*codeType*, *code*)
Parameters	*codeType*, *code* [in] The decoded code type and barcode will be passed to the arguments. The argument codeType is a hex string of fixed length (= 2 characters). As per symbologies supported on the scan engine, code types are listed below:

Scan engine: CCD or Laser (SE950)

Code Type	Symbology
'@'	ISBT 128
'A'	Code 39
'B'	Italian Pharmacode (Code 32)
'C'	French Pharmacode (CIP 39)
'D'	Industrial 25
'E'	Interleaved 25
'F'	Matrix 25
'G'	Codabar (NW7)
'H'	Code 93
'I'	Code 128
'J'	UPC-E0
'K'	UPC-E0 with Addon 2
'L'	UPC-E0 with Addon 5
'M'	EAN-8
'N'	EAN-8 with Addon 2
'O'	EAN-8 with Addon 5
'P'	EAN-13 / UPC-A
'Q'	EAN-13 with Addon 2
'R'	EAN-13 with Addon 5
'S'	MSI
'T'	Plessey
'U'	GS1-128 (EAN-128)
'Z'	Telepen
'['	GS1 DataBar (RSS)

Scan engine: Laser (SE955), Long Range Laser, Extra Long Range Laser, or 2D	
Code Type	Symbology
'01'	Code 39
'02'	Codabar
'03'	Code 128
'04'	Industrial 25 (Discrete 25)
'05'	IATA 25 (used on flight tickets)
'06'	Interleaved 25
'07'	Code 93
'08'	UPC-A
'09'	UPC-E0
'0a'	EAN-8
'0b'	EAN-13
'0c'	Code 11
'0e'	MSI
'0f'	GS1-128 (EAN-128)
'10'	UPC-E1
'11'	PDF417
'13'	Code 39 Full ASCII
'15'	Trioptic Code 39
'16'	Bookland
'17'	Coupon Code
'19'	ISBT 128
'1a'	Micro PDF
'1b'	Data Matrix
'1c'	QR Code
'1e'	US Postnet
'1f'	US Planet
'20'	Code 32 (Italian Pharmacode)
'21'	ISBT 128 Concat.
'22'	Japan Postal
'23'	Australian Postal
'24'	Dutch Postal
'25'	Maxicode
'26'	Postbar (CA)

‘27’	UK Postal
‘28’	Macro PDF
‘2c’	Micro QR Code
‘2d’	Aztec Code
‘30’	GS1 DataBar Omnidirectional (RSS-14)
‘31’	GS1 DataBar Limited (RSS Limited)
‘32’	GS1 DataBar Expanded (RSS Expanded)
‘34’	USPS 4CB/One Code/Intelligent Mail
‘35’	UPU FICS Postal
‘48’	UPC-A with Addon 2
‘49’	UPC-E0 with Addon 2
‘4a’	EAN-8 with Addon 2
‘4b’	EAN-13 with Addon 2
‘50’	UPC-E1 with Addon 2
‘51’	Composite CC-A + GS1-128
‘52’	Composite CC-A + EAN-13
‘53’	Composite CC-A + EAN-8
‘54’	Composite CC-A + RSS Expanded
‘55’	Composite CC-A + RSS Limited
‘56’	Composite CC-A + RSS-14
‘57’	Composite CC-A + UPC-A
‘58’	Composite CC-A + UPC-E
‘59’	Composite CC-C + GS1-128
‘5a’	TLC 39 (TCIF Linked Code 39)
‘61’	Composite CC-B + GS1-128
‘62’	Composite CC-B + EAN-13
‘63’	Composite CC-B + EAN-8
‘64’	Composite CC-B + RSS Expanded
‘65’	Composite CC-B + RSS Limited
‘66’	Composite CC-B + RSS-14
‘67’	Composite CC-B + UPC-A
‘68’	Composite CC-B + UPC-E
‘71’	Matrix 25
‘72’	Chinese 25
‘88’	UPC-A with Addon 5
‘89’	UPC-E0 with Addon 5

'8a'	EAN-8 with Addon 5
'8b'	EAN-13 with Addon 5
'90'	UPC-E1 with Addon 5
'9a'	Macro MicroPDF417

Example

```
<HTML>
<SCRIPT>
function onScanBarcode(codeType, code) {
if(codeType == '01') {
       t1.value = "Code 39";
       t2.value = code;
       t3.value = "";
   }
   else if(codeType == '02') {
       t1.value = "Codabar";
       t2.value = code;
       t3.value = "";
   }
}
</SCRIPT>
</HTML>
```

Remarks

This function will be invoked by the Browser when a barcode is read successfully.

onScanBarcodeError	
Purpose	To provide an error code when it fails to read a barcode.
Syntax	function onScanBarcodeError (*errorCode*)
Parameters	*errorCode* [in] The returned error code will be passed to the argument. The error code defined in the Browser is as follows: 30001 NO_BARCODE_ERROR

Example	<HTML>
	<SCRIPT>
	function onScanBarcodeError(errorCode) {
	//alert('error code on com1 = ' + errorCode);
	}
	…
	</SCRIPT>
	</HTML>

Remarks	This function will be invoked by the Browser when it fails to read a barcode. ▸ For system error codes, please check the MSDN online documentation: http://msdn.microsoft.com/library/default.asp?url=/library/en-us/debug/base/system_error_codes.asp The values are defined in the WinError.h header file.

onScanRFID

Purpose: To decode an RFID tag.

Syntax: function onScanRFID (*codeType*, *code*, *userData*)

Parameters: *codeType*, *code*, *userData*

[in] The decoded code type (= tag type), code (= UID) and user data will be passed to the arguments.

The tag types are listed below:

Tag Type	RFID Tag / Standard
'I'	Icode
'M'	Mifare Ultralight ISO 14443A
'S'	SR176
'T'	Tagit
'V'	ISO 15693
'Z'	ISO 14443B

Example:

```
<HTML>
<SCRIPT>
function onScanRFID(codeType, code, userData) {
    switch(codeType) {
    case 'I':
        t1.value = "Icode";
        t2.value = code;
        t3.value = userData;
        break;
    default:
        t1.value = codeType;
        t2.value = code;
        t3.value = userData;
        break;
    }
}
…
</SCRIPT>
</HTML>
```

Remarks: This function will be invoked by the Browser when an RFID tag is read successfully.

onScanRfidError

Purpose: To provide an error code when it fails to read an RFID tag.

Syntax: function onScanRfidError (*errorCode*)

Parameters: *errorCode*

[in] The returned error code will be passed to the argument.

The error codes defined in the Browser is as follows:

30002	NO_TAG_ERROR
30003	READ_WRITE_FAILURE_ERROR
30004	OPERATION_MODE_FAILURE_ERROR
30005	OUT_OF_RANGE_ERROR
30006	UNKNOWN_COMMAND_ERROR

Example

```
<HTML>
<SCRIPT>
function onScanRfidError(errorCode) {
   //alert('error code on com2 = ' + errorCode);
}
</SCRIPT>
</HTML>
```

Remarks: This function will be invoked by the Browser when it fails to read an RFID tag.

- For system error codes, please check the MSDN online documentation: http://msdn.microsoft.com/library/default.asp?url=/library/en-us/debug/base/system_error_codes.asp The values are defined in the WinError.h header file.

playSound

Purpose: To play a sound (.wav) file.

Syntax: window.external.playSound (*soundIdx*, *path*)

Parameters:

soundIdx

[in] An integer that specifies which .wav file to use:

0	Mute
1~9	Sound 1 ~ Sound 9
-1	User-defined .wav file

path

[in] A string that specifies the file path if "-1" is specified in the first parameter.

Example:

```
<HTML>
<BODY onload="test()">
<SCRIPT>
function test() {
   window.external.playSound(1, ' ');
}
…
</SCRIPT>
</BODY>
</HTML>
```

Remarks: This function is used to play a sound (.wav) file.

- There are 9 sounds embedded, which can be selected by passing the index number to the soundIdx parameter.
- You can play your own .wav file by passing "-1" to the soundIdx parameter and specifying the file path in the second parameter.

startVibration

Purpose	To manipulate the vibrator.
Syntax	window.external.startVibration (*enable*)
Parameters	[in] An integer that specifies whether to turn on the vibrator and for how long it will vibrator.

0	Turn off
Non-zero	Turn on for the specified period of time, in units of second.

Example

```
<HTML>
<BODY onload="test()">
<SCRIPT>
function test() {
    window.external.startVibration(1);        // to vibrate for 1 second
}
…
</SCRIPT>
</BODY>
</HTML>
```

Appendix I

SCAN ENGINE SETTINGS

MIRROR Browser supports the following reader types, depending on the module equipped on your mobile computer:

Scan Engine		ID	9300	9400	9500	9600
1D	*Linear Imager*	*CCD*	×	✓	✓	✓
1D	*Laser*	*SE950*	×	✓	✓	✓
		SE955	✓	×	×	×
1D	*Long Range Laser*	*LR*	×	×	✓	×
1D	*Extra Long Range Laser*	*ELR*	×	×	✓	×
2D	*2D Imager*	*PL4407*	×	✓	✓	×
		PL4507	✓	×	×	✓
RFID	*ID_MOD_RFID (ACG)*		×	×	✓	×
	ID_MOD_TI_RFID		×	✓	×	×
	ID_MOD_MP_RFID		×	×	×	✓

Options of different reader combination are allowed, such as 1D+RFID and 2D+RFID. For each combination, both readers can be initialized and ready for scanning at the same time (dual mode operation). For example, if you press the [SCAN] button while running the Browser on the mobile computer, it will read a barcode in position or an RFID tag in proximity depending on which one comes first.

Note: You cannot have 1D+2D scan engines installed on the mobile computer because they are both barcode readers!

SYMBOLOGIES SUPPORTED

Varying by the scan engine installed, the supported symbologies or tag types are listed below. For details on configuring associated settings, please refer to each Appendix separately.

Symbology	CCD, SE950	SE955	LR, ELR	2D
Codabar	✓	✓	✓	✓
Code 11	×	✓	×	✓
Code 93	✓	✓	✓	✓
Composite Code	×	×	×	✓
MSI	✓	✓	✓	✓

Plessey		✓	×	×	×
Postal Codes		×	×	×	✓
Telepen		✓	×	×	×
Code 128	Code 128	✓	✓	✓	✓
	GS1-128 (EAN-128)	✓	✓	✓	✓
	ISBT 128	✓	✓	✓	✓
Code 2 of 5	Industrial 25 (Discrete 25)	✓	✓	✓	✓
	Interleaved 25	✓	✓	✓	✓
	Matrix 25	✓	×	×	✓ (PL4507 only)
	Chinese 25	×	✓	×	
Code 3 of 9	Code 39	✓	✓	✓	✓
	Trioptic Code 39	×	✓	✓	✓
	Italian Pharmacode (Code 32)	✓	✓	✓	✓
	French Pharmacode	✓	×	×	×
EAN/UPC	EAN-8	✓	✓	✓	✓
	EAN-13	✓	✓	✓	✓
	Bookland EAN (ISBN)	✓	✓	✓	✓
	UPC-E0	✓	✓	✓	✓
	UPC-E1	✓	✓	✓	✓
	UPC-A	✓	✓	✓	✓
GS1 DataBar (RSS)	GS1 DataBar Omnidirectional (RSS-14)	✓	✓	✓	✓
	GS1 DataBar Truncated	✓	✓	✓	✓
	GS1 DataBar Stacked	✓	✓	✓	✓
	GS1 DataBar Stacked Omnidirectional	✓	✓	✓	✓
	GS1 DataBar Limited (RSS Limited)	✓	✓	✓	✓
	GS1 DataBar Expanded (RSS Expanded)	✓	✓	✓	✓
	GS1 DataBar Expanded Stacked	✓	✓	✓	✓
2D Symbologies	PDF417	×	×	×	✓
	MicroPDF417	×	×	×	✓
	Data Matrix	×	×	×	✓
	Maxicode	×	×	×	✓

	QR Code	×	×	×	✓
	MicroQR	×	×	×	✓ (PL4507 only)
	Aztec	×	×	×	

RFID TAGS SUPPORTED

The RFID reader supports read/write operations depending on the tags. The supported labels include ISO 15693, Icode®, ISO 14443A, and ISO 14443B.

Currently, the performance of some tags has been confirmed, and the results are listed below for your reference.

Note: You should study the specifications of RFID tags before use.

ID_MOD_RFID, (ACG) Module Version 1.0		UID Only	Read Page	Write Page
ISO 14443A	Mifare Standard 1K	✓	✓	✓
	Mifare Standard 4K	✓	✓	✓
	Mifare Ultralight	✓	✓	✓
	Mifare DESFire	✓	---	---
	Mifare S50	✓	✓	✓
	SLE44R35	✓	---	---
	SLE66R35	✓	✓	✓
ISO 14443B	SRIX 4K	✓	✓	✓
	SR176	✓	✓	✓
ISO 15693	ICODE SLI	✓	✓	✓
	SRF55V02P	✓	---	---
	SRF55V02S	✓	---	---
	SRF55V10P	✓	---	---
	TI Tag-it HF-I	✓	✓	✓
ICODE® (Phillips)	ICODE	✓	✓	✓

ID_MOD_TI_RFID, Module Version 1.0.A		UID Only	Read Page	Write Page
ISO 14443A	Mifare Standard 1K	✓	---	---
	Mifare Standard 4K	✓	---	---
	Mifare Ultralight	✓	---	---
	Mifare DESFire	✓	---	---
	Mifare S50	✓	---	---
	SLE44R35	✓	---	---
	SLE66R35	✓	---	---
ISO 14443B	SRIX 4K	---	---	---
	SR176	---	---	---
ISO 15693	ICODE SLI	✓	✓	✓
	SRF55V02P	✓	✓	✓
	SRF55V02S	✓	---	---
	SRF55V10P	✓	✓	✓
	TI Tag-it HF-I	✓	✓	✓
	ST LRI512	✓	---	---
ICODE® (Phillips)	ICODE	---	---	---

ID_MOD_MP_RFID		UID Only	Read Page	Write Page
ISO 14443A	Mifare Standard 1K	✓	✓	✓
	Mifare Standard 4K	✓	✓	✓
	Mifare Ultralight	✓	✓	✓
	Mifare DESFire	✓	---	---
	Mifare S50	✓	✓	✓
	SLE44R35	✓	✓	✓
	SLE66R35	✓	✓	✓
ISO 14443B	SRIX 4K	---	---	---
	SR176	✓	✓	✓
ISO 15693	ICODE SLI	✓	✓	✓
	SRF55V02P	✓	✓	✓
	SRF55V02S	✓	✓	✓
	SRF55V10P	✓	✓	✓
	TI Tag-it HF-I	✓	✓	✓
	ST LRI512	✓	✓	✓

Appendix II

LINEAR IMAGER (CCD), LASER (SE950)

The tables below list reader settings as well as symbology settings for the Linear Imager (CCD) or Laser (SE950) scan engine.

READER SETTINGS TABLE

CCD/Laser Engine	Description	Default
Time-out		**3 sec.**
1~9 (second) for MIRROR Browser	Set the maximum time for decoding to continue during a scan attempt. It applies to the following scan modes only – ▸ Laser mode ▸ Auto Off mode	
Scan Mode		**Laser mode**
Continuous Mode	Non-stop scanning ▸ To decode the same barcode repeatedly, move away the scan beam and target it at the barcode for each scanning.	
Test Mode	Non-stop scanning ▸ Capable of decoding the same barcode repeatedly	
Alternate Mode	Press the scan trigger to start with scanning. ▸ The scanning won't stop until you press the trigger again.	
Laser Mode	Hold down the scan trigger to start with scanning. ▸ The scanning won't stop until (a) a barcode is read, (b) the preset timeout expires, or (c) you release the trigger.	
Auto Off Mode	Press the scan trigger to start with scanning. ▸ The scanning won't stop until (a) a barcode is read or (b) the preset timeout expires.	
Redundancy Level		**None**
None	No redundancy means one successful decoding will make the reading valid and induce the "READER Event".	
One time, Two times, or Three times	The higher the reading security is (that is, the more redundancy the user selects), the slower the reading speed gets. ▸ If "Three Times" is selected, it will take a total of four consecutive successful decodings of the same barcode to make the reading valid.	

SYMBOLOGY SETTINGS TABLE

CCD/Laser Engine	Description	Default
Codabar		**Enable**
Select Start/Stop Characters	If "Transmit Start/Stop Characters" is desired, select one set: ▸ abcd / abcd ▸ abcd / tn*e ▸ ABCD / ABCD ▸ ABCD / TN*E	abcd / abcd
Transmit Start/Stop Characters	Decide whether to include the start/stop characters in the data being transmitted.	No
Code 128		**Enable**
GS1-128 (EAN-128)		**Enable**
Transmit Code ID	Decide whether to include Code ID (“]C1”) will be included in the data being transmitted.	No
Replace Field Separator	Decide whether to replace the field separator. If the barcode contains Field Separator “0x1D”, it will be changed to the desired Field Separator. For example, type the desired character “;” (semicolon) as the new field separator. Then if the barcode contains Field Separator “0x1D”, it will be changed to “;”.	No
ISBT 128		**Enable**
Industrial 25 (Discrete 25)		**Enable**
Start/Stop Selection	This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should set to "Interleaved 25".	Industrial 25
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes
Select Length	▸ One or two fixed lengths ▸ Range	4~127
Interleaved 25		**Enable**
Start/Stop Selection	Refer to Industrial 25.	Interleaved 25
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes

Select Length	▸ One or two fixed lengths ▸ Range	4~127
Matrix 25		**Enable**
Start/Stop Selection	Refer to Industrial 25.	Matrix 25
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes
Select Length	▸ One or two fixed lengths ▸ Range	4~127
French Pharmacode		**Disable**
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes
Italian Pharmacode (Code 32)		**Disable**
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes

Note: For French/Italian Pharmacode, "Transmit Start/Stop Character" is not provided in UI but it is controlled by the same setting of Code 39.

Code 39		**Enable**
Transmit Start/Stop Character	Decide whether to include the start/stop characters "*" in the data being transmitted.	No
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes
Code 39 Full ASCII	Code 39 Full ASCII includes all the alphanumeric and special characters.	Disable
Code 93		**Enable**
MSI		**Disable**
Verify Check Digit	Select one of the three calculation formulas to verify the check digit. If the check digit is incorrect, the barcode will not be accepted. ▸ Single Modulo 10 ▸ Double Modulo 10 ▸ Modulo 11 & 10	Single Modulo 10
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▸ Last digit not transmitted ▸ Both digits transmitted ▸ Both digits not transmitted	Both digits transmitted

Select Length		▸ One or two fixed lengths ▸ Range	4~127
Negative Barcode			**Disable**
Plessey			**Disable**
Convert to UK Plessey		When applied, each occurrence of the character "A" in the barcode data will be replaced by the character "X".	No
Transmit Check Digit		Decide whether to include the two check digits in the data being transmitted.	Yes
Telepen			**Disable**
Original Telepen (Numeric)		The original Telepen includes numeric characters.	Yes
AIM Telepen (Full ASCII)		AIM Telepen (Full ASCII) includes all the alphanumeric and special characters.	No
GS1 Databar-14/Expanded			**Disable**
GS1 Databar-14	Transmit Code ID	Decide whether to include Code ID ("]e0") will be included in the data being transmitted. GS1 DataBar-14 is short for GS1 DataBar Omnidirectional. This group consists of (1) GS1 DataBar Omnidirectional, (2) GS1 DataBar Truncated, (3) GS1 DataBar Stacked, and (4) GS1 DataBar Stacked Omnidirectional.	Yes
GS1 Databar Expanded	Transmit Code ID	Decide whether to include Code ID ("]e0") will be included in the data being transmitted. This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.	
Transmit Application ID		Decide whether to include the Application ID ("01") in the data being transmitted.	Yes
Transmit Check Digit		Decide whether to include the check digit in the data being transmitted.	Yes
GS1 Databar Limited			**Disable**
Transmit Code ID		Refer to GS1 Databar-14.	Yes
Transmit Application ID		Refer to GS1 Databar-14.	Yes
Transmit Check Digit		Refer to GS1 Databar-14.	Yes
EAN-8			**Enable**
Convert to EAN-13		The EAN-8 barcode will be expanded into EAN-13, and the next processing will follow the settings configured for EAN-13.	No
Transmit Check Digit		Decide whether to include the check digit in the data being transmitted.	Yes
Addon 2 / Addon 5		Decide whether to decode EAN-8 with addons.	No
EAN-13 / UPC-A			**Enable**
ISBN Conversion		The EAN-13 barcode starting with 978 and 979 will be converted to ISBN.	No

ISSN Conversion	The EAN-13 barcode starting with 977 will be converted to ISSN.	No
GTIN for EAN-13	The EAN-13 barcode will be expanded into 14-digit Global Trade Item Number (GTIN).	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes
Addon 2 / Addon 5	Decide whether to decode EAN-13/UPC-A with addons.	No
(UPC-A) Convert to EAN-13	The UPC-A barcode will be expanded into EAN-13, and the next processing will follow the settings configured for EAN-13.	Yes
(UPC-A) Transmit Check Digit	Decide whether to include the UPC-A check digit in the data being transmitted.	Yes
(UPC-A) Transmit System Number	Decide whether to include the UPC-A System Number in the data being transmitted.	Yes
UPC-E		**Enable**
UPC-E0 / UPC-E1	Decide whether to decode the UPC-E0 barcodes only or both UPC-E0 and UPC-E1 barcodes.	UPC-E0 only
Convert to UPC-A	The UPC-E barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
Transmit Check Digit	Decide whether to include the UPC-E check digit in the data being transmitted.	Yes
Transmit System Number	Decide whether to include the UPC-E System Number in the data being transmitted.	No
Addon 2 / Addon 5	Decide whether to decode UPC-E with addons.	No

Appendix III

LASER (SE955)

The tables below list reader settings as well as symbology settings for the Laser (SE955) scan engine.

READER SETTINGS TABLE

<table>
<tr><th>Laser (SE955) Engine</th><th>Description</th><th>Default</th></tr>
<tr><td>Decode Time-out</td><td>Set the maximum time for decoding to continue during a scan attempt.
▸ 1~9 (second)</td><td>3 sec.</td></tr>
<tr><td colspan="2">Redundancy Level</td><td>Level 1</td></tr>
<tr><td>Level 1</td><td colspan="2">The following barcodes must be successfully read twice before being decoded:
<table>
<tr><th>Barcode Types</th><th>Code Length</th></tr>
<tr><td>Codabar</td><td>All</td></tr>
<tr><td>MSI</td><td>4 characters or less</td></tr>
<tr><td>Industrial 25 (Discrete 25)</td><td>8 characters or less</td></tr>
<tr><td>Interleaved 25</td><td>8 characters or less</td></tr>
</table></td></tr>
<tr><td>Level 2</td><td colspan="2">All barcodes must be successfully read twice before being decoded.</td></tr>
<tr><td>Level 3</td><td colspan="2">All barcodes except for the following barcodes must be successfully read twice before being decoded. The following barcodes must be read three times:
<table>
<tr><th>Barcode Types “Excluded”</th><th>Code Length</th></tr>
<tr><td>MSI</td><td>4 characters or less</td></tr>
<tr><td>Industrial 25 (Discrete 25)</td><td>8 characters or less</td></tr>
<tr><td>Interleaved 25</td><td>8 characters or less</td></tr>
</table></td></tr>
<tr><td>Level 4</td><td colspan="2">All barcodes must be successfully read three times before being decoded.</td></tr>
<tr><td>Scan Angle</td><td>▸ “narrow” for 35°
▸ “wide” for 47°</td><td>Wide</td></tr>
<tr><td colspan="2">Scan Mode</td><td>Laser mode</td></tr>
<tr><td>Continuous Mode</td><td colspan="2">Non-stop scanning
▸ To decode the same barcode repeatedly, move away the scan beam and target it at the barcode for each scanning.</td></tr>
<tr><td>Laser Mode</td><td colspan="2">Hold down the scan trigger to start with scanning.
▸ The scanning won’t stop until (a) a barcode is read, (b) the preset timeout expires, or (c) you release the trigger.</td></tr>
</table>

Timeout between Same Symbol	When in Continuous mode, set the minimum time that must elapse before the scan engine decodes a second barcode, which is identical to the one that has just been decoded. This reduces the risk of accidently scanning the same barcode twice. ▸ 0.0~9.9 (second)	**1.0 sec.**

SYMBOLOGY SETTINGS TABLE

Laser (SE955) Engine	Description	Default
Code 11		**Enable**
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted. ▸ No verification ▸ One Check Digit ▸ Two Check Digits	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▸ "Verify Check Digit" must be enabled.	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Codabar		**Enable**
CLSI Editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▸ The 14-character barcode length does not include start/stop characters.	No
NOTIS Editing	Decide whether to include the start/stop characters in the data being transmitted. ▸ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Code 128		**---**
Code 128	Read standard Code 128 barcodes (= without leading FNC1 character).	Enable
GS1-128 (UCC/EAN-128)	Read GS1-128 barcodes with leading FNC1 character.	Enable
ISBT 128	Read ISBT 128 barcodes.	Enable
Industrial 25 (Discrete 25)		**Enable**
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55

Interleaved 25		**Enable**
Convert to EAN-13	Convert a 14-character barcode into EAN-13 if the following requirements are met: ▸ The barcode must have a leading 0 and a valid EAN-13 check digit. ▸ "Verify Check Digit" must be disabled.	No
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. ▸ No ▸ USS algorithm ▸ OPCC algorithm	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Chinese 25		**Enable**
Code 39		**Enable**
Convert to Code 32	Convert to Italian Pharmacode.	No
Code 32 Prefix	Prefix character "A" to Code 32 barcodes.	No
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▸ "Verify Check Digit" must be enabled.	No
Code 39 Full ASCII	Code 39 Full ASCII includes all the alphanumeric and special characters.	Disable
Trioptic Code 39	Decide whether to decode Trioptic Code 39. ▸ Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters.	Disable
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Code 93		**Enable**
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
MSI		**Enable**
Verify Check Digit	If Two Check Digits option is selected, an additional verification is required to ensure integrity. Select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted.	Single Modulo 10

	<table><tr><th>Check Digit</th><th>Algorithm</th></tr><tr><td>One Check Digit</td><td>Single Modulo 10</td></tr><tr><td>Two Check Digits</td><td>▸ Mod 10/Mod 11 ▸ Mod 10/Mod 10</td></tr></table>	
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
GS1 DataBar (RSS)		**---**
GS1 Databar-14	GS1 DataBar-14 is short for GS1 DataBar Omnidirectional. This group consists of (1) GS1 DataBar Omnidirectional, (2) GS1 DataBar Truncated, (3) GS1 DataBar Stacked, and (4) GS1 DataBar Stacked Omnidirectional.	Enable
GS1 Databar Limited		Enable
GS1 Databar Expanded	This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.	Enable
Convert RSS to UPC/EAN	"Convert to UPC/EAN" only applies to GS1 Databar-14 and GS1 Databar Limited barcodes not decoded as part of a Composite barcode. <table><tr><th>Convert to EAN-13</th></tr><tr><td>Strip the leading "010" from barcodes. ▸ "01" is the Application ID and must be followed by a single zero (the first digit encoded)</td></tr><tr><th>Convert to UPC-A</th></tr><tr><td>Strip the leading "0100" from barcodes. ▸ "01" is the Application ID and must be followed by two or more zeros (but not six zeros)</td></tr></table>	No
EAN-8		**Enable**
Convert to EAN-13	The EAN-8 barcode will be expanded into EAN-13, and the next processing will follow the settings configured for EAN-13.	No
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
EAN-13		**Enable**
Bookland EAN (ISBN)	The EAN-13 barcode starting with 978 will be converted to ISBN.	Yes
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
UPC-A		**Enable**
Transmit Check Digit	Decide whether to include the UPC-A check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-A preamble System Number (and Country Code) in the data being transmitted.	System Number

Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
UPC-E0		**Enable**
Transmit Check Digit	Decide whether to include the UPC-E0 check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-E0 preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Convert to UPC-A	The UPC-E0 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UPC-E1		**Disable**
Transmit Check Digit	Decide whether to include the UPC-E1 check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-E1 preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Convert to UPC-A	The UPC-E1 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UCC Coupon Extended Code		**Disable**
Read UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digits "99", and UPC-A/ GS1-128 Coupon Codes. ▸ UPC-A, EAN-13, and GS1-128 must be enabled first! ▸ Use "Addon Redundancy" to control auto-discrimination of the GS1-128 (right half) of a coupon code.		
UPC/EAN Addon		**---**
Addon 2 / Addon 5	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons. ▸ Ignore Addons ▸ Decode Only With Addons ▸ Auto-discriminate	Ignore…
Addon Redundancy	When "Auto-discriminate" is applied, decide the number of times (2~30) of supplementary decoding the same barcode that makes a valid reading.	7 times
UPC/EAN Security Level		**Level 2**
Decide the decode security for UPC/EAN barcodes. Higher security levels are selected for decreasing levels of barcode quality. Note that increasing security level decreases the scan engine's aggressiveness; choose only that level of security necessary for the application. ▸ Level 0 – Select this option for the scan engine to operate in its most aggressive state, providing sufficient security in decoding most "in-spec" UPC/EAN barcodes. ▸ Level 1 – As barcode quality level diminish, certain characters become prone to mis-decodes before others (i.e. 1, 2, 7, 8). Select this option for the scan engine to eliminate mis-decodes, which are limited to characters 1, 2, 7 and 8.		

- Level 2 – This default setting allows the scan engine to eliminate most mis-decodes when the poorly printed barcodes occurrence not limited to characters 1, 2, 7 and 8.
- Level 3 – Select this option if Level 2 still fails to eliminate mis-decodes. However, selecting this option impairs the decoding ability of the scan engine. If this level of security is necessary, try to improve the barcode quality.

MISCELLANEOUS

Laser (SE955) Engine	Description	Default
Miscellaneous Options		**---**
Transmit Code ID	Decide whether to include AIM Code ID in the beginning of data. Each AIM Code ID contains the three-character string "**]cm**" – ▸] = Flag Character (ASCII 93) ▸ c = Code Character (see below) ▸ m = Modifier Character (see below)	Disable

AIM CODE ID – CODE CHARACTERS

Code Character	Code Type
A	Code 39
C	Code 128
E	UPC/EAN
F	Codabar
G	Code 93
H	Code 11
I	Interleaved 25
M	MSI
S	Industrial 25 (Discrete 25), IATA 2 of 5
X	Code 39 Trioptic, Bookland EAN

AIM CODE ID – MODIFIER CHARACTERS

Code Type	Option Value	Option
Code 39	0	No check character or Full ASCII processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
	4	Full ASCII conversion has been performed.
	5	Result of option values 1 and 4.
	7	Result of option values 3 and 4.

Code 128	0	Standard data packet. No Function Code 1"FNC1" in the first character position.
	1	Function Code 1"FNC1" in the first character position.
	2	Function Code 1"FNC1" in the second character position.
Interleaved 25	0	No check digit processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
Codabar	0	No check digit processing.
Code 93	0	Always transmit 0.
MSI	0	Modulo 10 check digit verified and transmitted.
	1	Modulo 10 check digit verified but not transmitted.
Industrial 25 (Discrete 25)	0	Always transmit 0.
UPC/EAN	0	Standard data packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including addons).
	1	Two-digit addons only.
	2	Five-digit addons only.
	4	EAN-8 data packet.
	A UPC-A with Addon 2 barcode, 012345678905-10, is transmitted to the host as a 21-character string,]E0 0012345678905]E1 10.	
Bookland EAN	0	Always transmit 0.
Trioptic Code 39	0	Always transmit 0.

Appendix IV

LR/ELR LASER

The tables below list reader settings as well as symbology settings for the Long Range Laser (LR) or Extra Long Range Laser (ELR) scan engine.

READER SETTINGS TABLE

<table>
<tr><th>LR/ELR Engine</th><th>Description</th><th>Default</th></tr>
<tr><td>Decode Time-out</td><td>Set the maximum time for decoding to continue during a scan attempt.
▸ 1~9 (second)</td><td>3 sec.</td></tr>
<tr><td>Aiming Time-out</td><td>Decide whether to have the aiming dot. When you press the [SCAN] button, the scan engine will emit a red dot for aiming. It will stay on until it times out or you press the [SCAN] button again. Then, it will emit a scan beam.
▸ 0~9, in units of 1 second.
▸ Enter 0 if aiming is not desired.</td><td>No aiming</td></tr>
<tr><td colspan="2">Redundancy Level</td><td>Level 1</td></tr>
<tr><td>Level 1</td><td colspan="2">The following barcodes must be successfully read twice before being decoded:
<table>
<tr><th>Barcode Types</th><th>Code Length</th></tr>
<tr><td>Codabar</td><td>All</td></tr>
<tr><td>MSI</td><td>4 characters or less</td></tr>
<tr><td>Industrial 25 (Discrete 25)</td><td>8 characters or less</td></tr>
<tr><td>Interleaved 25</td><td>8 characters or less</td></tr>
</table></td></tr>
<tr><td>Level 2</td><td colspan="2">All barcodes must be successfully read twice before being decoded.</td></tr>
<tr><td>Level 3</td><td colspan="2">All barcodes except for the following barcodes must be successfully read twice before being decoded. The following barcodes must be read three times:
<table>
<tr><th>Barcode Types “Excluded”</th><th>Code Length</th></tr>
<tr><td>MSI</td><td>4 characters or less</td></tr>
<tr><td>Industrial 25 (Discrete 25)</td><td>8 characters or less</td></tr>
<tr><td>Interleaved 25</td><td>8 characters or less</td></tr>
</table></td></tr>
<tr><td>Level 4</td><td colspan="2">All barcodes must be successfully read three times before being decoded.</td></tr>
<tr><td>Scan Angle</td><td>Select the scan angle for the Long Range Laser scan engine.</td><td>Narrow</td></tr>
</table>

	▸ "narrow" 30° ▸ "wide" for 42°	

SYMBOLOGY SETTINGS TABLE

LR/ELR Engine	Description	Default
Codabar		**Disable**
CLSI Editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▸ The 14-character barcode length does not include start/stop characters.	No
NOTIS Editing	Decide whether to include the start/stop characters in the data being transmitted. ▸ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Code 128		**---**
Code 128	Read standard Code 128 barcodes (= without leading FNC1 character).	Enable
GS1-128 (UCC/EAN-128)	Read GS1-128 barcodes with leading FNC1 character.	Enable
ISBT 128	Read ISBT 128 barcodes.	Enable
Industrial 25 (Discrete 25)		**Enable**
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Interleaved 25		**Enable**
Convert to EAN-13	Convert a 14-character barcode into EAN-13 if the following requirements are met: ▸ The barcode must have a leading 0 and a valid EAN-13 check digit. ▸ "Verify Check Digit" must be disabled.	No
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. ▸ No ▸ USS algorithm ▸ OPCC algorithm	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55

<table>
<tr><td colspan="2">Code 39</td><td>Enable</td></tr>
<tr><td>Convert to Code 32</td><td>Convert to Italian Pharmacode.</td><td>No</td></tr>
<tr><td>Code 32 Prefix</td><td>Prefix character “A” to Code 32 barcodes.</td><td>No</td></tr>
<tr><td>Verify Check Digit</td><td>Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.</td><td>No</td></tr>
<tr><td>Transmit Check Digit</td><td>Decide whether to include the check digit in the data being transmitted.
▸ “Verify Check Digit” must be enabled.</td><td>No</td></tr>
<tr><td>Code 39 Full ASCII</td><td>Code 39 Full ASCII includes all the alphanumeric and special characters.</td><td>Disable</td></tr>
<tr><td>Trioptic Code 39</td><td>Decide whether to decode Trioptic Code 39.
▸ Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters.</td><td>Disable</td></tr>
<tr><td>Select Length</td><td>▸ One or two fixed lengths
▸ Range (1~55)</td><td>4~55</td></tr>
<tr><td colspan="2">Code 93</td><td>Enable</td></tr>
<tr><td>Select Length</td><td>▸ One or two fixed lengths
▸ Range (1~55)</td><td>4~55</td></tr>
<tr><td colspan="2">MSI</td><td>Enable</td></tr>
<tr><td>Verify Check Digit</td><td>If Two Check Digits option is selected, an additional verification is required to ensure integrity. Select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted.
<table>
<tr><th>Check Digit</th><th>Algorithm</th></tr>
<tr><td>One Check Digit</td><td>Single Modulo 10</td></tr>
<tr><td>Two Check Digits</td><td>▸ Mod 10/Mod 11
▸ Mod 10/Mod 10</td></tr>
</table></td><td>Single Modulo 10</td></tr>
<tr><td>Transmit Check Digit</td><td>Decide whether to include the check digit in the data being transmitted.</td><td>No</td></tr>
<tr><td>Select Length</td><td>▸ One or two fixed lengths
▸ Range (1~55)</td><td>4~55</td></tr>
<tr><td colspan="2">GS1 DataBar (RSS)</td><td>---</td></tr>
<tr><td>GS1 Databar-14</td><td>GS1 DataBar-14 is short for GS1 DataBar Omnidirectional. This group consists of (1) GS1 DataBar Omnidirectional, (2) GS1 DataBar Truncated, (3) GS1 DataBar Stacked, and (4) GS1 DataBar Stacked Omnidirectional.</td><td>Disable</td></tr>
<tr><td>GS1 Databar Limited</td><td></td><td>Disable</td></tr>
<tr><td>GS1 Databar Expanded</td><td>This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.</td><td>Disable</td></tr>
</table>

Convert RSS to UPC/EAN	"Convert to UPC/EAN" only applies to GS1 Databa-14 and GS1 Databar Limited barcodes not decoded as part of a Composite barcode. **Convert to EAN-13** Strip the leading "010" from barcodes. ▸ "01" is the Application ID and must be followed by a single zero (the first digit encoded) **Convert to UPC-A** Strip the leading "0100" from barcodes. ▸ "01" is the Application ID and must be followed by two or more zeros (but not six zeros)	No
EAN-8		**Enable**
Convert to EAN-13	The EAN-8 barcode will be expanded into EAN-13, and the next processing will follow the settings configured for EAN-13.	No
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
EAN-13		**Enable**
Bookland EAN (ISBN)	The EAN-13 barcode starting with 978 will be converted to ISBN.	Yes
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
UPC-A		**Enable**
Transmit Check Digit	Decide whether to include the UPC-A check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-A preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
UPC-E0		**Enable**
Transmit Check Digit	Decide whether to include the UPC-E0 check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-E0 preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Convert to UPC-A	The UPC-E0 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UPC-E1		**Disable**
Transmit Check Digit	Decide whether to include the UPC-E1 check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-E1 preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	

Convert to UPC-A	The UPC-E1 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UCC Coupon Extended Code		**Disable**
Read UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digits "99", and UPC-A/ GS1-128 Coupon Codes. ▸ UPC-A, EAN-13, and GS1-128 must be enabled first! ▸ Use "Addon Redundancy" to control auto-discrimination of the GS1-128 (right half) of a coupon code.		
UPC/EAN Addon		**---**
Addon 2 / Addon 5	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons. ▸ Ignore Addons ▸ Decode Only With Addons ▸ Auto-discriminate	Ignore…
Addon Redundancy	When "Auto-discriminate" is applied, decide the number of times of supplementary decoding the same barcode that makes a valid reading.	7 times

MISCELLANEOUS

LR/ELR Engine	Description	Default
Miscellaneous Options		**---**
Transmit Code ID	Decide whether to include AIM Code ID in the beginning of data. Each AIM Code ID contains the three-character string "**]cm**" – ▸] = Flag Character (ASCII 93) ▸ c = Code Character (see below) ▸ m = Modifier Character (see below)	**Disable**

AIM CODE ID – CODE CHARACTERS

Code Character	Code Type
A	Code 39
C	Code 128
E	UPC/EAN
F	Codabar
G	Code 93
H	Code 11
I	Interleaved 25
M	MSI
S	Industrial 25 (Discrete 25), IATA 2 of 5

X	Code 39 Trioptic, Bookland EAN

AIM CODE ID – MODIFIER CHARACTERS

Code Type	Option Value	Option
Code 39	0	No check character or Full ASCII processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
	4	Full ASCII conversion has been performed.
	5	Result of option values 1 and 4.
	7	Result of option values 3 and 4.
Code 128	0	Standard data packet. No Function Code 1"FNC1" in the first character position.
	1	Function Code 1"FNC1" in the first character position.
	2	Function Code 1"FNC1" in the second character position.
Interleaved 25	0	No check digit processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
Codabar	0	No check digit processing.
Code 93	0	Always transmit 0.
MSI	0	Modulo 10 check digit verified and transmitted.
	1	Modulo 10 check digit verified but not transmitted.
Industrial 25 (Discrete 25)	0	Always transmit 0.
UPC/EAN	0	Standard data packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including addons).
	1	Two-digit addons only.
	2	Five-digit addons only.
	4	EAN-8 data packet.
	A UPC-A with Addon 2 barcode, 012345678905-10, is transmitted to the host as a 21-character string,]E0 0012345678905]E1 10.	
Bookland EAN	0	Always transmit 0.
Trioptic Code 39	0	Always transmit 0.

Appendix V

2D IMAGER

The tables below list reader settings as well as symbology settings for the 2D scan engine.

READER SETTINGS TABLE

2D Engine	Description	Default
Decode Time-out	Set the maximum time for decoding to continue during a scan attempt. ▸ 1~9 (second)	**3 sec.**
Focus Mode	Select the focus mode to control the working range: ▸ Far Focus – optimized to read at its far position ▸ Near Focus – optimized to read at its near position ▸ Smart Focus – toggles the focus position after every frame	**Far Focus**

Note: Focus mode is supported on 2D scan engine for 9400/9500.

Decode Illumination	Decide whether to flash illumination on every barcode capture to aid decoding. ▸ Turn On (Internal LED) ▸ Turn Off	**On**
Aiming Pattern	Decide whether to project the aiming pattern during barcode capture. ▸ Turn On ▸ Turn Off	**On**
Redundancy Level		**Level 1**
Level 1	The following barcodes must be successfully read twice before being decoded:	

Barcode Types	Code Length
Codabar	8 characters or less
MSI	4 characters or less
Industrial 25 (Discrete 25)	8 characters or less
Interleaved 25	8 characters or less

Level 2	All barcodes must be successfully read twice before being decoded.
Level 3	All barcodes except for the following barcodes must be successfully read twice before being decoded.

<table>
<tr><td></td><td colspan="2">The following barcodes must be read three times:
<table><tr><th>Barcode Types “Excluded”</th><th>Code Length</th></tr><tr><td>Codabar</td><td>8 characters or less</td></tr><tr><td>MSI</td><td>4 characters or less</td></tr><tr><td>Industrial 25 (Discrete 25)</td><td>8 characters or less</td></tr><tr><td>Interleaved 25</td><td>8 characters or less</td></tr></table></td></tr>
<tr><td>Level 4</td><td colspan="2">All barcodes must be successfully read three times before being decoded.</td></tr>
<tr><td>Security Level</td><td>Select a decode security level appropriate for the barcode quality when reading delta barcodes such as Code 128, Code 93, UPC/EAN.
Security Level 0 – This default setting allows the scan engine to operate in its most aggressive state, providing sufficient security in decoding most “in-spec” barcodes.
Security Level 1 – Select this option if misdecodes occur. This level should eliminate most misdecodes.
Security Level 2 – Select this option if Security Level 1 fails to eliminate misdecodes.
Security Level 3 – Select this option if Security Level 2 also fails to eliminate misdecodes. However, selecting this option impairs the decoding ability of the scan engine. If this level of security is necessary, try to improve the barcode quality.</td><td>Level 0</td></tr>
</table>

SYMBOLOGY SETTINGS TABLE

1D SYMBOLOGIES

2D Engine	Description	Default
Codabar		**Enable**
CLSI Editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▸ The 14-character barcode length does not include start/stop characters.	No
NOTIS Editing	Decide whether to include the start/stop characters in the data being transmitted. ▸ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Intercharacter Gap Size	The Code 39 and Codabar symbologies have an intercharacter gap that is typically quite small. Due to various barcode printing technologies, this gap can grow larger than the maximum size allowed, preventing the scan engine from decoding a barcode. If this problem occurs, set it to "Large Intercharacter Gaps" to tolerate these out-of-specification barcodes. ▸ Normal intercharacter gaps ▸ Large intercharacter gaps	Normal
Code 128		**---**
Code 128	Read standard Code 128 barcodes (= without leading FNC1 character).	Enable
GS1-128 (UCC/EAN-128)	Read GS1-128 barcodes with leading FNC1 character.	Enable
ISBT 128	Read ISBT 128 barcodes.	Enable
ISBT Concatenation	Decide whether to decode and concatenate pairs of ISBT barcodes. ▸ Disable ▸ Enable – When this option is selected, there must be two ISBT barcodes for the scanner to decode and perform concatenation. ▸ Auto-discriminate – When this option is selected, the scanner decodes and concatenates pairs of ISBT barcodes immediately. If only a single ISBT barcode is present, the scanner must decode 10 times before transmitting its data to confirm that there is no additional ISBT barcode.	Disable
ISBT Concatenation Redundancy	When "Auto-discriminate" is applied, decide the concatenation redundancy (2~20 times).	10 times

Note: ISBT 128 Concatenation settings are supported on 2D scan engine for 9300/9600.

Industrial 25 (Discrete 25)		**Enable**
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Interleaved 25		**Enable**
Convert to EAN-13	Convert a 14-character barcode into EAN-13 if the following requirements are met: ▸ The barcode must have a leading 0 and a valid EAN-13 check digit. ▸ "Verify Check Digit" must be disabled.	No
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. ▸ No ▸ USS algorithm ▸ OPCC algorithm	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Matrix 25		**Enable**
Redundancy	Decide whether to enable read redundancy.	Disable
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▸ "Verify Check Digit" must be enabled.	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Chinese 25		**Enable**

Note: Matrix 25 and Chinese 25 are supported on 2D scan engine for 9300/9600.

Code 39		**Enable**
Convert to Code 32	Convert to Italian Pharmacode.	No
Code 32 Prefix	Prefix character "A" to Code 32 barcodes.	No
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▸ "Verify Check Digit" must be enabled.	No

<table>
<tr><td>Code 39 Full ASCII</td><td>Code 39 Full ASCII includes all the alphanumeric and special characters.</td><td>Disable</td></tr>
<tr><td>Trioptic Code 39</td><td>Decide whether to decode Trioptic Code 39.
Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters.</td><td>Disable</td></tr>
<tr><td>Select Length</td><td>One or two fixed lengths
Range (1~55)</td><td>4~55</td></tr>
<tr><td>Intercharacter Gap Size</td><td>The Code 39 and Codabar symbologies have an intercharacter gap that is typically quite small. Due to various barcode printing technologies, this gap can grow larger than the maximum size allowed, preventing the scan engine from decoding a barcode. If this problem occurs, set it to “Large Intercharacter Gaps” to tolerate these out-of-specification barcodes.
Normal intercharacter gaps
Large intercharacter gaps</td><td>Normal</td></tr>
<tr><td colspan="2">Code 93</td><td>Enable</td></tr>
<tr><td>Select Length</td><td>One or two fixed lengths
Range (1~55)</td><td>4~55</td></tr>
<tr><td colspan="2">MSI</td><td>Enable</td></tr>
<tr><td>Verify Check Digit</td><td>If Two Check Digits option is selected, an additional verification is required to ensure integrity. Select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted.
<table>
<tr><th>Check Digit</th><th>Algorithm</th></tr>
<tr><td>One Check Digit</td><td>Single Modulo 10</td></tr>
<tr><td>Two Check Digits</td><td>Mod 10/Mod 11
Mod 10/Mod 10</td></tr>
</table></td><td>Single Modulo 10</td></tr>
<tr><td>Transmit Check Digit</td><td>Decide whether to include the check digit in the data being transmitted.</td><td>No</td></tr>
<tr><td>Select Length</td><td>One or two fixed lengths
Range (1~55)</td><td>4~55</td></tr>
<tr><td colspan="2">GS1 DataBar (RSS)</td><td>---</td></tr>
<tr><td>GS1 Databar-14</td><td>GS1 DataBar-14 is short for GS1 DataBar Omnidirectional. This group consists of (1) GS1 DataBar Omnidirectional, (2) GS1 DataBar Truncated, (3) GS1 DataBar Stacked, and (4) GS1 DataBar Stacked Omnidirectional.</td><td>Enable</td></tr>
<tr><td>GS1 Databar Limited</td><td></td><td>Enable</td></tr>
<tr><td>GS1 Databar Expanded</td><td>This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.</td><td>Enable</td></tr>
</table>

Convert RSS to UPC/EAN	"Convert to UPC/EAN" only applies to GS1 Databar-14 and GS1 Databar Limited barcodes not decoded as part of a Composite barcode. **Convert to EAN-13** Strip the leading "010" from barcodes. ▸ "01" is the Application ID and must be followed by a single zero (the first digit encoded) **Convert to UPC-A** Strip the leading "0100" from barcodes. ▸ "01" is the Application ID and must be followed by two or more zeros (but not six zeros)	No
EAN-8		**Enable**
Convert to EAN-13	The EAN-8 barcode will be expanded into EAN-13, and the next processing will follow the settings configured for EAN-13.	No
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
EAN-13		**Enable**
Bookland EAN (ISBN)	The EAN-13 barcode starting with 978 will be converted to ISBN.	Yes
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
UPC-A		**Enable**
Transmit Check Digit	Decide whether to include the UPC-A check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-A preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
UPC-E0		**Enable**
Transmit Check Digit	Decide whether to include the UPC-E0 check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-E0 preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Convert to UPC-A	The UPC-E0 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UPC-E1		**Disable**
Transmit Check Digit	Decide whether to include the UPC-E1 check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-E1 preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	

Convert to UPC-A	The UPC-E1 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UCC Coupon Extended Code		**Disable**
Read UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digits "99", and UPC-A/ GS1-128 Coupon Codes. ▸ UPC-A, EAN-13, and GS1-128 must be enabled first! ▸ Use "Addon Redundancy" to control auto-discrimination of the GS1-128 (right half) of a coupon code.		
UPC/EAN Addon		**---**
Addon 2 / Addon 5	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons. ▸ Ignore Addons ▸ Decode Only With Addons ▸ Auto-discriminate	Ignore…
Addon Redundancy	When "Auto-discriminate" is applied, decide the number of times of supplementary decoding the same barcode that makes a valid reading.	10 times
Code 11		**Enable**
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted. ▸ No verification ▸ One Check Digit ▸ Two Check Digits	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▸ "Verify Check Digit" must be enabled.	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Postal Codes		**---**
US Postnet		Enable
US Planet		Enable
Transmit US Postal Check Digit	US Postnet or US Planet must be enabled first!	Enable
UK Postal		Enable
Transmit UK Postal Check Digit	UK Postal must be enabled first!	Enable
Japan Postal		Enable
Australian Postal		Enable
Dutch Postal		Enable

Composite Codes		---
Composite CC-C		Enable
Composite CC-A/B		Disable
Composite TLC-39		Disable
GS1-128 Emulation Mode for UCC/EAN Composite Codes	Transmit UCC/EAN Composite Code data as if it was encoded in GS1-128 barcodes.	Disable
UPC Composite Mode	UPC barcodes can be "linked" with a 2D barcode during transmission as if they were one barcode. **UPC Never Linked** Transmit UPC barcodes regardless of whether a 2D barcode is detected. **UPC Always Linked** Transmit UPC barcodes and the 2D portion. If the 2D portion is not detected, the UPC barcode will not be transmitted. ▸ CC-A/B or CC-C must be enabled! **Auto-discriminate UPC Composites** Transmit UPC barcodes as well as the 2D portion if present.	UPC Always Linked

2D SYMBOLOGIES

2D Engine	Description	Default
2D Symbologies		**---**
PDF417		Enable
MicroPDF417		Disable
MicroPDF417 Code 128 Emulation	Transmit data from certain MicroPDF417 barcodes as if it was encoded in Code 128 barcodes. ▸ Transmit AIM Code Identifier must be enabled first! When applied, the MicroPDF417 barcodes are transmitted with one of these prefixes: **The first codeword of MicroPDF417 is 903-907, 912, 914, 915:** The original Code ID "]L3" will be changed to "]C1". **The first codeword of MicroPDF417 is 908 or 909:** The original Code ID "]L4" will be changed to "]C2". **The first codeword of MicroPDF417 is 910 or 911:** The original Code ID "]L5" will be changed to "]C0".	Disable
Data Matrix		Enable
Data Matrix Inverse	Decide whether to decode Data Matrix Inverse. **Regular Only** Decode regular Data Matrix barcodes only. **Inverse Only** Decode inverse Data Matrix barcodes only. **Inverse Autodetect** Decode both regular and inverse Data Matrix barcodes.	Regular Only
Maxicode		Enable
QR Code		Enable
QR Code Inverse	Decide whether to decode QR Code Inverse. **Regular Only** Decode regular QR Code only. **Inverse Only** Decode inverse QR Code only.	Regular Only

	Inverse Autodetect Decode both regular and inverse QR Code.	
MicroQR		Enable
Aztec		Enable
Aztec Inverse	Decide whether to decode Aztec Inverse. **Regular Only** Decode regular Aztec barcodes only. **Inverse Only** Decode inverse Aztec barcodes only. **Inverse Autodetect** Decode both regular and inverse Aztec barcodes.	Regular Only

Note: Data Matrix Inverse, QR Code Inverse, MicroQR, Aztec and Aztec Inverse are supported on 2D scan engine for 9300/9600.

2D Symbologies – Macro PDF		**---**
Macro PDF is a special feature for concatenating multiple PDF barcodes into one file, known as Macro PDF417 or Macro MicroPDF417.		
Transmit/Decode Mode	Decide how to handle Macro PDF decoding. **Buffer All Symbols / Transmit Macro PDF When Complete** Transmit all decoded data from an entire Macro PDF sequence only when the entire sequence is scanned and decoded. If the decoded data exceeds the limit of 50 symbols, no transmission because the entire sequence was not scanned! **Transmit Any Symbol in Set / No Particular Order** Transmit data from each Macro PDF symbol as decoded, regardless of the sequence. **Passthrough All Symbols** Transmit and decode all Macro PDF symbols and perform no processing. In this mode, the host is responsible for detecting and parsing the Macro PDF sequences.	Passthrough All Symbols
ESC Characters	When enabled, it uses the backslash "\" as an Escape character for systems that can process transmissions containing special data sequences. It will format special data according to the Global Label Identifier (GLI) protocol, which only affects the data portion of a Macro PDF symbol transmission. The Control Header, if enabled, is always sent with GLI formatting.	None

Note: When printing barcodes, keep each Macro PDF sequence separate, as each has a unique identifier. Do not mix barcodes from several Macro PDF sequences, even if they encode the same data. When you scan Macro PDF sequences, scan the entire Macro PDF sequence without interruption!

Transmit Code ID	Decide whether to include AIM Code ID in the beginning of data. Each AIM Code ID contains the three-character string "**]cm**" – ▸] = Flag Character (ASCII 93) ▸ c = Code Character (see below) ▸ m = Modifier Character (see below)	Disable

MISCELLANEOUS

2D Engine	Description	Default
Miscellaneous Options		**---**
Transmit Code ID	Decide whether to include AIM Code ID in the beginning of data. Each AIM Code ID contains the three-character string "**]cm**" – ▸] = Flag Character (ASCII 93) ▸ c = Code Character (see below) ▸ m = Modifier Character (see below)	**Disable**

AIM CODE ID – CODE CHARACTERS

Code Character	Code Type
A	Code 39, Code 39 Full ASCII, Code 32
C	Code 128, Coupon (Code 128 portion)
d	Data Matrix
E	UPC/EAN, Coupon (UPC portion)
e	GS1 DataBar (RSS)
F	Codabar
G	Code 93
H	Code 11
I	Interleaved 25
L	PDF417, Macro PDF417, Micro PDF417
M	MSI
Q	QR Code
S	Industrial 25 (Discrete 25), IATA 2 of 5
U	Maxicode
X	Code 39 Trioptic, Bookland EAN, US Postnet, US Planet, UK Postal, Japan Postal, Australian Postal, Dutch Postal

AIM CODE ID – MODIFIER CHARACTERS

Code Type	Option Value	Option
Code 39	0	No check character or Full ASCII processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
	4	Full ASCII conversion has been performed.
	5	Result of option values 1 and 4.
	7	Result of option values 3 and 4.
Code 128	0	Standard data packet. No Function Code 1"FNC1" in the first character position.
	1	Function Code 1"FNC1" in the first character position.
	2	Function Code 1"FNC1" in the second character position.
Interleaved 25	0	No check digit processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
Codabar	0	No check digit processing.
Code 93	0	Always transmit 0.

MSI	0	Modulo 10 check digit verified and transmitted.
	1	Modulo 10 check digit verified but not transmitted.
Industrial 25 (Discrete 25)	0	Always transmit 0.
UPC/EAN	0	Standard data packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including addons).
	3	Standard data packet with two-digit or five-digit addons.
	4	EAN-8 data packet.
	A UPC-A with Addon 2 barcode, 012345678905-10, is transmitted to the host as a 18-character string,]E3001234567890510.	
Bookland EAN	0	Always transmit 0.
Trioptic Code 39	0	Always transmit 0.
Code 11	0	Single check digit (has been verified.)
	1	Two check digits (has been verified.)
	3	Check digit has been verified but not transmitted.
GS1 DataBar (RSS)	0	Always transmit 0.
	RSS-14 and RSS Limited will be transmitted with an Application Identifier "01". For example, an RSS-14 barcode, 10012345678902, is transmitted as]e00110012345678902.	

Note: In GS1-128 emulation mode, RSS is transmitted using Code 128 rules (i.e. "]C1").

EAN.UCC Composites (RSS, GS1-128, 2D portion of UPC composite)	Native mode transmission	
	0	Standard data packet
	1	Data packet containing the data following an encoded symbol separator character.
	2	Data packet containing the data following an escape mechanism character. The data packet does not support the ECI protocol.
	3	Data packet containing the data following an escape mechanism character. The data packet supports the ECI protocol.
	GS1-128 emulation	
	1	Data packet is a GS1-128 barcode (i.e. data is preceded with "]JC1").

Note: UPC portion of composite is transmitted using UPC rules.

PDF417, Micro PDF417	0	Scan engine is set to conform to protocol defined in 1994 PDF417 symbology specifications. ▸ When this option is transmitted, the receiver cannot reliably determine whether ECIs have been invoked or whether data byte 92DEC has been doubled in transmission.

	1	Scan engine is set to follow the ECI protocol (Extended Channel Interpretation). All data characters 92DEC are doubled.
	2	Scan engine is set for Basic Channel operation (no escape character transmission protocol). Data characters 92DEC are not doubled. ▸ When decoders are set to this mode, unbuffered Macro symbols and symbols requiring the decoder to convey ECI escape sequences cannot be transmitted.
	3	The barcode contains a GS1-128 symbol, and the first codeword is 903-907, 912, 914, 915.
	4	The barcode contains a GS1-128 symbol, and the first codeword is in the range 908-909.
	5	The barcode contains a GS1-128 symbol, and the first codeword is in the range 910-911.
	A PDF417 barcode, ABCD, with no transmission protocol enabled, is transmitted as]L2ABCD.	
Data Matrix	0	ECC 000-140, not supported.
	1	ECC 200.
	2	ECC 200, FNC1 in first or fifth position.
	3	ECC 200, FNC1 in second or sixth position.
	4	ECC 200, ECI protocol implemented.
	5	ECC 200, FNC1 in first or fifth position, ECI protocol implemented.
	6	ECC 200, FNC1 in second or sixth position, ECI protocol implemented.
Maxicode	0	Mode 4 or 5
	1	Mode 2 or 3
	2	Mode 4 or 5, ECI protocol implemented.
	3	Mode 2 or 3, ECI protocol implemented in secondary message.
QR Code	0	Model 1
	1	Model 2, ECI protocol not implemented.
	2	Model 2, ECI protocol implemented.
	3	Model 2, ECI protocol not implemented, FNC1 implied in first position.
	4	Model 2, ECI protocol implemented, FNC1 implied in first position.
	5	Model 2, ECI protocol not implemented, FNC1 implied in second position.
	6	Model 2, ECI protocol implemented, FNC1 implied in second position