

Opticon's Bluetooth guide
for connecting
Android devices
with the
OPN2002 & OPL2724

Introduction	3
1 Setting up your barcode reader	3
2 Installing the required software on your Android phone	5
2.1 Placing OpticonRL on your Android phone memory card	6
2.2 Installing an application installer	7
2.3 Installing OpticonRL and the Soft Keyboard	9
3 Establishing a Bluetooth connection	11
3.1 Pairing your barcode reader	12
3.2 Connecting to your barcode reader	13
4 Input text using your barcode reader	14
5 Reconnecting and disconnecting your barcode reader	17
5.1 Disconnecting your barcode reader	17
5.2 Reconnecting your barcode reader	17
6 Trouble shooting & additional features	18
6.1 Bluetooth connection problems	18
6.2 Minimum required OS version of the OPN2002	18
6.3 Software updates for the OPN2002	18
6.4 Limited Universal menu book support	19
6.5 Supported Bluetooth features	19

Introduction

The Opticon barcode readers OPN2002 and the OPL2724 can be used to quickly input text on Android phones by scanning barcodes.

This manual will provide step-by-step instructions on how to use this functionality.

1 Setting up your barcode reader

The first step in this process is configuring your OPN2002 or OPL2724 correctly.

Since we'll use the Bluetooth Serial Port Profile (SPP)* to connect to your Android phone, you first have to select the correct default settings on the barcode reader.

Read the labels below to reset your barcode reader to Bluetooth-SPP default.

** Note: The serial data will be converted to keyboard input (HID) by an application called OpticonRL, which is mentioned in following steps.*

	SET	
Bluetooth-SPP default	SO	
	END	

The next step is configuring a numeric PIN-code, since most Android phones don't accept PIN-codes that aren't fully numeric.

On the following page you'll find the setup labels to configure a numeric PIN-code. Configure the PIN-code by reading the labels in the following sequence:

1. SET
2. Set PIN-code label
3. Read 1 to 4 numeric characters (i.e read '0' 4 times to use '0000' as PIN-code)
4. End PIN-code label
5. END

	SET	
Set PIN-code label	PINS	
0	Q0	
1	Q1	
2	Q2	
3	Q3	
4	Q4	
5	Q5	
6	Q6	
7	Q7	
8	Q8	
9	Q9	
End PIN-code label	PINE	
	END	

2 Installing the required software on your Android phone *

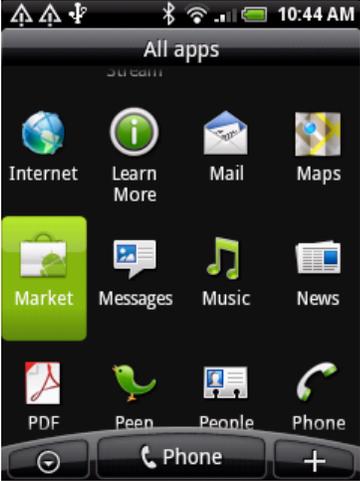
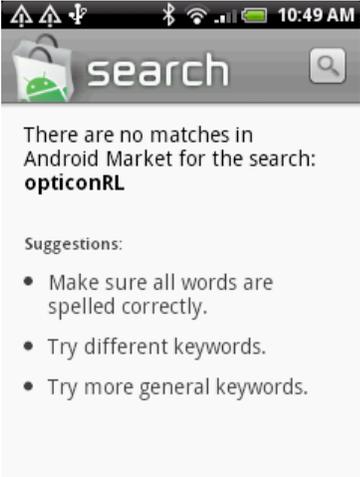
The programs that need to be installed on your Android phone in order to convert Bluetooth serial data into keyboard data are called:

- OpticonRL
- OpticonRL Soft Keyboard

** Important note: The minimal required Android OS version for these applications is Android 2.1.*

At this moment the required software is not available yet online on the Android market.

As soon as it's available online they can simply be found by searching for 'OpticonRL' using the Market application.

<p>Start the Market application</p>	 <p>The screenshot shows the 'All apps' screen on an Android phone. The time is 10:44 AM. The screen displays a grid of application icons: Internet, Learn More, Mail, Maps, Market (highlighted in green), Messages, Music, News, PDF, Peep, People, and Phone. The bottom dock contains Phone and a plus sign icon.</p>
<p>Search for OpticonRL</p>	 <p>The screenshot shows the search results in the Android Market application. The time is 10:49 AM. The search bar contains the text 'search'. Below the search bar, it says 'There are no matches in Android Market for the search: opticonRL'. Underneath, there is a 'Suggestions:' section with three bullet points: 'Make sure all words are spelled correctly.', 'Try different keywords.', and 'Try more general keywords.'</p>

If the applications are available online, then continue to section 2.3 to install both applications.

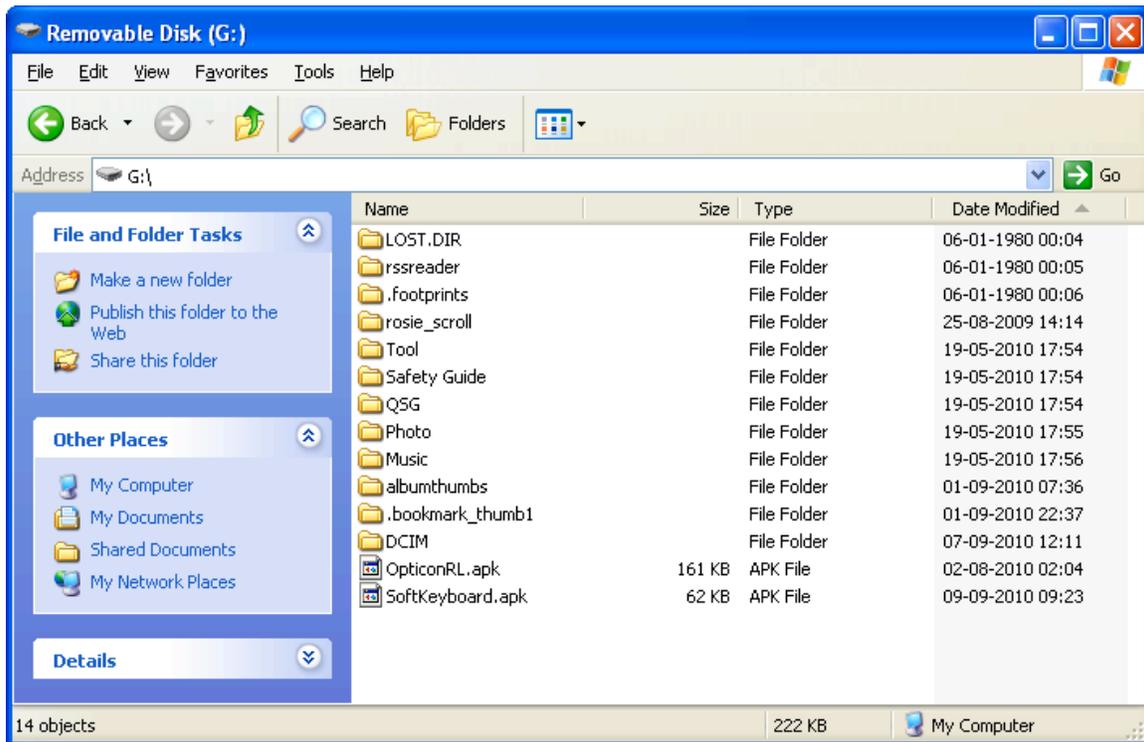
2.1 Placing OpticonRL on your Android phone memory card

The two required application files are included with this manual:

- OpticonRL.apk
- SoftKeyboard.apk

To place these files on your Android phone, either 1) directly place them on your (micro)SD memory card using a card reader or 2) connect your Android phone to your computer using it's USB cable and mount it as disk drive.

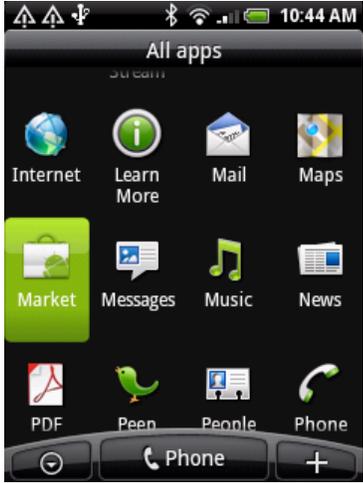
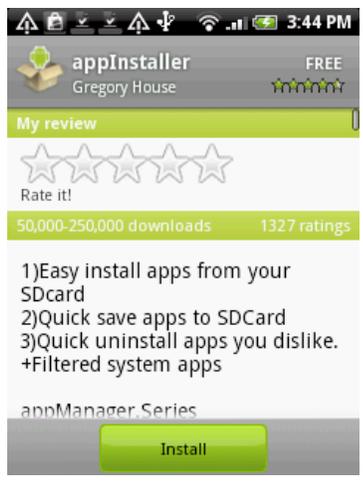
Make sure you place the files in the root folder of your memory card.

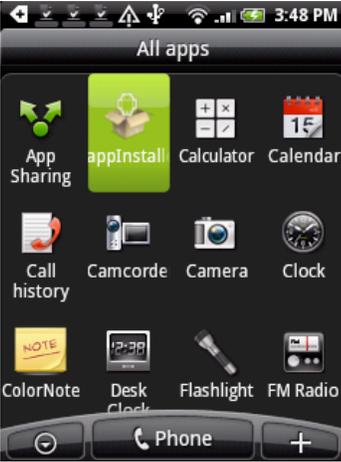


After the files have been placed onto your Android phone you can continue to the next step.

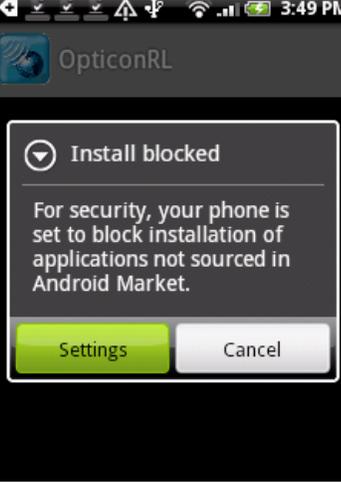
2.2 Installing an application installer

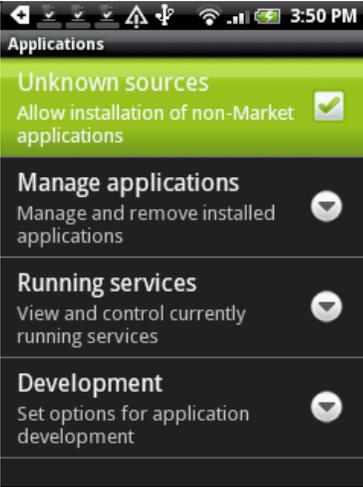
In order to install application files from your memory card you will need an application installer. Application installers are freely available online.

<p>Start the Market application</p>	
<p>Search for 'app installer' and select the application called 'appInstaller'</p>	
<p>Install the appInstaller on your Android phone</p>	

<p>Once installed, the appInstaller should now be available in the application overview</p> <p>Start the application</p> <p><i>Note: Make sure the USB cable is disconnected before starting the application</i></p>	
<p>Both Opticon applications should now be displayed and are ready for installation</p>	

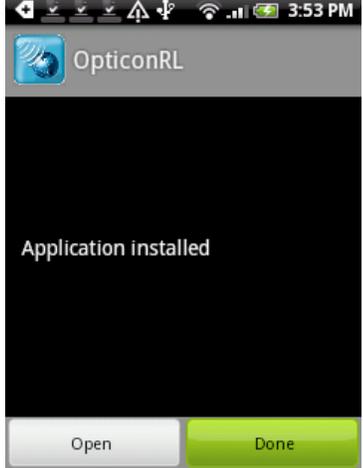
When trying to install application files from your memory card, you might get a warning that 'applications not sourced in Android Market' are being blocked.

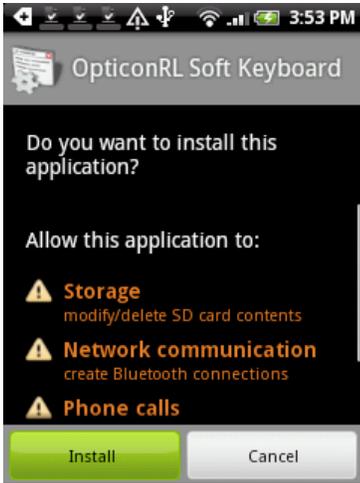
<p>To allow the installation go to application settings</p>	
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<p>Allow installation of applications from unknown sources</p> <p><i>(You can disable this option again afterwards if desired)</i></p>	
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2.3 Installing OpticonRL and the Soft Keyboard

You should now be ready to install the software. Continue with the following steps.

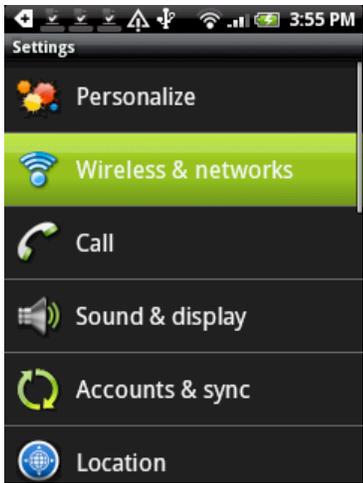
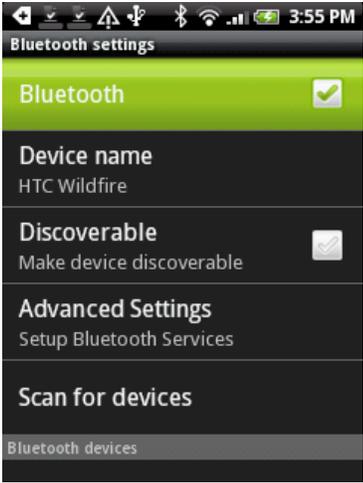
<p>Install OpticonRL</p>	
<p>After the installation was successful, select done</p>	

<p>Install the OpticonRL Soft Keyboard</p>	
<p>After the installation was successful, select done</p>	

The software should now be ready to be used. In the next section the Bluetooth connection will be established between the barcode reader and the Android phone.

3 Establishing a Bluetooth connection

To establish a Bluetooth connection between the barcode reader and the Android phone continue with the following steps.

<p>Go to your Wireless & network settings</p>	 <p>The screenshot shows the 'Settings' application on an Android phone. The 'Wireless & networks' option is highlighted in green. Other visible options include Personalize, Call, Sound & display, Accounts & sync, and Location. The status bar at the top shows the time as 3:55 PM.</p>
<p>Go to your Bluetooth settings and turn on Bluetooth</p>	 <p>The screenshot shows the 'Bluetooth settings' screen. The 'Bluetooth' toggle is turned on, indicated by a green bar and a checkmark. Below it, the device name is 'HTC Wildfire'. The 'Discoverable' toggle is also turned on. There are options for 'Advanced Settings' and 'Scan for devices'. The status bar at the top shows the time as 3:55 PM.</p>

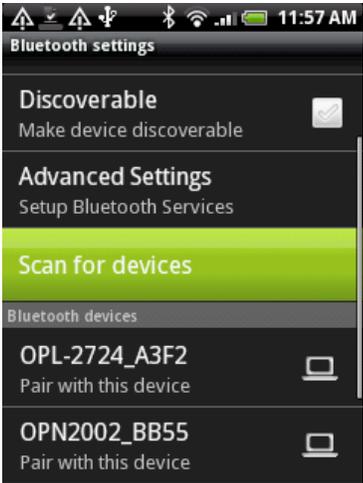
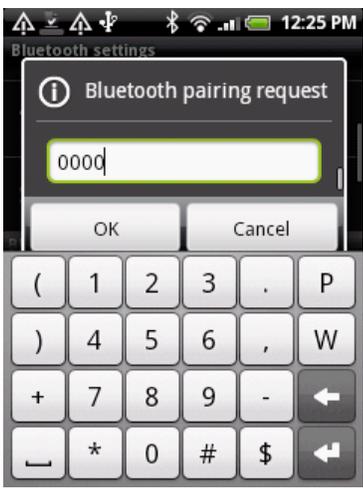
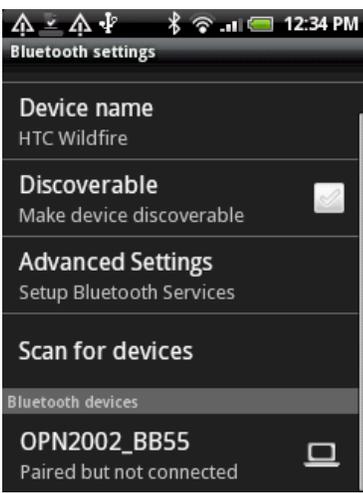
Now it's time to make your barcode reader discoverable, so your Android phone is able to find it.

Read the label below to make your OPN2002 or OPL2724 discoverable and connectable for about 2 minutes.

<p>Make discoverable and connectable</p>	 <p>The image shows a standard 1D barcode. Below the bars is the alphanumeric string '+ - D S C O - +'.</p>
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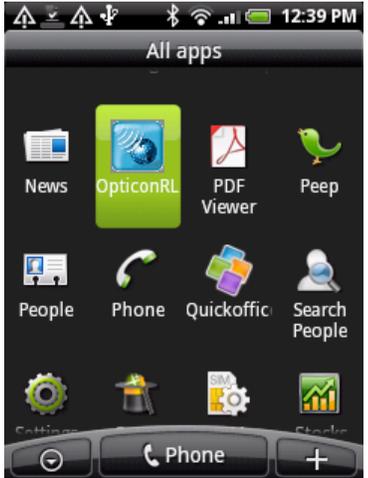
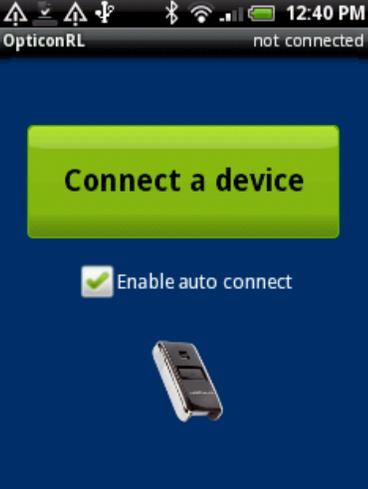
3.1 Pairing your barcode reader

Now that your barcode reader also has Bluetooth enabled and is discoverable, you can pair your OPN2002 or OPL2724 with your Android phone.

<p>Select 'Scan for devices' and wait until your barcode reader is discovered</p>	 <p>The screenshot shows the 'Bluetooth settings' screen on an Android phone. At the top, there are icons for signal strength, Wi-Fi, Bluetooth, and battery, along with the time 11:57 AM. The 'Discoverable' toggle is turned on. Under 'Advanced Settings', the 'Scan for devices' option is highlighted in green. Below, under 'Bluetooth devices', two devices are listed: 'OPL-2724_A3F2' and 'OPN2002_BB55', both with 'Pair with this device' links and a laptop icon.</p>
<p>Select your barcode reader. Now enter the PIN-code that you've configured in section 1</p>	 <p>The screenshot shows a 'Bluetooth pairing request' dialog box overlaid on the Bluetooth settings screen. The dialog has an information icon and the text 'Bluetooth pairing request'. Below this is a text input field containing the PIN '0000'. There are 'OK' and 'Cancel' buttons. Below the dialog is a numeric keypad with additional function keys like 'P', 'W', and '\$'.</p>
<p>Your device should now be successfully paired (but not yet connected)</p>	 <p>The screenshot shows the 'Bluetooth settings' screen again, but now the 'Scan for devices' option is no longer highlighted. The device 'OPN2002_BB55' is listed under 'Bluetooth devices' with the status 'Paired but not connected' and a laptop icon. The 'Discoverable' toggle remains turned on.</p>

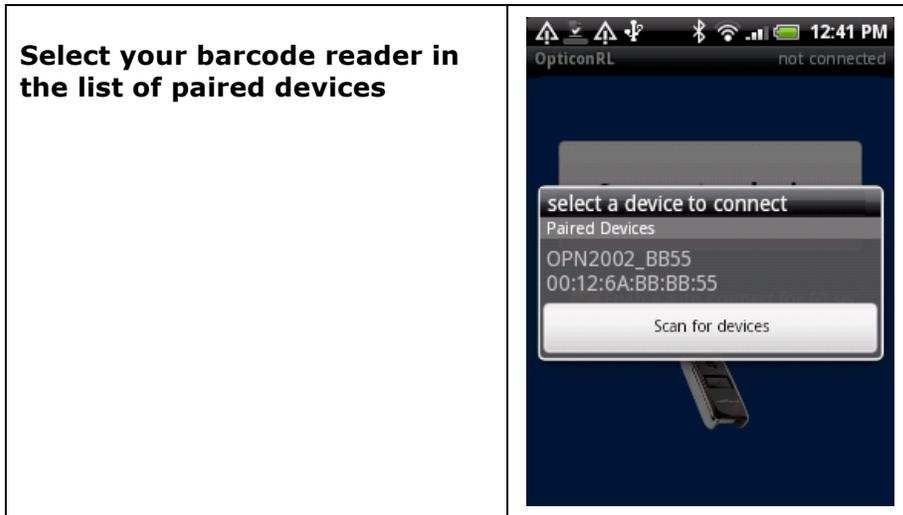
3.2 Connecting to your barcode reader

After pairing your barcode reader first make sure the blue LED of the barcode reader is still blinking to indicate it's still discoverable and connectable. If this isn't the case, then read the label again to make your OPN2002 or OPL2724 discoverable and connectable again.

<p>Go to your applications and start OpticonRL</p>	
<p>Press 'Connect a device'</p>	

Important note:

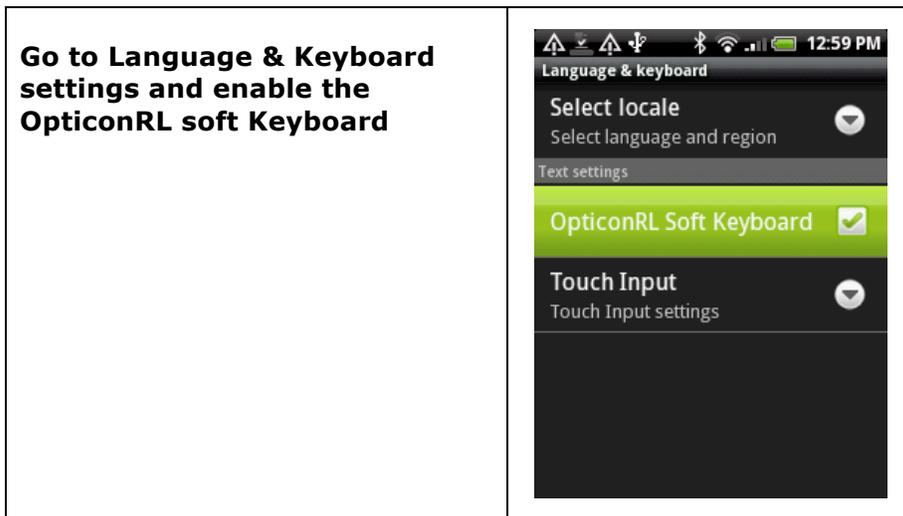
The '**Enable auto connect**' option is intended to automatically re-establish the connection when the barcode reader was out of range for a about 2 minutes.

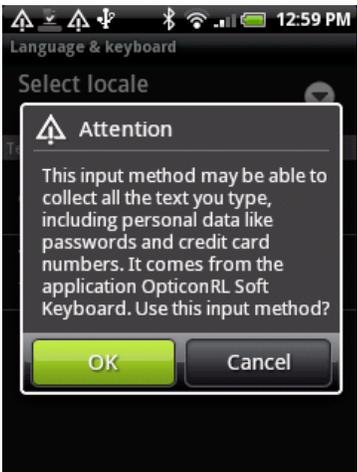
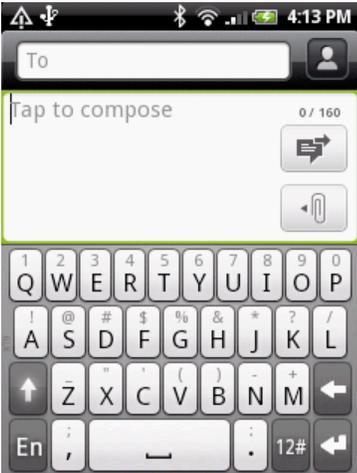


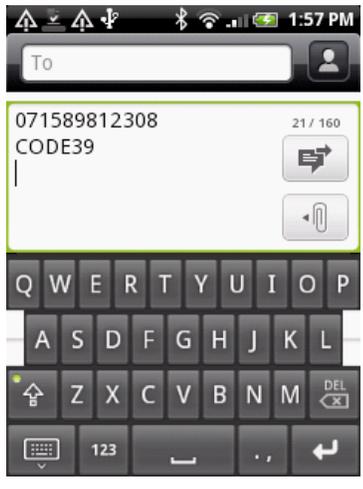
When successful the barcode reader should now sound a long high beep tone to indicate that the connection was established.

4 Input text using your barcode reader

Before you can scan barcodes as keyboard input, you'll need to enable the OpticonRL Soft Keyboard first. To do this, please follow these final steps.



<p>When selecting any new keyboard a spyware warning will appear</p> <p><i>OpticonRL is guaranteed spyware free and does not collect any key of barcode data, so it's safe to enable it</i></p>	
<p>Now open an application in which you can type a message</p> <p>Tap on the input field in which you would like to scan barcodes</p>	
<p>Now press on the input field longer until the 'Input method' option appears. Select it to continue</p>	

<p>Select the OpticonRL Soft Keyboard</p>	
<p>You're now ready to start scanning barcodes!</p>	

By pressing on the keyboard icon in the left corner you can hide the onscreen keyboard. It will automatically appear again if you tap on the screen.

5 Reconnecting and disconnecting your barcode reader

5.1 Disconnecting your barcode reader

To disconnect your barcode reader, you can either turn off Bluetooth on your Android phone or read the label below.



On the OPN2002 it's also possible to disconnect by pressing the small key for 5 seconds.

Since the OPL2724 does not have this key you'll have to enable this feature manually by configuring a 'Trigger to disconnect' time (See chapter 2.3.4 of the Opticon Universal menu book).

5.2 Reconnecting your barcode reader

As long as your barcode device is paired and OpticonRL is still running in the background you can quickly reconnect by reading the label below.



On the OPN2002 this is also possible by pressing the small key for 5 seconds.

Since the OPL2724 does not have this key you'll have to enable this feature manually by configuring a 'Trigger to disconnect'-time (See chapter 2.3.4 of the Opticon Universal menu book) and enabling the option 'Trigger to make connectable' (See chapter 2.3.34 of the Opticon Universal menu book)

After making the barcode reader discoverable and connectable again, connect your barcode reader by following the steps of section 3.2 again.

6 Troubleshooting & additional features

6.1 Bluetooth connection problems

If problems occur during the disconnecting and (re)connecting process, this can have various causes and solutions.

- Barcode reader
 - Try resetting the application to default (see chapter 1)
 - Reset the OPN2002 by pressing the large button for 20 seconds
 - Check if there are software updates available for either the OS or application on your barcode reader. (See chapter 6.3)

- OpticonRL
 - Check if there are software updates available for OpticonRL on the Android market
 - If regular reconnect problems occur, disabling the 'Enable auto connect' option can solve issues on certain Android phones
 - When switching between two barcode readers on the same phone, it can help to remove the pair of the first reader before trying to connect with the other.
 - If OpticonRL is no longer function, rebooting your phone will cause OpticonRL to be restarted.

- Android Bluetooth software
 - Try turning Bluetooth off and on again on your phone and then try to reconnect.
 - Remove the pair with your barcode reader and try pairing again
 - If everything else fails, try rebooting your phone

6.2 Minimum required OS version of the OPN2002

In order to make your OPN2002 work correctly with your Android phone, it is recommended to use the latest available Bluetooth demo application (RFG35312 or higher) and use a recent OS version (RBGV0215 or higher). These two files comprise the embedded firmware of the OPN2002.

If you want to check the currently installed OS and application version it is possible to transmit both versions by USB-VCP by reading the 'Z1' menu label (See Universal menu book chapter 7). It's also possible to use Appload (Utilities > Show software version) to check the OS version.

6.3 Software updates for the OPN2002

In the future more features and bug fixes are likely to be implemented into the OS of the OPN2002 and this application. To find out if there are software updates available, please check our web site. All available software and documentation for the OPN2002 can be found under:

'Service and support' > 'Software' / 'Manuals' > 'OPN2002' at www.opticon.com.

6.4 Limited Universal menu book support

The OPN2002 and OPL2724 also support the reading of various configuration options that can be found in the Universal menu book. This makes it possible to customize their behavior without actually changing the source code of their embedded firmware.

The OPN2002 support (most of the) menu options listed in the following chapters:

- 1. Defaults (See chapter 'Supported defaults' at the start of this set-up guide)
- 2.3. Bluetooth options (See 'Supported Bluetooth features' below)
- 3.1 Enabling/disabling readable codes
- 3.2 Setting of fixed, minimum and maximum lengths
- 3.3 Code specific options (almost all options are supported except some 2D decoder options)
- 4.1 Case conversion
- 4.2 Set prefixes
- 4.3 Set suffixes
- 5.1 Read modes, add-on wait modes
- 5.1.1 Multiple read reset time
- 5.1.2 Quiet zone options (margins)
- 5.2. Read time options
- 5.4 Redundancy
- 5.5 Positive and negative barcodes
- 6.1 Buzzer settings
- 6.2 Good read LED
- 7.1 Diagnostics
- 7.2 Enabling / disabling configuring via serial commands

6.5 Supported Bluetooth features

In the Opticon Universal menu book there are additional Bluetooth features listed for Opticon barcode readers with Bluetooth support. Some of these features are also available in the OPN2002's embedded application.

The following of these listed features are supported:

Chapter 2.3.1: Bluetooth connection labels

+ -CONN-+ (Manually connect label)

+ -DISC-+ (Manually disconnect label)

+ -DSCO-+ (Make discoverable / connectable)

Chapter 2.3.2: Bluetooth security (Authentication / encryption)

Chapter 2.3.3: Configurable Trigger-to-connect time (default = 5 seconds)

Chapter 2.3.4: Configurable Trigger-to-disconnect time (default = 5 seconds)

Chapter 2.3.6: Auto reconnect options (default = 1 minute)

Chapter 2.3.7: Wireless power saving options