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# Using the Parani SD1000U with the Geomax Long-Range Bluetooth Handle and Carlson SurvCE<sup>™</sup>



## **Table of Contents**

Configuring the Carlson CR2/CR5 to use Long-Range Bluetooth Handle	2
Set the Baud Rate on the Parani SD1000U Radio	2
Pair the Radios	3
Installing the Radio Driver	7
Configuring SurvCE	7

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In this document we are using the Carlson Surveyor+ data collector and the Carlson CR2/CR5 Robot with the Parani SD1000U and the ZRT81 Long-Range Bluetooth Handle. The following document will describe how to configure your radios, software and hardware. Some steps may vary if you have other hardware.

# Configuring the Carlson CR2/CR5 to use Long-Range Bluetooth Handle

1. On the total station, go to the main menu. This is the screen with six large icons. You may need to press "Esc" a few times to get to it.

- 2. Choose 5-Configure, and then 4-Interfaces.
- 3. Press the down arrow to highlight "GeoCOM Mode", and then press F3-Edit.
- 4. Press the down arrow to highlight the port. Use the
- Left/Right arrows to select Port 2 (Handle).

5. Press F5-Device then tap F6-Page to get to the Radios tab.

6. Press the down arrow to highlight ZRT81

7. Press F3 for Edit. Tap the left arrow to set the **Baud Rate to 115200** as shown in the screenshot to the right.

8. Press F1 for store, and then F1 for continue, then F1 for continue again. Wait for the hourglass to go away and wait for the red light on the radio handle to go off.

9. You should see a Green power indication light on the radio handle. Tap F1 for continue one final time to return to the Main Menu.

Devices		×
Radios Others		
Name		Туре
ZRT80	RS232	GeoCOM
ZRT81	RS232	GeoCOM

Namè	:	ZRT81
Туре	:	RS232 GeoCOM
Baud Rate	:	115200
Parity	:	None 1
Data Bits	:	8 1
Stop Bit	:	11

GSI Output	-	-
GeoCOM Mode	2	ZRT81
Export Job	-	-

# Set the Baud Rate on the Parani SD1000U Radio



Figure 1 - Parani-SD1000U LR-BT Radio

1. Set the baud rate of the SD1000U radio to **115.2K** using the upper three dip switches on the radio as shown in the diagram to the right.



Set the fourth dip switch to the Left in the OFF position as shown in the diagram to the right.



Figure 2 Parani Dip Switch Configuration

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### **Pair the Radios**

Based on Parani-SD1000U User Guide: http://www.sena.com/download/manual/manual\_parani\_sd1000U-v2.0.2.pdf

1. Power on the **USB radio** by plugging it into any USB port of a laptop or desktop computer and use a small pin to press RESET button. "Mode 0" (solid green light is lit next to "Mode" indicator) of the SD1000U should result.

"Windows XP and later versions already include the USB driver. When Windows asks for the location of the USB driver, you can select the option to **Install the software automatically**. If the driver is not installed correctly for some reason, you can also install the driver after downloading the driver from http://www.ftdichip.com/Drivers/VCP.htm."

2. Download and install the "ParaniWin" configuration utility to a laptop or desktop computer using the link below:

http://web.carlsonsw.com/files/knowledgebase/kbase\_attach/888/setup\_ParaniWin-v1.0.7.exe

Launch the program via its short-cut icon



#### Figure 3 – ParaniWin Shortcut

3. As the ParaniWin application starts select the appropriate Serial Port and set it for a BaudRate of **115200** as shown below and click OK when complete:

UART Setting	×
* Please se configuring	tup serial port for Parani-SD/ESD.
Serial Port	COM3 -
BaudRate	115200 💌
Parity	None
StopBit	1 •
ОК	CANCEL

Figure 4 – ParaniWin Serial Port Settings

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#### 4. Information regarding the current status of the SD1000U should display:

aniWIN			
<u>()</u>	Device Name	SD1000Uv2.0.3-14338B	
Infomation	Device Bluetooth Address	00019514338B	
	Current Mode	MODE0	
<i>i</i>	Current Status	Standby	
Device Setting	Security		
170	Authentication	Don't use	
Connection(out)	Encryption	Don't use	
<b>1</b> 51	Uart Setting		
4gJ	Baud Rate :	115200	
Connection(in)	StopBit :	One Stopbit	
•	Parity :	No Parity	
onnection Wizard	H/W Flow control :	Don't use	
	REFRESH		

Figure 5 – ParaniWin Information Screen

5. Click on the **Device Setting** button to review or change desired aspects of the SD1000U radio.

The default values will likely be sufficient and they will be similar to that shown to the right:

6. Click on the **Connection (in)** button to review or change desired aspects of the SD1000U radio.

The default values will likely be sufficient and they will be similar to that shown to the right:

raniWIN	
Infomation	Hard Reset Return Parani-SD/ESD to factory default setting. Operation Mode G MODED (Standby status for Bluetooth connection) G MODE1 (This Parani-SD shall connect to the last connected device only) C MODE2 (This Parani-SD shall be connected from the last connected device on
Connection(out)	C MODE3 (Allow any Bluetoth devices discover/connect to this Parani-SD)     Device Setting     RS-232     Setting     Parity None _     StopBit 1 → 1     Pin Code
Connection Wizard	Hardware Flow Control         Command Response           C ON         C OFF           * Note : The device isn't set up to AT command mode. The RS-232 configuration merare inactive.           The device with Dip switchs cannot be set up to SW flow control.

Figure 6 – ParaniWin Device Setting Screen

ParaniWIN	13, 11200, NO Panty, One stoppit
(1) Infomation	Device Info Bluetooth Address 00019514338B Mode MODE0 Device Name SD1000U/2.0.3-14338B
Device Setting	Option IF Other Bluetooth Devices can discover this Parani (Inquiry scan)
Connection(out)	$\overrightarrow{\mbox{ v}}$ Allow other Bluetooth Devices to Connect ( Page scan )
[몰] Connection(in)	Seconds for waiting connection If you set the time for waiting connection to 0, it will wait infinitely. $\boxed{300}  \frac{1}{24}  \mbox{Second}$
Connection Wizard	Status
	Start

Figure 7 – ParaniWin Connection (in) Screen

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7. Make sure the Carlson CR2/CR5 robotic total station with its Long-Range Bluetooth Handle is powered on. Click on the **Connection (out)** button and click on the Search button to search for nearby Bluetooth devices.



Figure 8 – ParaniWin Connection (out) Screen

8. The search process should only take a few seconds. If there are many Bluetooth devices nearby, it may take longer and you may need to expand the number of nearby search-able devices. The result should display the robotic total station handle as illustrated below.

Click-on the **RH\_xxxxx** device name to select it and then click on the **Connect** button. (xxxxx is the serial number)

\*\*\*Please Note: the Device Name is sometimes displayed as "TPS radio LR BT"

🖋 Serial port was open: COM	3, 19200, No Parity, One Stopbit		
ParaniWIN			
(i) Infomation	Device Info Bluetooth Address 0001	951433F2 Mode MODE	0
		Search Result	
	Bluetooth Address	Device Name	CoD
<b>*</b>	0012F319113B	TPS radio LR BT	001F2A
Device Setting		4	
Connection(out)		/	
rs,			
Connection(in)	Search 10	Define the number of nearby de	evices to be searched
•••	Connect 0012F3	19113B Connect to Specified	d devices
Connection Wizard	Disconnect Drop the	Connection	
	Signal Strength Test		
	START		
	* Note : MUST push STOP	button after startting on measuring	)

Figure 9 – ParaniWin Connection (out) Screen

The **RH\_xxxxx** device should connect successfully as indicated below. Click **OK** when you see the "Connected successfully" box below:



Figure 10 – ParaniWin Successful Connection

The **Connect** indicator light on the SD1000U should blink 1 per second to indicate a connection has been established.

The **Radio** indicator light on the TPS radio LR BT handle should light to indicate a connection has been established.

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9. Click on the **Disconnect** button to halt the Bluetooth session. This action stores the device ID of the previously connected device.

🖋 Serial port was open: COM	3, 19200, No Parity, One Stopbit
ParaniWIN	
(i)	Device Info
Infomation	Bluetooth Address 0001951433F2 Mode MODE0
internation	Search Result
	Bluetooth Address Device Name CoD
× 1	0012F319113B TPS radio LR BT 001F2A
Device Setting	
Connection(out)	
Connection(in)	Search 10 A Define the number of nearby devices to be searched
oomicedon(m)	
••	Connect 0012F319113B Connect to Specified devices
<b>*</b>	
Connection Wizard	Disconnect Drop the Connection
	Signal Strength Test
	Signal Strength rest
	START
	* Note : MUST push STOP button after startting on measuring

Figure 11 – ParaniWin Disconnect

10. Click on the **Device Setting** button and enable the "**Mode 1**" setting of the SD1000U as shown below. Click on the **Apply** button to commit this change:



Figure 12 – ParaniWin "Mode 1"

11. Exit from the *ParaniWin* application and remove the SD1000U radio from the computer.

The SD1000U radio is now configured to make an automatic connection to the **TPS radio LR BT** handle, whenever they are powered on. Normally, this pairing routine will only need to be performed once for each set of radios.

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## Installing the Radio Driver

This step will only need to be performed once.

1. Install and then launch SurvCE (version 2.62 or higher) from http://www.survce.com

2. Plug the SD1000U radio in to the data collector.

3. A dialog may appear and prompt for the name of the device driver. Type in **"ftdi\_ser.dll"** and press OK.

🦓 Unidentified USB Device 🛛 🗹 🗮 📢 3:03				
Eile	<u>E</u> quip	<u>S</u> urvey	COGO	<u>R</u> oad
<u>1</u> Total	Unidentified	l USB Devic	te	
<u>2</u> GPS B	Enter the n driver for th information,	ame of the is device. Fo see the de	device )r vice	ot 🏘
<u>3</u> GPS R	manufactur	er's docume	ntation.	<b>I</b> P
<u>4</u> GPS U		Can	cel	<b>ti</b> à
EConfid				

Figure 13 - Parani-SD1000U USB Driver Installation

### **Configuring SurvCE**

1. From the Main menu, tap the Equip tab then tap "Total Station".

2. On the Current tab, choose Carlson from the Manufacture drop-down list.

3. On the Comms tab set it to Type: **Radio** and then set it to Radio: **Parani LR-BT.** 

4. Set the port to **COM3** and set the baud rate to **115200** to match what you have configured on the SD1000U radio using the dip switches.

😂 Instru	ment Setup 🔹 🚺	×
Current	Comms Settings Search	
Type:	Radio 👻	
Radio:	Parani LR-BT 🛛 🔻	
	Defaults	
Port:	сом з 🗸	
Baud:	115200 🔻 Parity: None	•
Data Bits:	8 🔹 Stop Bits: 1	•

Figure 14 - Comms tab, SurvCE 2.62 and higher

5. Verify the communication parameters through the use of the Equipment Connection icon. This permits the testing of the communication parameters without leaving the Instrument Setup dialog box.



6. Upon a successful instrument connection, tap Green Check to complete the configuration.

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