RoyalTek

BT GPS mini (RBT-1000) User Manual V.1.5



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1. Product Introduction

1.1. Overview

BT GPS mini (RBT-1000)-A compact combo-device

with Bluetooth and GPS technology

1.1.1. Wireless GPS receiver:

BT GPS mini, a multi-wireless GPS consumer product, is the smallest and most cost-effective Bluetooth GPS receiver in the world. It has a built-in replaceable and rechargeable Lithium-ion battery just using the same battery of Nokia 6100 cell phone. With the dimension of $70(L) \ge 41(W) \ge 23(H)$ mm and weight only 60g, making it an ideal solution to carry everywhere.

BT GPS mini is both precise and durable. Its 12-channel receiver allows for continuous tracking of all visible satellites. By wearing this Bluetooth GPS around your neck and having your bluetooth integrated with any kind of mobile device, such as PDA or Notebook, it will provide your exact location almost anywhere.

1.2. Main Features

- Twelve parallel channels
- Support 2D / 3D information
- Hot/ Warm/ Cold start time: 8/ 38/ 45 seconds
- RF MCX connector for external GPS antenna
- Support standard NMEA-0183 at 57600 bps baud rate
- Compatible with Bluetoth devices with SPP (Serial Port Profile)
- Three LEDs showing Bluetooth, GPS and battery status
- Rechargeable and replaceable Lithium-ion battery, also compatible with Nokia 6100 cell
- Power switch

1.3. Product Notification

- Operating temperature range -20 °C to +60 °C
- Charger operating temperature range 0 °C to +40 °C
- Battery Storage temperature range -20 °C to +50 °C
- Lithium-ion battery lasts more than 8 hours in continuous operation mode.
- Humidity range up to 95% no condensing

1.4. Application

- Navigation
- Automotive Vehicle Tracking
- Personal Positioning
- Geographic Surveying
- Sporting and Recreation
- Consumer wireless GPS
- Cellular Phone

2. Quick Start

2.1. Control Switch, Power Jack & Antenna Port



2.2. LED Display



- Blinking Blue light indicates Bluetooth in connection
 - Green light grows indicates power on
 - Blinking Green light indicates GPS position fixed
 - Yellow light indicates charging
 - Blinking red light indicates low power

2.3. Hardware Features

2.3.1. Power Switch

Power ON / Power OFF

2.3.2. Power Jack

The power jack allows you to connect to either a DC (included) or AC power charger to recharge the internal battery.

2.3.3. External Antenna Port

If you have an external antenna with a male MCX connector (available separately), you can use it instead of the **BT GPS mini** receiver's internal antenna. Simply plug your external antenna into the antenna port.

2.3.4. Bluetooth Status LED (Blue)

Flashing - Bluetooth is on and ready to transmit.

2.3.5. GPS Status LED (Green)

Flashing - Position is fixed. Steady light – Device is on but position is not fixed.

2.3.6. Battery Status LED (Red/Yellow)

None - Battery has adequate power supply.Red - Power is low. Charging immediately is required.Yellow - Connected to power charger, charging.LED off - Battery is fully charged.

2.4. Getting Started

2.4.1. STEP 1: Charge the Battery

- 1. Before you use the Bluetooth GPS Receiver, the battery must be charged. Connect the power charger to the power jack, and then plug into an electrical outlet. As the device is charging, the Battery Status LED will show a yellow light.
- 2. When the battery is fully charged, the Battery Status LED will turn off. Unplug the device and remove the charger.

2.4.2. STEP 2: Turn on Receiver and Wait for GPS Fix

- 1. The GPS Status LED will initially show a steady green light to show that the position has not been fixed yet.
- 2. After the position is fixed, the GPS Status LED will be showing flashing green. Now you are ready to connect to your Bluetooth-enabled mobile device and use your GPS application.

2.4.3. STEP 3: Connect to Bluetooth-Enabled Devices

- 1. From your Bluetooth-enabled mobile device, perform a Bluetooth device discovery. Refer to the user documentation for your Bluetooth-enabled device for instructions.
- 2. After connection is created between Bluetooth-enabled device and Bluetooth GPS, the LED will show flashing blue light.

Note: If it is needed to type in Pin code during configuration, please Key in "0000".

2.4.4. STEP 4: Use GPS Application

- 1. Load your GPS mapping or routing software, along with the corresponding maps of the areas that you are occupying or plan to travel to.
- 2. Start the application. Make sure the application is set for the COM port that your Bluetooth-enabled mobile device will use for serial communication. Now you should be ready to use your GPS application as directed by the user documentation that came with the software. More configurations may be necessary.
- 3. Refer to the following software application user manual to set up the parameters of the device via Bluetooth radio.

3. Installation



The Main Menu of Installation CD shows as above.

- Click the **Software for Windows 2000/XP**; **Software for Windows 98SE/ME** to install the PC software application.
- Click the **Software for Pocket PC 2002; Software for Pocket PC 2003** to install the PDA software application.
- Click the **Software for Palm OS** to install Palm software application.
- Click the **User Manual** to open the user manual of Bluetooth GPS.
- Click the **View Our Website** to link our <u>http://www.RoyalTek.com</u>, please make sure your PC connects to Internet first.
- Click the **Browse CD Contents** to open the explorer to browse the files within the CD.

3.1. Install PDA Software Application

Before you click the **"Software for Pocket PC 2002; Software for Pocket PC 2003"** to install the PDA software application from CD, you have to synchronize the PDA and your system. Then the following window will show in your system as below:

21	Select a program's check box if you want to install it on your mobile device, or clear the check box if you want to remove the program from your device.	r
	Note: If a program that you installed is not listed, the program was not designed to be used on your mobile device.	50
		1
1	Debuterrise Device Debe	
Insta	ning Applications	-
Ins	tall "Royaltek BT GPS mini" using the default application install director	ry?
	Yes No Cancel	
7	Yes No Cancel Space required for selected programs: Space available on device:	
	Yes No Cancel Space required for selected programs: Space available on device: Image: Space available on device: Image: Ima	
	Yes No Cancel Space required for selected programs: Space available on device: Image: Compare the default installation folder Image: Compare the default installation folder Remove from both locations Image: Compare the default installation folder	
	Yes No Cancel Space required for selected programs: Space available on device: Image: Install program into the default installation folder Remove from both locations To remove the selected program from both your device and this computer, click Remove.	

Click "Yes>" to continue. Or click "No" to select the other destination to install, or "Cancel" to give up installation.

Click "OK" to complete the installation.

	Add/Remove Programs	×
Velco	Select a program's check box if you want to install it on your mobile device, or clear the check box if you want to remove the program from your device.	э)Г
	not designed to be used on your mobile device.	Software
		V1.5
P	Tests Hannaka - Kanaka -	20%
Application Dow	nloading Complete	x
Please check you	ir mobile device screen to see if additional steps are necessary to	complete this installation.
	ОК	
	Space required for selected programs:	
	Space available on device:	
7	Install program into the default installation folder	
	Remove from both locations	
111	To remove the selected program from both your device and this computer, click Remove.	
RovalTe		Exit

You can also see the "Installing RoyakTek BT GPS mini " message box.

ta Po	cket_	PC			2	
Eile	<u>Z</u> oom	<u>T</u> ools	Help			
27 I	nstalli	ng Roy	altel	<u>₽</u> ĕ •	 € 10:!	58
3 1	Fuesda	ay, Ma	y 25,	2004		
Ins	talling	g Roya	altek	n infor BT GF	PS mir	ni
o	opying	ı files	s			
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New						<u>ی</u> و

Note: About to install the software application to your PDA, please refer to your user manual of your PDA manufacture.

3.2. Install PC Software Application

Install the pc software application from CD. When screen shows the installation window as follows:



Click "Cancel" to give up installation.

Then you will get into the Bluetooth GPS welcome page



Click "Next> to next page", or click"<Back" to back last stage or "Cancel" to give up installation.

To the License Agreement page:

🙀 BT GPS mini - InstallShield Wizard			×
License Agreement Please read the following license agreer	ment carefully.		
ROYALTEK COMPANY END-USER LICENSE	AGREEMENT		<u>.</u>
IMPORTANT ANNOUNCEMENT: THIS LEGAL AGREEMENT ("AGREEMENT") F ENTITY) AND ROYALTEK COMPANY LTD. (" INCLUDING SOFTWARE, MEDIA, DOCUME "SOFTWARE").	BETWEEN YOU (EI 'ROYALTEK'') FOR NTATION AND AN	THER AN INDIVIDU ROYALTEK SOFTW Y ASSOCIATED MA	AL OR AN ARE PRODUCT TERIALS(THE
BEFORE OPENING THE SOFTWARE PACKA CAREFULLY. BY OPENING THE SOFTWARE OTHERWISE USING THE SOFTWARE, YOU AGREEMENT. IF YOU DO NOT AGREE TO T	GE, READ THE TE PACKAGE AND/O AGREE TO BE BO THE TERMS OF TH	RMS OF THIS AGRE R INSTALLING, COF UND BY THE TERMS IS AGREEMENT, DO	EMENT PYING AND/OR OF THIS NOT INSTALL
• I accept the terms in the license agreen	nent		
C I do not accept the terms in the license	agreement		
InstallShield		10 A	
	< <u>B</u> ack	Next >	Cancel

Click "I accept the terms of the license agreement" then click "Next>" to next page, or click"<Back" to back last stage or "Cancel" to give up installation.

🙀 BT GPS mini - InstallShield Wizard			×
Ready to Install the Program The wizard is ready to begin installation	Ъ.		
Click Install to begin the installation.			
If you want to review or change any ol exit the wizard.	f your installatior	n settings, click Back. I	Click Cancel to
InstallShield	<u> </u>	Install	Cancel

Click "Install" to start installation. Or click"<Back" to back last stage or "Cancel" to give up installation.

🛃 BT GPS m	ini - InstallShield Wizard	- IX
Installing The prog	BT GPS mini ram features you selected are being installed.	4
17	Please wait while the InstallShield Wizard installs BT GPS mini. This may take several minutes.	
	Status:	
	Writing system registry values	
		1
InstallShield –	Z Back Next >	ncel
	- Farv Revris Trad	

Then start installation. And finish installation will ask you to restart your computer as follow window.

🛃 BT GPS mini - InstallShield 🛙	Wizard	×
	InstallShield Wizard Completed	
	The InstallShield Wizard has successfully installed BT GPS mini. Click Finish to exit the wizard.	
	< <u>Back</u> Einish Cancel	

Please click "Finish" to finish the Installation. And your desktop will appear the Bluetooth GPS icon. Or click"<Back" to back last stage or "Cancel" to give up installation. You can double click the Bluetooth GPS icon to execute the Bluetooth GPS software application.



3.3 Install Palm Software Application

🔕 Palm Quick Install			
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>H</u> elp			
Handheld: 51.1 MB free a	as of last HotSync opera	tion	User: sylvia 💙
Name	Size Type	e Sta	<u>^</u>
🔓 BT GPS Manager.prc	137.69 KB Palm	Application Rea	Properties
			Name: BT GPS Manager.prc Size: 137.69 KB Type: Palm Application Collection:
			Ready for HotSyncR operation
<		>	
Expansion Card: No car	d found		
Name	Size Type	e Sta	Additional Info
Drag files here f	or installation to expansio	on card	No additional information for this item
<u>A</u> dd <u>R</u> emove		>	✓ Hide Details
			1 item, 137.69 KB

Note:

To execute this Palm Software Application, please install Palm software in advance.

4. Software Application User Manual for PDA

4.1. Connection Page

User has to set up a connection with BT GPS mini device by this dialog.

📲 Pocket_PC	
<u>File Z</u> oom <u>T</u> ools <u>H</u> elp	
🎊 BT GPS mini	🖂 📢 09:09 🐽
Device Name	1
	Change
Connection	
COM Port: COM1 -	Connect
	Auto Scan
Factory Reset	Disconnect
rStatus	
Not Connected NM	MEA Mode
Battery: High	
Firmware :	
	-
Connection Navigation	Mode Con
	• ت

4.1.1. Device Name

When connection is successful, it will show the Device's ID Name automatically.

4.1.2. Change

When connection is successful, the "Change" Button will be workable. If you want to change the Device's Name, please enter the new Device's ID Name in the BT GPS mini ID field, then click "Change" button to upload the Device's ID Name to BT GPS mini .

4.1.3. COM Port

Indicate Bluetooth serial com port.

4.1.4. Connect

Connect to the BT GPS mini device. When you try to connect to Bluetooth enabled device, the window will pop up a "Connection" dialogue box with "Waiting" message.

And it means connecting successful when seeing a "BT GPS mini" dialogue box with "Set up connection with device" message.

If the window is shown a "BT GPS mini" dialogue box with "Failed to set up connection" message. It means the connection failed, please try it again.

4.1.5. Auto Scan

Automatically scan the **BT GPS mini** COM port in order to connect to **BT GPS mini** device.

4.1.6.Factory Reset:

Factory reset to the device. To reset all parameters and to disconnect Bluetooth.

4.1.7. Disconnect

Disconnect to the BT GPS mini device.

Note:

When performing the Auto Scan, the user has to wait for a while because it will need time to get necessary system information from **BT GPS mini**.

4.2. Navigation Page

You can set GPS-relative parameters by this dialog.

📲 Pocket_PC	_ 🗆 🗵
<u>File Zoom T</u> ools <u>H</u> e	իր
🎊 BT GPS mini	📢 09:10 🐽
NMEA Mode	🔾 SiRF Mode
GGA 1 🔻 GS	;v 5 👻
GLL 🛛 🔻 RM	IC 1 🔻
GSA 1 🔻 VT	G O 🔻
Degraded Mode	
Elevation Mask(0~90 d	teg): 7.50
DOP Mask(1~50) PDC	DP ▼40 ▼
SBAS Mode:	Disabled 🔻
Default	OK
Connection Navigatio	n Mode Cont
	→ ت

4.2.1. NMEA Mode / SiRF Mode

Display (or change) the mode of device.

Setup the parameters of in NMEA Mode or SiRF Mode.

4.2.2. Degraded Mode

Enable or disable degraded mode.

4.2.3. Elevation mask

Elevation mask setting.

4.2.4. DOP Mask

DOP mask type and DOP mask value setting.

4.2.5. SBAS Mode

Enable or disable SBAS function.

4.2.6. Default

Reset values of this dialog into default value. It has not changed the setting of device yet. You still need to push OK button if you want to change the setting of device.

4.2.7. OK

Upload the parameters to the **BT GPS mini**.

4.3. Mode:

Use this page for power mode setting.

👷 🛚 Pocket_PC				×
<u>File Z</u> oom <u>T</u> oo	ols <u>H</u> elp	8		
🏂 BT GPS min	ġ.	_ - €	09:11	•
 Maximum Na Optimal Batt Intelligent Sv Manual Setti 	vigation ery Use witch ng	Perform	nance	
Update R OnT	ate(sec) ïme(ms)	: 1 : 200	*	
	OK			
Connection Na	vigation	Mode	Cont	• •
			د	7 ▲

4.3.1. Maximum Navigation Performance:

Select for best system performance.

4.3.2. Optimal Battery Use:

Select to optimize the battery usage.

4.3.3. Intelligent Switch:

Select for switching power mode automatically.

When position keeps still, it enters power save mode. When position is in high speed updating, it enters max performance mode.

4.3.4. Manual Setting:

Select for adjusting the Update Rate and On Time value.

(Suggestion: Optimized for the device by selecting Maximum Navigation Performance or Optimal Battery Use for default value setting.)

4.4. Configuration

Use this page to set the system configuration values.

er 🖪 Po	ocket_PC				_	
File	Zoom	<u>T</u> ools	<u>H</u> elp			
27	BT GPS	mini		- 46	09:1	з 🐠
i ii	Change	Passin	ord			
	CT INT IQU	-1 00011				
Mode	e Conf	ìguratic	n Ab	out		••
						<u>+</u> اد

4.4.1. Change Password

Display the "Change Password" dialog screen.

4.5. About

This page shows the software version and the copyright claim.



5. Software Application User Manual for PC

5.1. Application User Interface

Click the icon as right in your desktop to run the software after install the **BT GPS mini** software. Then you can see the **BT GPS mini** window as Figure 1.



onnection Navigat	ion Mode Configurat	ion About
Jevice Maine	Change	
Connection		
OM Port: COM1	Connect	
12-11	Auto Scan	
Factory Reset	Disconnect	
Status		
Not Connected	NMEA Mode	
Battery: High		
Firmware :		

You can choose the button in the left side to open the dialogs for each function setting such as Connection, Navigation, Mode, Configuration, About. And use the left up buttons to minimize or close the window.

5.2. Connection Page

User has to set up a connection with **BT GPS mini** device by this dialog.

onnection N Device Name -	avigation M	ode	Configu	uration 1	ibout
		Change			
Connection —					
:OM Port: 🧕		Connect			
1000	A	uto Scar	n		
Factory Re	set Di	isconnec	t		
Status			_		
Not Connecte	i NMEA	A Mode			
Battery: High	ı				
Firmware :					

5.2.1. Device Name

When connection is successful, it will show the Device's ID Name automatically.

5.2.2. Change

When connection is successful, the "Change" Button will be workable. If you want to change the Device's Name, please enter the new Device's ID Name in the **BT GPS mini** ID field, then click "Change" button to upload the Device's ID Name to **BT GPS mini**.

5.2.3. COM Port

Set up the **BT GPS mini** COM Port.

5.2.4. Connect

Connect to the **BT GPS mini** device. When you try to connect to Bluetooth enabled device, the window will pop up a "Connection" dialogue box with "Waiting" message.

And it means connecting successful when seeing a "**BT GPS mini**" dialogue box with "Set up connection with device" message.

If the window is shown a "**BT GPS mini**" dialogue box with "Failed to set up connection" message, it means the connection failed, please try again.

5.2.5. Auto Scan

Automatically scans the **BT GPS mini** COM Port and baud rate in order to connect **BT GPS mini** device.

5.2.6. Factory Reset:

Factory reset to the device. To eset all parameters and to disconnect Bluetooth

5.2.7. Disconnect

Disconnect to the **BT GPS mini** device.

Note:

When perform Auto Scan, user has to wait for a while because it will take time to get necessary system information from **BT GPS mini**.

5.3. Navigation Page

You can set GPS-relative parameters by this dialog.

😳 BT GPS mini	×
Connection Navigation Mode Configuration About	
MMEA Mode C SiRF Mode	
GGA 1 💌 GSV 5 💌	
GLL 0 💌 RMC 1 💌	
GSA 1 VIG 0 V	
🔽 Degraded Mode	
Elevation Mask(0~90 deg): 7.50	
DOP Mask(1~50): PDOP - 40 -	
SBAS Mode: Disabled 💌	
OK	

5.3.1. NMEA Mode / SiRF Mode

Display (or change) the mode of device. Setup the parameters of NMEA Mode or SiRF Mode.

5.3.2. Degraded Mode

Enable or disable degraded mode.

5.3.3. Elevation mask

To set the parameter of the Elevation mask.

5.3.4. DOP Mask

DOP mask type and DOP mask value setting.

5.3.5. SBAS Mode

Enable or disable SBAS function.

5.3.6. Default

Reset values of this dialog into default value. It has not changed the setting of device yet. You still need to push OK button if you want to change the setting of device.

5.3.7. OK

Upload the parameters to the **BT GPS mini**.

5.4. Mode

Use this page for power mode setting.

Connection Navigation	Mode	Configuration	About
			8. R.
Maximum Navigation	Performa	nce	
C Intelligent Souitab			
C Manual South			
Manuai Setting			
Update Rate(sec):	1 .	~	
OnTime(ms):	200	7	
OK			

5.4.1. Maximum Navigation Performance:

Select for best system performance.

5.4.2. Optimal Battery Use:

Select to optimize the battery usage.

5.4.3. Intelligent Switch

Select to switch power mode automatically.

When position keeps still, it enters power save mode. When position is in high speed updating, it enters max performance mode.

5.4.4. Manual Setting:

Select for adjusting the Update Rate and On Time value.

(Suggestion: Optimized for the device by selecting Maximum navigation Performance or Optimal Battery Use for default value setting.)

5.5. Configuration:

Use this page to set the system configuration values.

📴 BT GPS mini		×
Connection Navigation Mode	Configuration About	1
Change Password		

5.5.1. Change Password

Display the "Change Password" dialog screen.

5.6. About

This page shows the software version and the copyright claim.



6. Palm Software Application User Manual

6.1. Connection Page



User has to set up a connection with **BT GPS mini** device by this dialog.

6.1.1. Device Name:

When connection is successful, it will show the Device's ID Name automatically.

6.1.2. Change:

When connection is successful, the "Change" Button will be workable. If you want to change the Device's Name, please enter the new Device's ID Name in the **BT GPS mini** ID field, then click "Change" button to upload the Device's ID Name to **BT GPS mini**.

6.1.3. COM Port:

Indicate Bluetooth serial com port.

6.1.4. Connect:

Set up the connection with BT GPS mini device. it again.

6.1.5. Factory Reset:

Factory reset to the device. To reset all parameters and to disconnect Bluetooth

6.1.6. Disconnect:

Disconnect to the **BT GPS mini** device.

Note:

When performing the Auto Scan, the user has to wait for a while because it will get necessary system information from **BT GPS mini**.

6.2. Navigation Page

BT GPS Mini	✓ Navigation
NMEA Mode	SiRF Mode
GGA 🔻 1	GSV 🔻 5
GLL 🛨 O	RMC 🕶 1
GSA 💌 1	VTG 🛨 0
🗹 Degraded Mo	de
Elevation Mask(0-	-90 deg): 7.50
DOP Mask(1~50)	: ▼ PDOP ▼ 40
SBAS Mode:	🕶 Disabled
Default	ОК
ALENN	

You can set GPS-relative parameters by this dialog.

NMEA Mode / SiRF Mode:

Display (or change) the mode of device.

Setup the parameters of in NMEA Mode or SiRF Mode.

6.2.2. Degraded Mode:

Enable or disable degraded mode.

6.2.3. Elevation mask:

Elevation mask setting.

6.2.4. DOP Mask:

DOP mask type and DOP mask value setting.

6.2.5. SBAS Mode:

Enable or disable SBAS function.

6.2.6. Default:

Reset values of this dialog into default value. It has not changed the setting of device yet. You still need to push OK button if you want to change the setting of device.

6.2.7. OK:

Upload the parameters to the **BT GPS mini**.

6.3. Mode:

BT GPS Mini	🔻 Mode
Ma×imum Navigation	Performance
OptimalBatter	ry Use
Intelligent Sv	vitch
ManualSett	ting

Update Rate(sec):	▼ 1
OnTime(ms):	▼ 200
(OK	ך



Use this page for power mode setting.

6.3.1. Maximum Navigation Performance:

Select for best system performance.

6.3.2. Optimal Battery Use:

Select to optimize the battery usage.

6.3.3. Intelligent Switch:

Select for power mode automatically switch.

When position keeps still, it enters power save mode. When position is in high speed updating, it enters max performance mode.

6.3.4. Manual Setting:

Select for adjusting the Update Rate and On Time value.

(Suggestion: Optimized for the device by selecting Maximum

Navigation Performance or Optimal Battery Use for default value setting.)

6.4. Configuration:

BT GPS Mini 🗾 👻 Configuration

Change Password ...



Use this page to set the system configuration values.

6.4.1. Change Password:

Display the "Change Password" dialog.

6.5. About:



This page shows the software version and the copyright claim.

7. GPS Test on PDA

7.1. Execute GPS Demo Program



Execute RoyalTek GPS Demo program by double clicking **RoyalTek GPS Demo** icon on **Programs** menu.

7.2. GPS Demo Screen



7.2.1. GPS Port:

GPS port searching automatically by GPS port first or using COM1 as the default com port.

7.2.2. Baud Rate:

Sole baud rate : 57600.

7.2.3. About:

Version displays..

7.2.4. Action:

GPS action selection.

7.2.5.

Switch to next screen shot.

7.3. Cold/Warm/Hot Start



Selecting Cold/Warm/Hot Start in function scroll bar, then click **Action** to initialize Cold/Warm/Hot Start function.

7.4. About

This page shows the software version and the copyright claim.



7.5. Next Screen

Clicking > to switch GPS bar chart image to have more GPS data.



8. GPS Test on PC

8.1. Execute GPS Demo Program

ExecuteGPS Demo program by double clicking GPS

Demo icon on Programs menu.

Programs	Accessories	•
Documents	Microsoft ActiveSync	
Settings	🗋 Remote Display Control	•
	PL-2303 USB-Serial Driver	•
Search	🕨 😏 u-Nav Analyzer	
	🖶 RoyalTek	🕨 🔚 BT GPS mini 🔹 🈡 RoyalTek BT GPS mini
Help	*	😵 RoyalTek GP5 Demo

8.2. GPS Demo Screen



8.2.1. GPS Port:

GPS port searching automatically by GPS port first or using COM1 as the default com port.

8.2.2. Baud Rate:

Sole baud rate : 57600.

8.2.3. About:

Version displays..

8.2.4. Action:

GPS action selection.

8.2.5. >

Switch to next screen shot.

8.3. Cold/Warm/Hot Start



Selecting Cold/Warm/Hot Start in function scroll bar, then click **Action** to initialize Cold/Warm/Hot Start function.

8.3. About

This page shows the software version and the copyright claim.



8.4. Next Screen



Clicking > to switch GPS bar chart image to have more GPS Data.

9. GPS Test on PDA of Palm OS

9.1. Execute GPS Demo Program



Execute RoyalTek GPS Demo program by double clicking **RoyalTek GPS Demo** icon on **Programs** menu.

9.2. GPS Demo Screen



- 9.2.1. GPS Port: GPS port searching automatically by GPS port first or using COM1 as the default com port.
- 9.2.2. Baud Rate:

Sole baud rate : 57600.

9.2.3. About:

Version displays..

9.2.4. Action:

GPS action selection.

9.2.5.

Switch to next screen shot.

9.3. Cold/Warm/Hot Start







GPS Demo GPS Demo GPS port Blue tooth About Warm Start Action Date:2004/05/28 Time:05:45:54 > Lon:121° 34' 37.67" E PDOP 50.0 Lat: 25° 04' 23.94" N InValid No Fix

41	41	41	39	39	39	38	37			
26	17	29	10	9	6	21	24	18	8	

Selecting Cold/Warm/Hot Start in function scroll bar, then click **Action** to initialize Cold/Warm/Hot Start function.

9.4. About

This page shows the software version and the copyright claim.

GPS Demo v 1.1.2.8
Build Date: May 27 2004
Copyright 2003–2004
RoyalTek Company Ltd.
All rights reserved.
ОК

9.5. Next Screen

Clicking b to switch GPS bar chart image to have more GPS data.



10. Explanation of GPS Terminology

Degraded Mode:

It is the operation mode that uses 2 SVs or 1 SV for positioning output. The effect of degraded mode in GPS receiver is to have more position fix than none of it. It would sometimes have the situation of position drifting when this mode is enabled.

Elevation Mask:

GPS satellites that are low on the horizon are subject to noise due to the amount of atmosphere that the signal must travel through. Better position accuracy is often achieved if lower elevation satellites are not used in the position solution. The elevation mask is used to exclude the use of satellites in the position solution that are below a defined elevation mask.

DOP Mask:

DOP is the abbreviation of "dilution of precision". To achieve a positioning accuracy of 10m, it must combine the ranging accuracy and geometry to be acceptable values. GDOP is geometric dilution of precision which contains the effect of position (x, y, z) and time. PDOP is the position dilution of precision which contains the effect of position (x, y, z). HDOP is the horizontal dilution of precision which contains the effect of horizontal plane (x, y). Better position accuracy is often achieved with smaller DOP value. The DOP Mask is used to exclude the output of position that DOP value is higher than the DOP Mask.

SBAS Mode:

SBAS is abbreviation of Satellite-Based Augmentation Systems. It is WAAS in US, European Geostationary Navigation Overlay Service (EGNOS) in Europe and Multi-functional Transport Satellite (MTSAT) Satellite -based Augmentation System (MSAS) in Japan. It provides additional ranging capability, integrity information, and differential corrections at L1 frequency, which is broadcast from geostationary satellites.

Note:

RoyalTek provides two types of firmware. One is enhanced sensitivity and the other is Xtrac. Please refer to the following items as the difference between them when using Software Application.

- 1. If the Device's firmware is Xtrac, the function of SBAS is unavailable.
- 2. If the Device's firmware is Xtrac, the function of Power Mode is unavailable.

REMARK:

What is Xtrac? XTrac is a high sensitivity GPS software solution provided by SiRF company. SiRFXTrac extends the operating range in which GPS can be used - dramatically increasing the versatility of GPS-enabled products such as personal digital assistants (PDA's), automotive navigation solutions, AVL applications, and other location aware consumer devices. If loaded with SiRFXTrac high sensitivity software, GPS-enabled mobile consumer devices will be able to continue operating in far more locations than ever before possible.

Revision History

Data	Revision	Note
4/7/2004	V.1.0	
5/26/2004	V.1.5	

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