

SOKKIA

GRX2



Руководство по эксплуатации

The SOKKIA logo is displayed in a large, bold, blue sans-serif font.

GRX2

7011-0784

2012

**Гост применим к геодезическому
оборудованию и приборам.**

.....	1-1
.....	1-2
.....	1-2
..... (
.....)	1-3
.....	1-3
..... ,	
.....	1-5
.....	1-6
.....	1-7
.....	1-8
.....	1-9
/	1-9
GRX2	1-10
.....	1-11
.....	1-16
..... ()	
.....	1-16
.....	1-17
.....	1-18
SD/SDHC SIM	1-18
.....	1-19
..... ,	
.....	1-20
.....	1-20
..... (OAF)	1-21
.....	2-1
Sokkia	2-2
GRX Utility	2-2

SD/SDHC	SIM	.....	2-3
.....			2-5
		.....	2-6
		.....	2-6
/	GRX2	.....	2-9
		.....	2-9
	RS232	.....	2-10
		.....	2-11
		.....	2-14
	GRX2	.....	3-1
		.....	3-2
		.....	3-3
		.....	3-5
		.....	3-9
	GRX2	.....	4-1
		.....	4-1
1:		.....	4-1
2:		.....	4-4
		.....	4-6
	(Stop & Go)	.....	4-7
		.....	5-1
		.....	5-1
GRX Utility		.....	5-1
	GRX Utility	.....	5-3
		.....	5-4
		.....	5-4
		.....	5-4
		.....	5-5
		.....	5-6
		....	5-8
	(NVRAM)	.....	5-9
	NVRAM		
GRX Utility		.....	5-10

	.....	6-1
	.....	6-1
	.....	6-2
	.....	6-3
	.....	6-4
Bluetooth	.....	6-9
GRX Utility	.....	6-12
	.....	6-13
	.....	6-13
	.....	6-14
	.....	6-15
	.....	A-1
	.....	A-2
	.....	A-2
GPS	.....	A-6
Bluetooth	.....	A-7
Spread Spectrum ( )	.....	A-8
GRX2	.....	A-9
GSM/GPRS ( )	.....	A-10
(BDC58)	.....	A-11
(CDC68)	.....	A-11
	.....	A-12
	.....	A-12
C-RS232	.....	A-13
	.....	B-1
	.....	B-1
	.....	B-2
	.....	B-3
	.....	C-1
	.....	C-1
FCC	.....	C-2
	.....	C-4
( )	.....	C-4

, C-5
 , C-5
 C-6
 -
 1999/5/EC C-6
 (WEEE) C-7
 **D-1**

Sokkia

(“ ”).



“ ”

COPYRIGHT ()

Sokkia

Sokkia.

Sokkia,

Sokkia.

GRX2™, Spectrum Survey Office™, Spectrum
Link™, Spectrum Survey Field™, SHC2500™ GRX Utility™

Sokkia. Windows®

Microsoft.

Bluetooth®

Bluetooth SIG, Inc.,

Sokkia

SOKKIA

SOKKIA

SOKKIA

SOKKIA

Sokkia

()

Sokkia.

Sokkia

Sokkia.

Sokkia.

Frequency

Enter

Enter ().



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[illegible]

GRX2

GRX2
(
C/A),

GPS L1, L2, C/A, L2C GLONASS L1, L2,



. 1-1.

GRX2

GPS

()

$$(\quad).$$

- GPS -

GPS

20

GRX2 - Руководство по эксплуатации	1-3
------------------------------------	-----

• DGPS

• (RTK)
RTK

• DGPS

• (RTCM) RTK

• RTK

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 .
 ,
 (),
 ,
 (,
 OmniSTAR),
 (WAAS, EGNOS, MSAS).
 RTK ().
 .
 , ()
 , () -
 .
 , RTK
 .
 10 15 .
 ,
 :
 • - (, ,
 - Geometric Dilution of
 Precision GDOP)
 .
 - GPS (DGPS RTK)
 ,
 ,

GPS

○

RTK

RTK

GRX2:

(WAAS, EGNOS .)

RTK (DGPS), GPS (DGPS), RTK

-
-
-
-

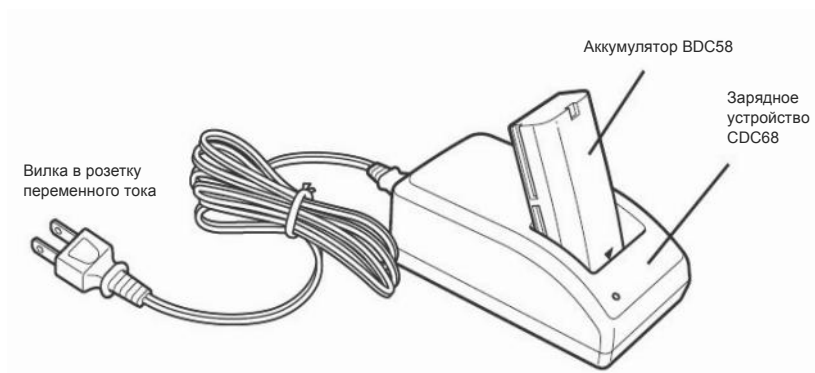
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GRX2 226- ,
:

-
- (COM)
-
-
-
- Bluetooth
- GSM/GPRS ()
- CDMA ()
- ()

GRX2

(. 1-2),



. 1-2.

GRX2

BDC58

CDC68.

2,5

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1-1.

1		-20°C +50°C
1	1	-20°C +45°C
1	6	-20°C +40°C
6	1	-20°C +35°C

- BDC58

GRX2

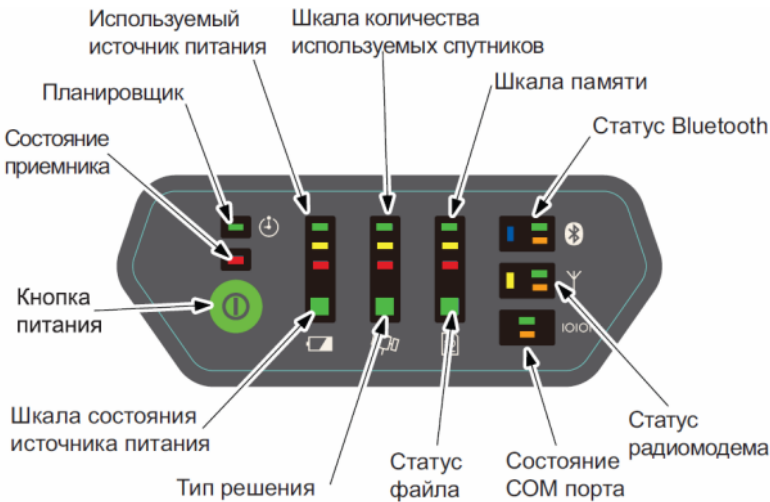
GRX2

SD SIM GSM Bluetooth

GRX2

- TX/RX
- TX/RX GSM/GPRS
- TX/RX CDMA ()

GRX2



. 1-3. GRX2

- - 50%.
 - - 25%, 50%.
 - - 10%, 25%.
 - - 10%.
- :
- - 8 .
 - - 7,25 , 8 .
 - - 6,5 , 7,25 .

- - 6,5 .
- - .
- - .
- - .
- - 8 .
- -6 7 .
- - 4 5 .
- - 3 .
- - .
- - DGPS RTK.
- - RTK
- ,
- .
- - 50%.
- - 25%, 50%.
- - 10%, 25%.
- - 10%.
- / / - 0%
- .
- - .
- - .

•	-	.
		Bluetooth
,		Bluetooth
		.
•	-	Bluetooth
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•	-	Bluetooth ,
		.
•	-	Bluetooth .
•	-	Bluetooth.
•	-	Bluetooth.
		GSM.
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•	-	.
		COM
		COM
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		GRX2.
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. 1-2.

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	1	<p>1 , ,</p> <p>20 ,</p> <p>,</p> <p>-</p> <p>:</p> <p>-</p> <p>.</p>
	3 10	<p>3-10 ,</p> <p>,</p> <p>.</p>

. 1-2.

	-	
	10 20	- 10-20 , , , . . : .
	20 25	- 20-25 , , . . : . , , 25 . . Sokkia "GRX Utility", .

. 1-2.

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	25	25
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GRX2

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GRX Utility

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30

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(

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GRX2

(. 1-4

. 1-17):

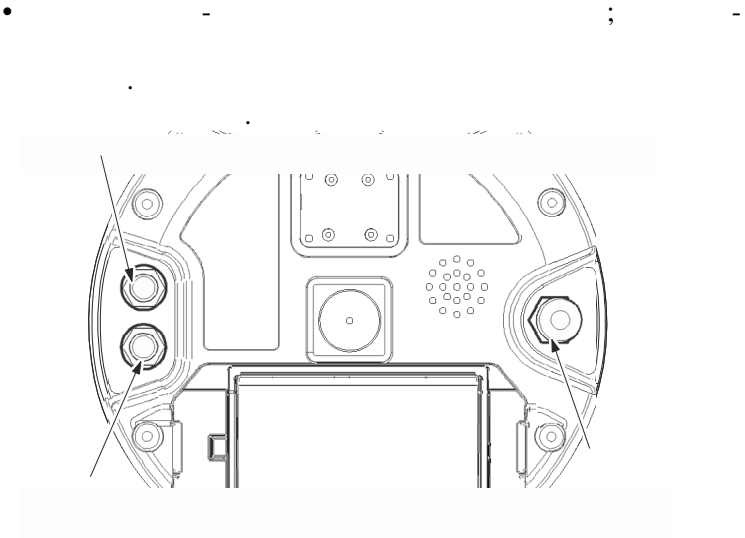
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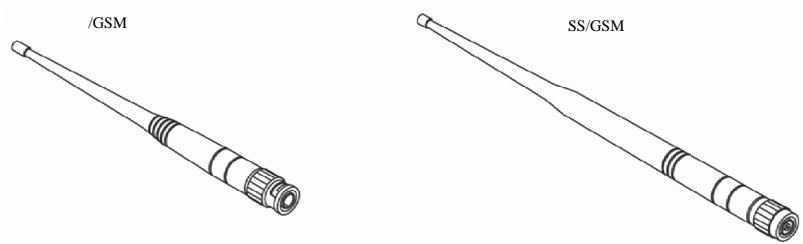
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1-4. GRX2

GRX2
(1-5).
GSM

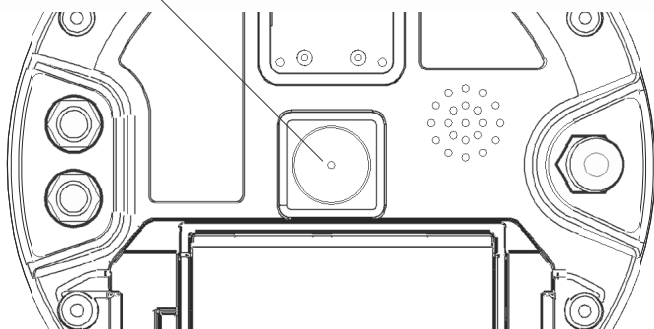
- BNC : 410–440 440–470 .
TNC
- SS (Spread Spectrum):
() .



1-5.

(. 1-6),

5/8"



. 1-6.

GRX2

SD/SDHC SIM

SD/SDHC SIM

SD/SDHC

(. 1-7).

SD/SDHC,

- SD/SDHC,
Bluetooth. SD

Sokkia

SD/SDHC

FAT16

FAT32,

SIM

SIM

SIM

GSM

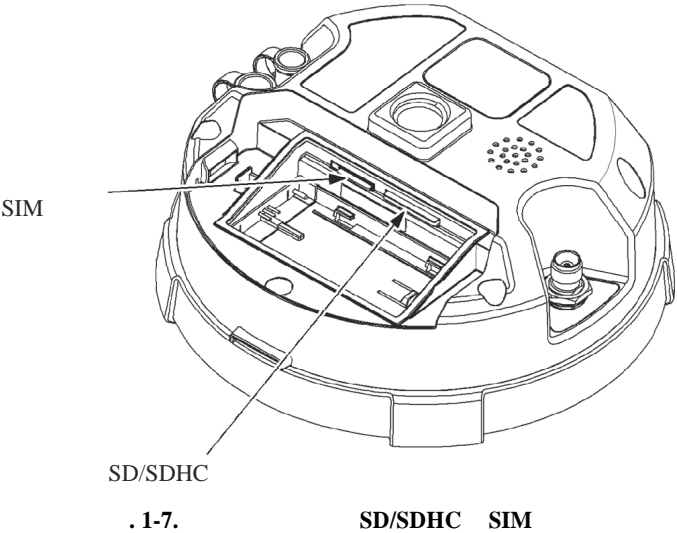
SIM

).

GSM,
GSM

SIM

GRX Utility. SIM



GRX2

. 1-3.

. 1-3.

GRX2

()	A line drawing of a cable with a connector. The cable is coiled, and the connector is a rectangular block with a small port on the side.

,

- (BDC58) - (4300 A ,
7.2) - 2 .
- (CDC68)
- (73113/A/B/C) CDC68 (,)
- (DOC133, 72693) SHC250/
SHC2500/PC
- CD
- ()

GRX2

Sokkia

Sokkia

GRX2,

Sokkia

-
- 10
- SD/SDHC
- 3,7

(OAF)

Sokkia
(OAF),

- (GPS/ L1; GPS/ L2)
- 1 ()
- (5, 10, 20)
- RTK 1 , 5 , 10 20
- RTCM/CMR /
-
-
- (WAAS)
-
- (RAIM)

-
-

GRX2,

:



“ Sokkia” . 2-2.



: SD/SDHC /
SIM

“ SD/SDHC SIM ”
. 2-3.



“ ” . 2-5.



Bluetooth

“ ” . 2-11.



,
(,
3)

“ ” . 2-14.

,

.

Sokkia

Utility, GRX

- GRX Utility

GRX Utility

CD-ROM

GRX Utility

GRX Utility
Windows®

GRX Utility: Microsoft® Windows XP / Vista/7
RS-232C

Bluetooth.

GRX Utility.

GRX Utility:

1. Utility, GRX
GRX Utility.zip.
2. **GRX_Utility.exe** GRX Utility.
3. **GRX_Utility.exe,**



2-1. GRX Utility

GRX Utility, ,
*.exe.

Delete. GRX Utility

Bluetooth.

btconf.ini.

Bluetooth GRX Utility

SD/SDHC SIM

SD/SDHC SIM . SD/SDHC -

; SIM

, GSM ,

. SD/SDHC

Sokkia ; SIM

SD/SDHC, FAT16/FAT32.

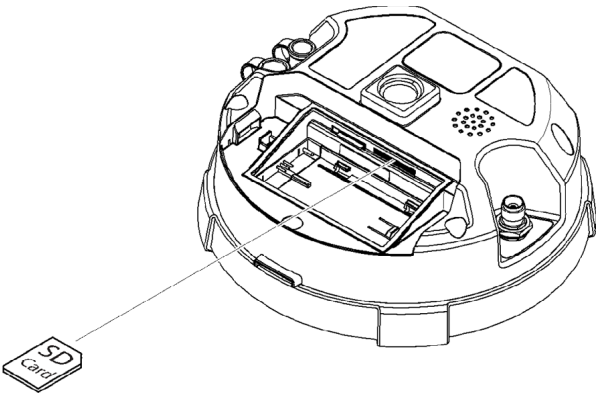
, , .

Bluetooth.

SD/SDHC (2-2):

1. , .

2.
- “
- 2-6.
3.
- SD/SDHC



2-2. SD/SDHC



SD/SDHC

SIM (2-3):

SIM

(CSD),

. SIM

GPRS

EDGE

IP

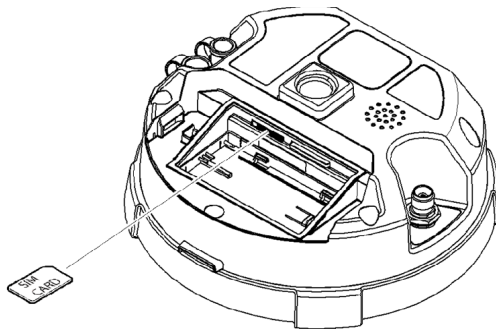


SIM

(CSD)

/

1. , .
2. .
3. , SIM .
4. SIM .



. 2-3. SIM

SIM

2,5 , 5 .



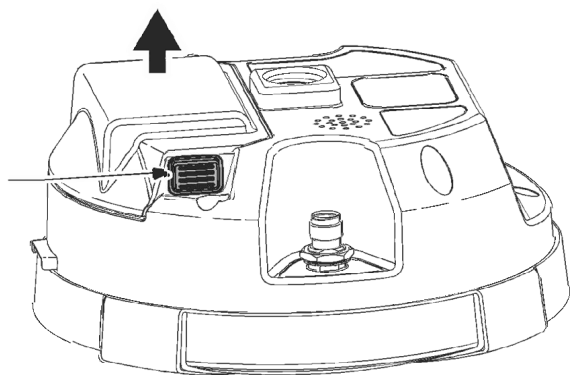
500

80%

1. .
2. .
3. . -
4. 2,5 , .
- GRX2 -
- 7,5 ().

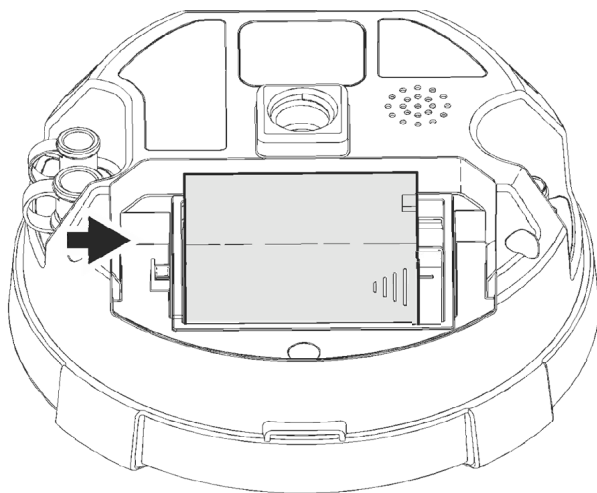
1. :
GRX2.

2.



. 2-4.

3.



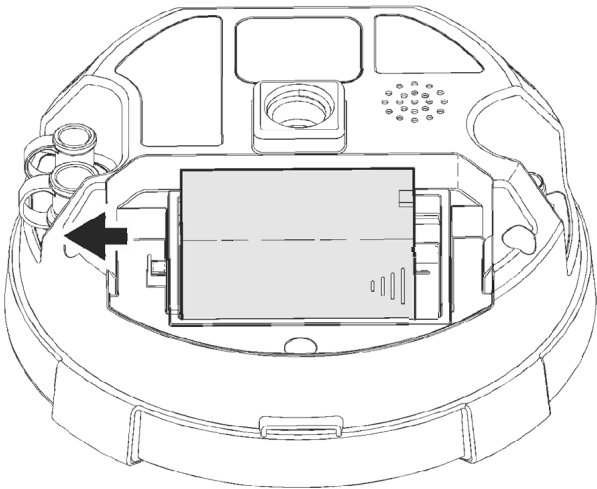
. 2-5.

4.

:

1.

2.



. 2-6.





3.

/

GRX2

1. , , 3 10 .

. 2-1.

	-	
	1	
	3 10	
	10 20	
	20 25	
	25	

GRX Utility

GRX Utility, :

- Bluetooth,
(/)
- RS232

/ , - , - , .

RS232

,

:

1. ,
2. RS232
(1) .
3. GRX Utility.
4. **Device Application mode** **Receiver**
Managing. /



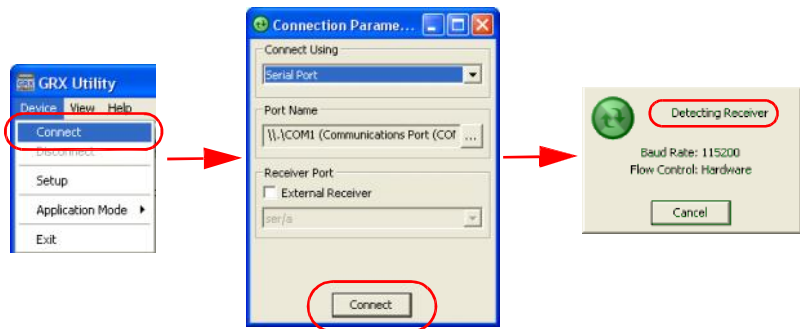
5. **Device Connect.**
Connection Parameters.

/

,

Connect.

Detecting Receiver.



. 2-7.

RS232

6.

Device Disconnect:



GRX2

*External Receiver
Connection Parameters.*

GRX2

Bluetooth,

Bluetooth;

, SHC250

USB-Bluetooth

PCMCIA-Bluetooth.

Bluetooth,

Bluetooth).

Bluetooth

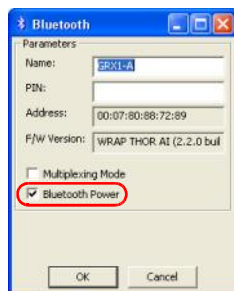
RS-232

RS232”

1-5,
. 2-10).



Bluetooth:



Bluetooth Power.

OK,

Bluetooth

RS-232

(. 6 “

RS232” . 2-10).

Bluetooth,

Bluetooth

1.

2.

GRX Utility.

3.

Device Application mode

Receiver Managing.



4.

Device Connect.

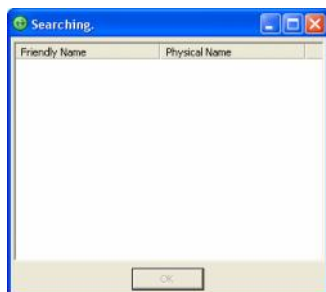
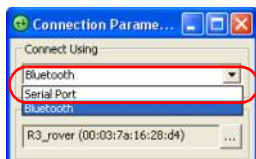
Connection

Parameters.

Bluetooth,

Connect Using

Bluetooth



. 2-8.

Bluetooth

5.

Bluetooth

Select Port

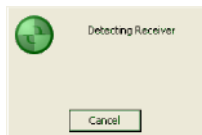
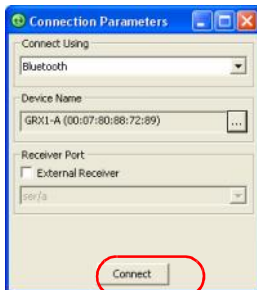
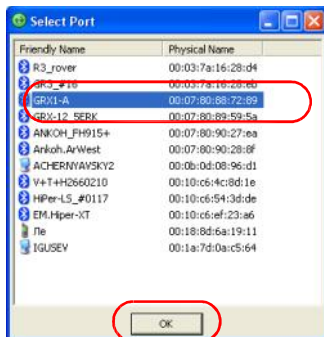
OK.

Connection

Parameters

Connect.

Detecting Receiver.



. 2-9.

/

Bluetooth

6.

/

,

Device Disconnect:



- GPS 30
- GPS 12,5 ;
- 2,5

NVRAM.

- 1.
- 2.
3. 15 ,



15 ,
(NVRAM). “
RAM Flash .”
. 5-8.

- :
- .
- ,
NVRAM,
- .
- (OAF).
- .
- NVRAM.
- .

GRX2

- , .
- RTK, ,
- .
- GPS/ .
- ,
- .
- (, GSM/
- GPRS CDMA) .
- , ,
- .
- GPS ,
- ,
- ,
- .
- , (/) ,
- .
- (, Spectrum Survey Office).

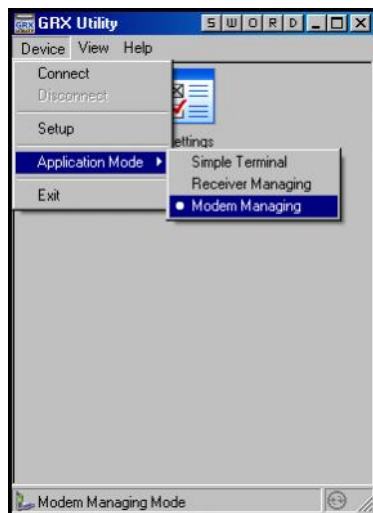
RTK

- ☐ ,
- ☐ 2.
- ☐ RTK , RTK
- “ ” . 3-9.
- “
- ” . 3-5:
- ☐
- ,
- RTK
- “ , GRX2” . 4-1.
- ,
- ☐
- 2.
- ☐
- “ ” , 3-9.
- ☐
- ,
- ,
- “ GRX2” . 4-1.
- Spectrum Survey Field.

GRX Utility - Sokkia
Utility , GRX. GRX
:

- Bluetooth.
- ,
- .
- :
- Windows 2000
- GRX Utility
- (RS-232) Bluetooth

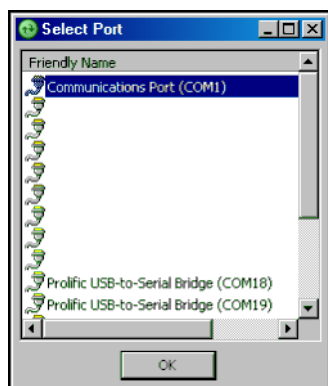
1. RS-232 Bluetooth.
2. GRX Utility. **Device Application**
Mode Modem Managing. Device Connect.



. 3-1.

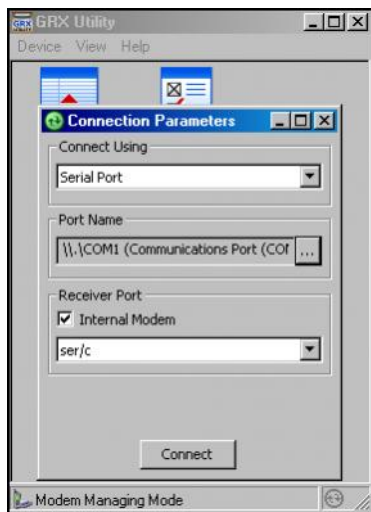
3. COM

4. COM , .
OK.



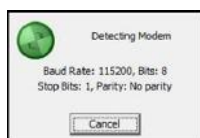
. 3-2. COM

5. C. GRX2
ser/c. *Internal Modem*
Connect.



. 3-3.

6. GRX Utility



. 3-4.

GRX Utility



25

1.

GRX2

GRX Utility

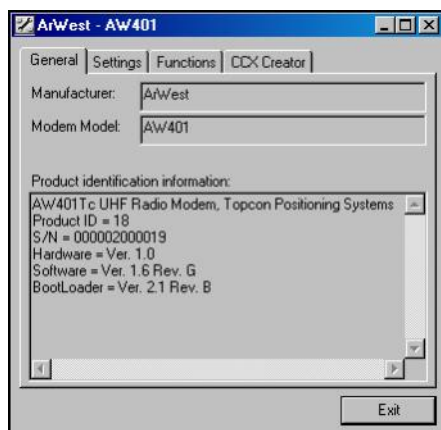
Modem Managing (

)



. 3-5.

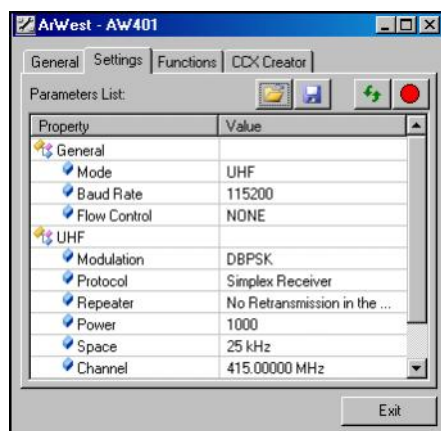
2. (Digital AW401),
General



. 3-6.

3. *Settings*,
(. . 3-7 . 3-6).

(



. 3-7.

- *Mode* – , GSM/CDMA.

Baud rate –

38400



115200

, . . .
GPS.

- *Flow Control* –

/

- *Modulation* –

GMSK.
DBPSK,

GMSK.

Simplex,
Trimble

PDL,

- *Protocol* –

Simplex

(GMSK).

- *Repeater* –

(Simplex).

- *Power* –

(10 1).

- *Space* –

- *Channel* –

- *Scrambler* – (GMSK).
 - *FEC* – ()
- . 3-1.

. 3-1.

		12.5	25
DBPSK ()	Differential Binary Phase Shift Keying	4,8	9,6
DQPSK	Differential Quadrature Phase Shift Keying	9,6	19,2
D8PSK ()	Eight Phase Shift Keying	14,4	28,8
16QAM ()	Sixteen Quadrature Amplitude Modulation	19,2	38,4
GMSK	Minimal Shift Keying with Gaussian Filtering	4,8	9,6
4FSK ()	Four Level Frequency Shift Keying	9,6	19,2

GRX Utility,

GRX Utility

RTK RTK

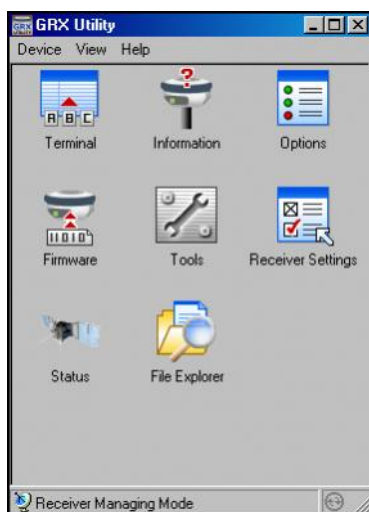
GRX2	RTK	-
•		
• RTK	RTK ()	
•		
• RTK	RTK	
GRX Utility,		:
• Bluetooth,		
• RS232		
GRX Utility -	Sokkia	
	GRX Utility.	
GRX Utility		
		:
•		;
•		;

- ;
 -
- ;



GRX Utility.

1. “ ” . 2-9.
2. GRX Utility
GRX Utility.



. 3-8.

GRX Utility

3. **Device Application Mode Receiver Managing.**
4. **Device Connect.**
5. **Connection Parameters** :

- *Connect Using* – , Bluetooth.



Bluetooth

:

GRX Utility

Bluetooth

Bluetooth

Bluetooth,

- *Port name* –

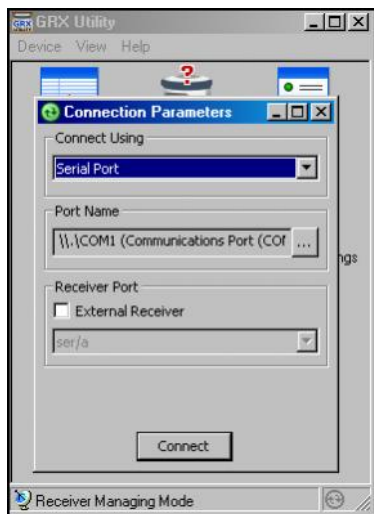
/

•

Port name

6.

Connect (. 3-9).



. 3-9.

GRX Utility

(рис. 3-10).



рис. 3-10.

GRX Utility

7.

Receiver Settings.

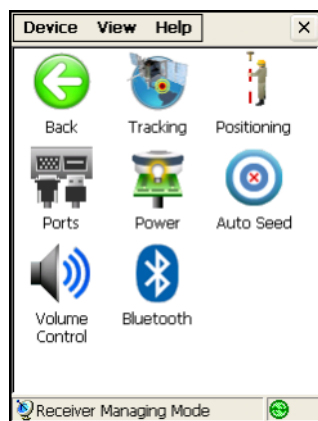
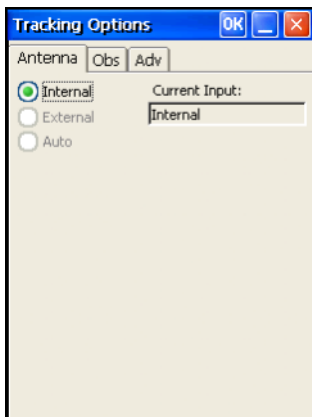


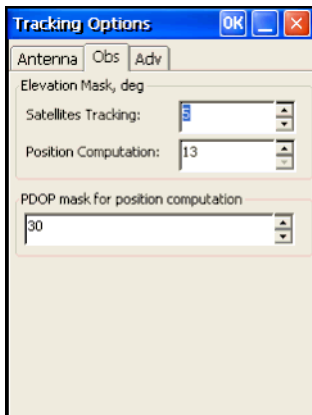
рис. 3-11.

8. **Tracking** , (. 3-12).



. 3-12.

9. *Observation* *Elevation mask*
 () 15 ,
 ,
 (. 3-13), *PDOP mask*
 (*PDOP*), **OK.**



. 3-13.

,

10. *Advanced.*

OK (. 3-14 . 3-15).

- *Anti-jamming* –

GPS, GLONASS, L1, L2.

- *C/A code multipath reduction* –

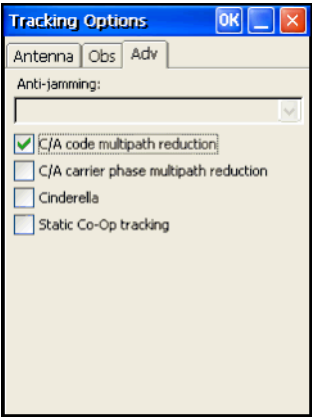
- *C/A carrier phase multipath reduction* –

- *Cinderella* –

Cinderella, 24

GPS.

- *Static Co-Op tracking* –



. 3-14.

11. **Seed** **Auto**
(. 3-15 . 3-16),
OK.

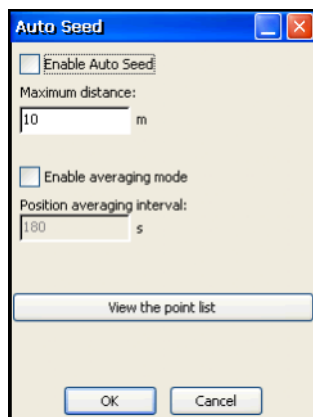
- *Enable Auto Seed* ():

RTK

- *Maximum distance*:

- *Enable averaging mode*:

Position averaging interval.



. 3-15.

- **View the point list,**

GRX Utility.

12.

Positioning,

OK (. 3-16 . 3-17).

- *Positioning Mode* – Standalone; RTK
RTK float RTK fixed.

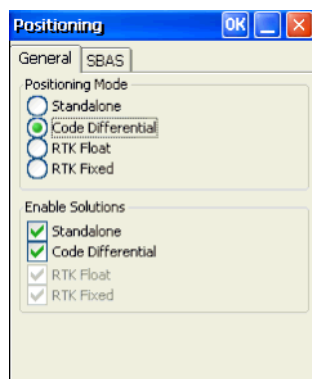
- *Enable Solutions* –

– Standalone – 3D

– Code differential –

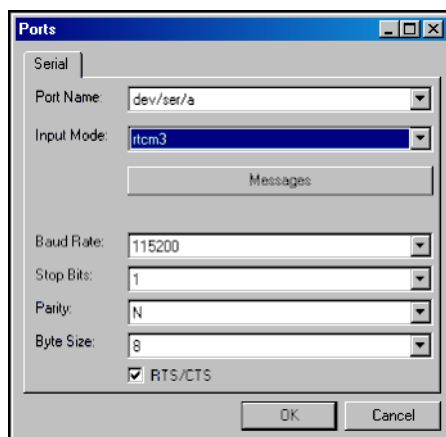
– RTK float –

– RTK fixed –



. 3-16.

13. **RTK** **Ports**, **OK** (. 3-17 . 3-18).



. 3-17.



14. **OK**.

GRX Utility
NVRAM.

GRX Utility.

15. **RTK** **Status** (. 3-18 . 3-19),

10-30
Spread Spectrum
60
Data Link

(%);

- () ;
 - ()
 - () -
- Link Quality 100%.



Status		OK		
Position	Data Link	SVs List	Sky P	
Data Link		1		
Data Link Identifier	ser/d			
Decoder	RTCM 3.0			
Ref Station	0000			
Link Quality	100%			
DLink Delay	1			
Received Messages	380			
Corrupt Messages	0			

3-18. Status - Data Link

16.

Device Disconnect, Device Exit,
GRX Utility.



Sokkia
Spectrum Survey Field.
Spectrum Survey Field
Spectrum Survey Field.

GRX2

1:

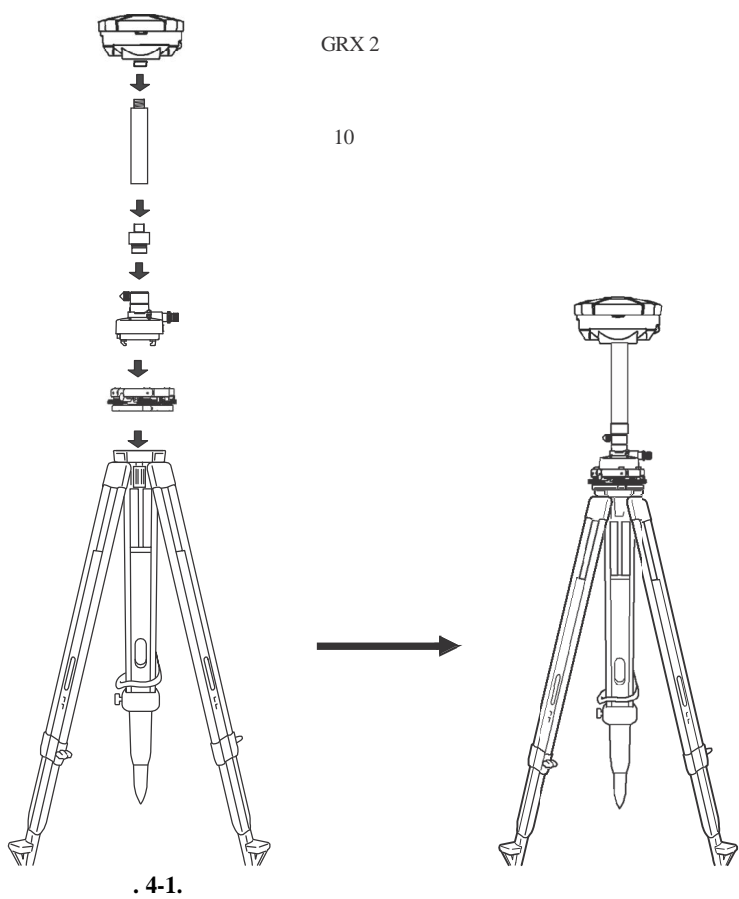
RTK

4-1.

4-3.

(4-1):

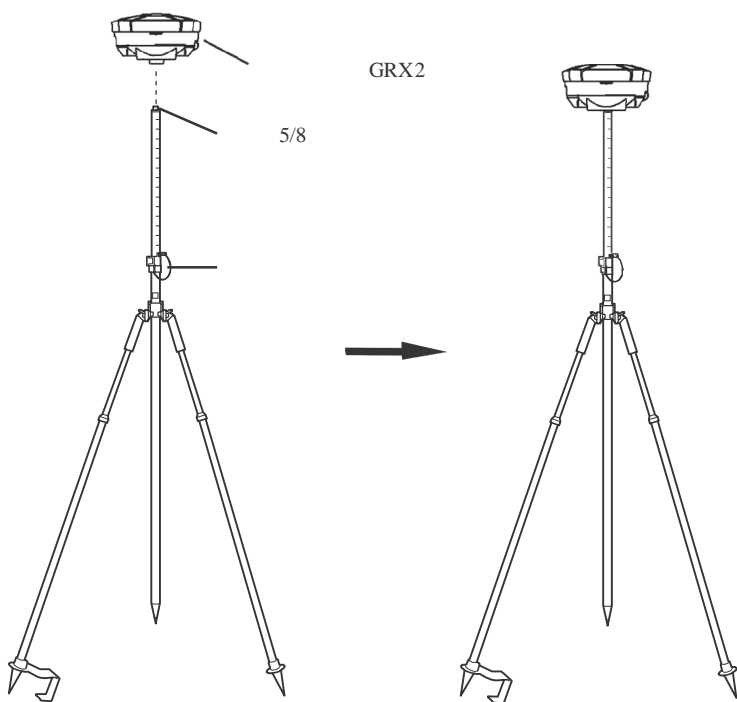
- 2. .
- 3. .
- 4. (10).
- 5. (10) GRX2.
- 6. .
- 7. , .
- 8. (,).



(. 4-2 . 4-3):



1. GRX2 (5/8) .



. 4-2.

GRX2

2:

3D

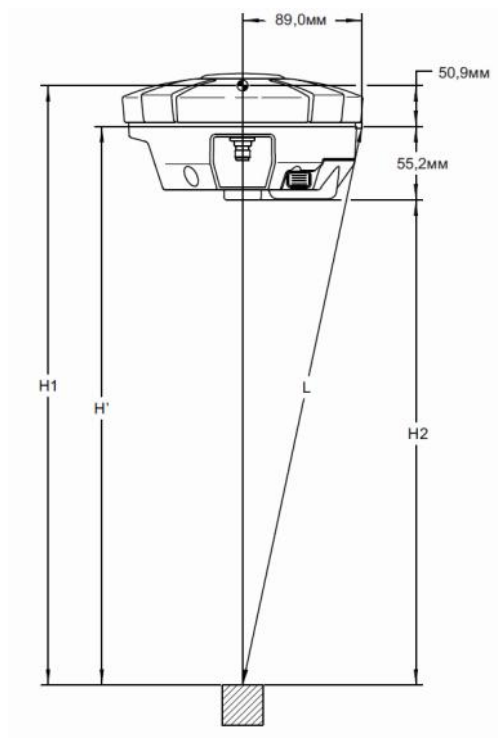
GPS/

GPS/

1.

(. 4-3 . 4-5).

2.



. 4-3.

- L:
- H':
- $H' = \sqrt{L^2 - (89)^2}$
- H1: (H1 = H' + 50,9)
- H2: (H2 = H' - 55,2)

4-1.

L1		L2
	106,1	102,3

- (, ,).
- ,
- ,
- .
- ,
- (5-30
-)
-
-
- :
- -
 - (DOP)
 -

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-
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15 , ,

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- , , .

(, Spectrum Survey Field).

(Stop & Go)

(stop & go) .
Spectrum Survey Field.

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[illegible]

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 (GPS,
 Bluetooth),
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 Sokkia
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GRX Utility

GRX Utility

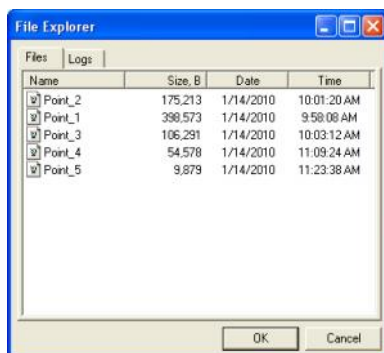
1. GRX Utility. “ ” . 2-9.

2.



File Explorer,

(. 5-1).



. 5-1. File Explorer

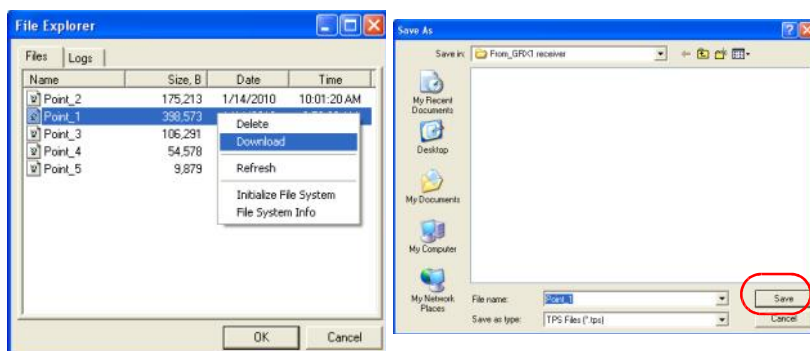
3.

Download.

Save As

(. 5-2).

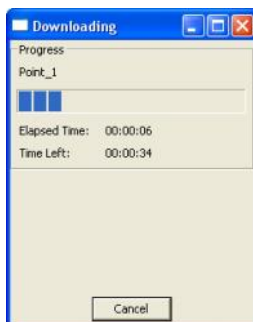
Save,



. 5-2.

4.

Downloading,



. 5-3.

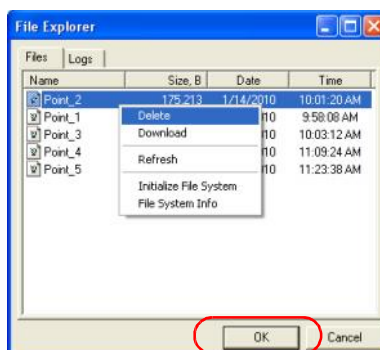
GRX Utility

1 2,
. 5-1.

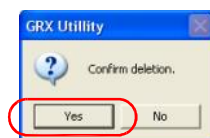
File Explorer

Delete.

Yes.



. 5-4.



SD/SDHC 20-25 (, , . 1-2 , . 1-14).

• SS – , , (

• N – ,

L1:

$$SS = 183 + 22 \cdot N$$

L1 L2:

$$SS = 230 + 44 \cdot N$$

• (L1, L1/L2 . .), ;

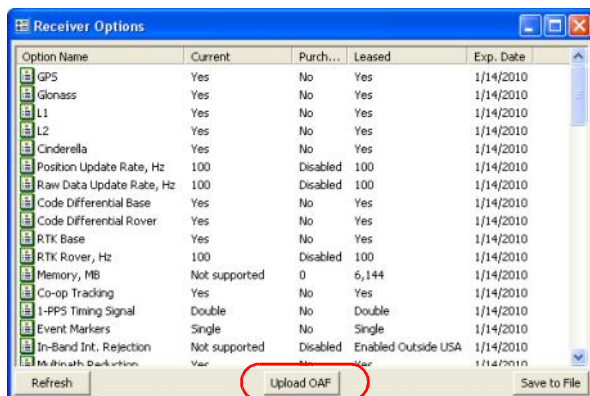
- ;
- /

Sokkia

GRX Utility.

1. GRX Utility. “
” . 2-9.

2.

***Receiver Options,***

. 5-5.

Sokkia.

Sokkia: options@sokkia.com

1.

1 2,

“

”

. 5-5.

2.

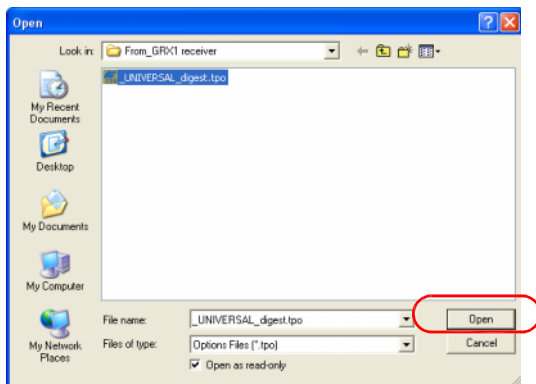
Upload OAF

Receiver

Options (. 5-5).

3.

Open (. 5-6).



. 5-6.

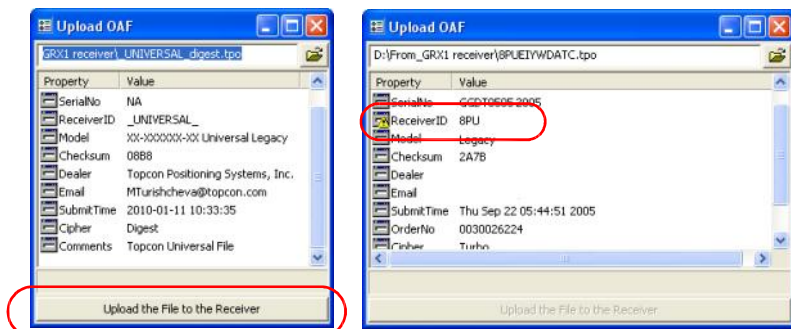
4.

GRX Utility

Upload OAF

ID

Upload the File to the Receiver



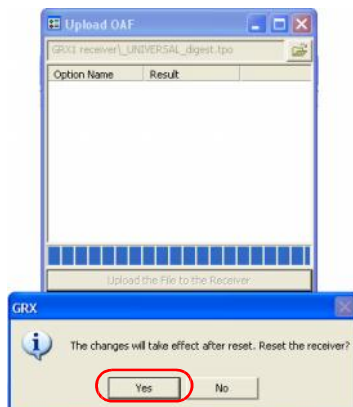
. 5-7.

5. Upload the File to the Receiver.

6. GRX Utility

(. 5-8).

Yes.



. 5-8.

?

()

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:

- ramimage.ldr – RAM

()

- main.ldr – Flash

()

GRX,

:

1.

GRX Utility. “
” . 2-9.

2.



Upload Firmware,

3.

Device

“Receiver/modem”.

4.

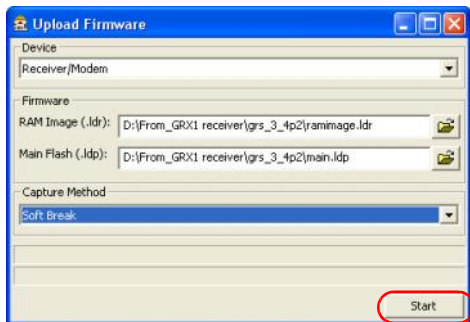
Capture Method

“Soft Break” ().

5.

RAM

Flash



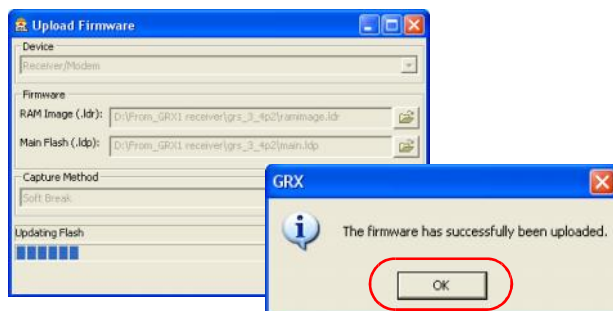
. 5-9.

6.

Start.

7.

OK.



. 5-10.

(NVRAM)

(NVRAM)

NVRAM

NVRAM

NVRAM

NVRAM

NVRAM

15

NVRAM

NVRAM

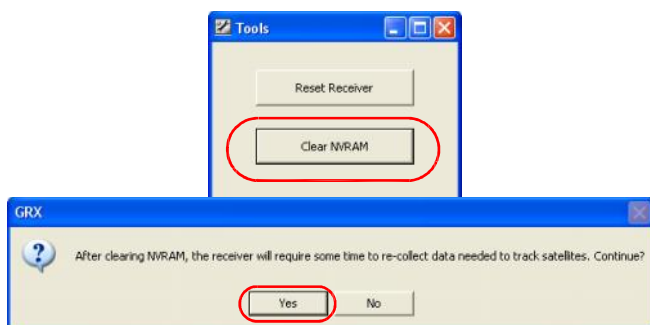
GRX Utility

1. GRX Utility. “ . 2-9.

2.  Tools

Tools,

NVRAM



. 5-11. Tools

3. Clear NVRAM, Yes,

GRX2.



Sokkia,

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Sokkia.

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GRX Utility

- (Tools **Reset receiver**).

-

GRX Utility

(**Configuration Receiver**,

Set all parameters to defaults).

- NVRAM (. “ RAM Flash .” . 5-8).
- (Tools Initialize file system). SD/SDHC . - , .
- : “ ,” . 6-3.
- : “ ,” . 6-5.
- “ ,” . 6-5.
- “ ,” . 6-5.
- / RTK,” . 6-6.
- “ ,” . 6-8.
- Bluetooth: “ GRX Utility : Can’t find receiver (,” . 6-9.
- “ GRX Utility : Open COM# port failed: Access is denied (#: ,” . 6-10.
- “ GRX Utility : Open COM# port failed: Access is denied (#: ,” . 6-10.
- “ ,” . 6-11.

“ Bluetooth

Bluetooth

,
,” . 6-11.

,
“GRX Utility ,”
. 6-12.

- “ ”.
- :
1. GRX Utility
(. “ ” . 2-9).
 2. **Configuration Receiver.**
 3. **General Power**
Charger. “Auto”.
Auto
Apply.



NVRAM
(. “ RAM Flash
.” . 5-8).



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• ,
• .



- / “
” . 2-5.

- “ ” . 2-5.
- ⇒ ,
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- ⇒ ,
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- Sokkia.
-
-
- GRX2.
-
- ⇒ :
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-
- “ GRX2” . 1-10 “
- ” . A-12.
- ⇒
-
-
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-
-
-
- :



1. (cmd).
2. GRX Utility.
3. **Configuration Receiver Ports.**
Input,
 "Command".



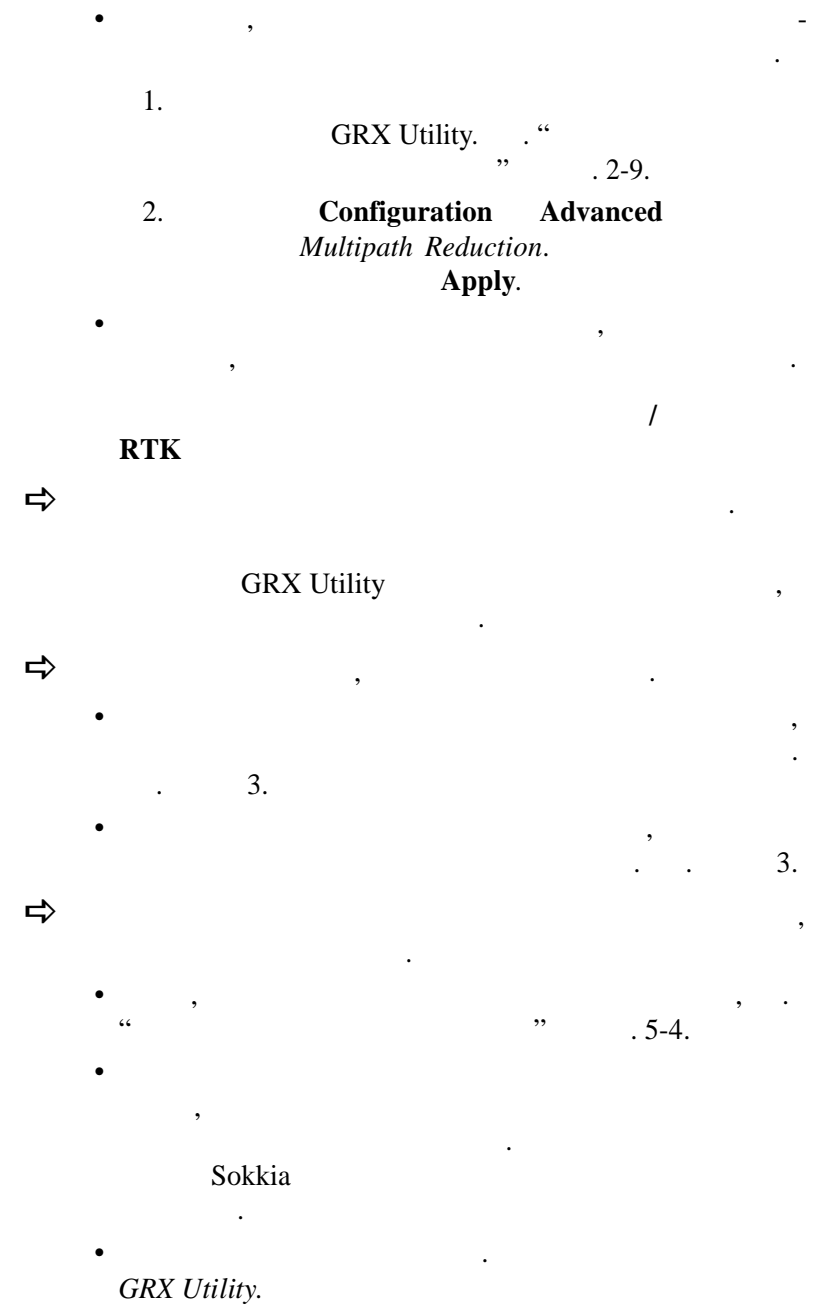
" . 2-14.



- (L1/L2, GPS/GLONASS)
- " . 5-4.
 - Sokkia
 - *GRX Utility.*



(,





- “ ” . 2-14.



1. GRX Utility. “ ” . 2-9.
2. **Configuration** **Advanced**
Ports.



(PDOP/GDOP).

PDOP.



Sokkia





- / (, “ ” . 5-1 “ GRX Utility” . 5-3).

Bluetooth

Bluetooth, GRX2.

GRX Utility : Can't find receiver ()



























































































































































































































































































































, (cmd).

1. (“ ” . 2-9)

GRX Utility.

2. **Configuration Receiver Ports.**

3. *Input* , “Command”.



GRX Utility



D .

- D : 115200 baud rate, 8 data bits, 1 stop bit, no parity, no handshaking.
- D RTS/CTS handshaking ().



(D).

- “ ” . 5-4.
- , Sokkia .
- GRX Utility.

GRX Utility

: Open

COM# port failed: Access is denied (
#:)



-
-



- , ,
- , “PWR”.
-
-
- Sokkia ,



- 2(C)
1. RS232 (“ RS232”
2-10).
 2. **Configuration Receiver General.**
 3. *Turn on/off Slots*
Slot 2(C).

Bluetooth

Bluetooth



- Bluetooth .
Bluetooth
- “ ” 2-11.



Bluetooth.

1. Bluetooth,
Bluetooth
Bluetooth manager.
2. Bluetooth.

GRX Utility

,
GRX Utility.

GRX Utility



GRX2 - A.



- , “ ” . 5-4.

- ,
Sokkia



1. **Connection** **Cancel**
Connecting to device **Stop.**
2. GRX Utility **Tools** **Options.**
3. , **Ok.**
4. **File** **Connect.**

- , Sokkia.
- “ ” -
. 6-1. ,

- Sokkia

- 1-800-4-Sokkia 1-800-476-5542
- 1-866-4-Topcon 1-866-486-7266

Sokkia

(6-1).

6-1.

,
(, ,)		support@topcon.com
		support@topcon.com
	(OAF)	support@topcon.com
RTK		support@topcon.com
GRX Utility		support@topcon.com
	...	support@topcon.com
“ ”		service@gsi.ru



1. :
GRX Utility Help About
Save to file.

2. ,
GRX Utility, : ,
..

3. /

4. , . , -

5. .

, 24

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Sokkia

Sokkia.

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Sokkia: <http://www.sokkia.com>

“ ”: <http://www.gsi.ru>

Bluetooth

GSM (),

Sokkia Topcon

226-

SD/SDHC.

NOTICE

6

15

NOTICE

PDOP ,

NOTICE

GRX2

. A-1

. A-1.

	Sokkia Sokkia
	184 () 95 ()
	1,10 ()
	, /
	5/8-11,
	: /

. A-1.

()

	22
	-20 +65°C (); -40 +65°C ();
	-45°C +70°C
	100%
	IP67
	BDC58, - , 4300 () / 7,2
	195
	2,5
	7,5 (20°C / Bluetooth) /
	1
	6 18

. A-1. ()

	4 ()
	CDC68
	NVRAM 10
/	
	Bluetooth V2.1 x 2- () RS-232C x 1
	COM1: 4800 115200 (RS) 115200 () Bluetooth: 115200 (SPP / Single Channel)
	(BNC TNC) , , RS232C
NMEA	
NMEA	2.1, 2.2, 2.3, 3.0
	GGA, GLL, GNS, GRS, GSA, GST, GSV, HDT, RMC, VTG, ZDA, ROT, GMP
	1 , 5 , 10 , 20
DGPS	
	RTCM SC104 Ver 2.1, 2.2, 2.3, 3.0, 3.1
RTCM	1, 3, 9, 31, 32, 34;
	10 (); 20 , 50 100 ()
RTCM	10 (); 20 , 50 100 ()
	0 90 ()

. A-1.

()

RTK	
	CMR2/CMR+, RTCM SC104 Ver 2.2, 2.3, 3.0 3.1
RTCM	3, 18, 19, 20, 21, 22;
	OTF (L1, L1/L2)
	50 32
	5 10
CMR/RTCM	1 (); 5, 10, 20 ()
	0 90 ()
	() ()
	1 (); 5, 10, 20 ()
	L1: 3 + 0.8ppm () / 5 + 0.5ppm () L1+L2: 3 + 0.5ppm () / 4 + 1ppm ()
	L1+L2: 3 + 0.5ppm () / 5 + 0.5ppm ()
	L1+L2: 10 + 1ppm () / 15 + 1ppm ()
RTK	L1+L2: 10 + 1ppm () / 15 + 1ppm ()
DGPS	<0,5
“ ”	<40
“ ”	<20 () <1

GPS

. A-2 GPS .

. A-2. GPS

()	
GRX2 :	G: GPS L1 GD: GPS L1/L2 GG:GPS/GLONASS L1 GGD: GPS/GLONASS L1/L2
: / /	FH915 + TX/RX FH915 + TXUHF + GSM + GSM + CDMA
()	226 (G, GG, GD, GGD) L1 GPS, L1/L2 GPS, L1 , L1 GPS + L1 , WAAS/EGNOS,
	GPS/GLONASS, L1/L2 C/A , WAAS/EGNOS/MSAS/QZSS
/	: ,
- (o-op tracking)	/ , , ,
WAAS/EGNOS/ MSAS	()

. A-2. GPS ()

	TPS, NMEA, RTCM, CMR
	20 RTK () 10 0,1 RTCM SC104 2.1, 2.2, 2.3, 3.0, 3.1 I/O. RTCM (RAIM) CMR CMR+.
	SD/SDHC
	SD/SDHC
	0,05 86400 ,

Cinderella, GPS 24 -
Cinderella
Sokkia.

Bluetooth

. A-3 Bluetooth.

. A-3. Bluetooth

	10 (), 50 ()
	1
	SPP ()

. A-3.

Bluetooth ()

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Spectrum () Spread

. -4

. A-4.

Spread Spectrum

(/)	902 - 928 M () 915 - 925 ()
	, FHSS
	5 ,
	128
	100
	FSK, 64
	135
	- , -
	, ,
	FH915, FH915+
(TX)	
	250 (24dBm) / 1 (30dBm),
(RX)	
	-105 dBm 10-4 BER
	105 dBm

. A-4. Spread Spectrum

	RS232
	9600, 19200, 38400, 57600 ,
	9600, 10200, 17000, 51000 . FH915; FH915+
	FEC (15,7),
	, ,
	TNC,
	2,5 dBi

GRX2

. A-5
. A-5. { GRX2

(/ /)	410-470
	GMSK, DBPSK DQPSK
	12,5 /25
25	<ul style="list-style-type: none">GMSK/DBPSK – 9600DQPSK – 19200
12,5	<ul style="list-style-type: none">GMSK/DBPSK – 4800DBPSK – 9600
	115200

. A-5. {

GRX2

GSM/GPRS ()

. A-6

GSM/GPRS,

. A-6.

GMS/GPRS

	EGSM:900/1800
	0,6 (850); 2 (900); 1 (1800/1900)
GPRS	8; 85,6 ; B GSM 07.10 ; CS1-CS4;
CSD	14,4 ;
SMS	MO/MT Text PDU; ;

(BDC58)

. A-7

BDC58.

. A-7.

	7,2		
	4,3A		
()	38	x 70	x 40
	195		

(CDC68)

. A-8

CDC68.

. A-8.

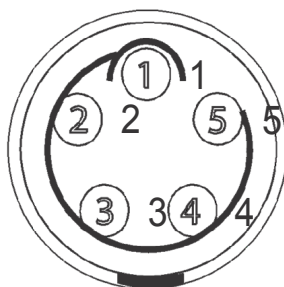
:	100 - 240
(25°C): -	(4 25°C, .)
:	0 40°C
:	-20 65°C
()	94 102 36
	170

GRX2 3 : ,
 . A-9, . A-10 . A-12 . A-11 . A-13

. A-9.

			.	
	BNC	I/O	I/O	RF/GSM
FH915/915+	TNC,	I/O	I/O	RF/GSM

- 5-
 (. A-1).



. A-1.

. A-10

. A-10.

		.	
1	Power_GND	P	,
2	Power_INP	P	
3			

. A-10. ()

		.	
4			
5			

C-RS232

(RS232) - 8- -
(. A-2).




. A-2. () RS232

. A-11 .

. A-11. (RS232)

		.	
1			
2	RXD		
3	TXD		
4	GND	I/O	
5	GND	I/O	
6			
7	RTS		
8	CTS		



Sokkia



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100°



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NOTICE

RTK

1.

RTK

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• Sokkia,

FCC

(FCC)

FCC

OET65.

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) 15 FCC.

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: GRX2

	Sokkia
	Topcon Positioning Systems, Inc.
	7400 National Drive, Livermore, CA 94550
	+925-245-8300

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RSS-102

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: www.hc-sc.gc.ca/rpb.

2,4 .

2,4 .

- 50 .

GRX2/U 2.4dBi

/

410-440MHz ANTENEX/G420BN

440-470MHz CENTURION/EVR450

GRX Utility

1999/5/EC

(1999/5/EEC)

- EN 301 489-1 V1.8.1 (2008-04)
- EN 301 489-5 V1.3.1 (2002-08)
- EN 301 489-17 V1.3.2 (2008-04)
- EN 300 328 V1.7.1 (2006-10)
- EN 300 113-2 v1.4.1 (2007-07)
- EN 62311:2008
- EN 60950-1:2001 + A11:2004



(WEEE)

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Sokkia

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Sokkia

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SOKKIA



ISO 9001:2000
FM 6 844 8

GRX2 Руководство по эксплуатации
№: 7011-0784 Версия А 1/10