

SERVICE INFORMATION

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INFORMATION TYPE	MODIFICATION
PRODUCT	G3100-R1 & SMT888-3G
SUBJECT	GNSS Firmware Upgrade for the receiver board (AsteRx2e) 3.3.0
REASON	Improvement of RTK operation
MODIFICATION DATE	2 nd of February, 2015

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Contents:

GNSS Firmware Upgrade for G3100-R1 & SMT888-3G (AsteRx2e) to Ver. 3.3.0

Description:

Version 3.x of the firmware for AsteRx2e receivers introduce a new and improved RTK engine That uses both GPS and GLONASS satellites to compute a Fixed RTK solution. Compared to 2.x versions of the firmware, 3.x versions provide a shorter time-to-Fixed RTK, as well as more robust RTK operation in difficult environments. Compare to the version 3.2.0, the tracking sensitivity of the receiver has been improved, allowing the receiver to track and use weaker satellite signals, increasing the availability of a good position solution in challenging environments. The position update rate is currently limited to 10 Hz and moving base is not yet supported. A firmware version including moving base and supporting higher update rates will be introduced later on, until which time users requiring update rates higher than 10 Hz or moving base should use versions 2.x of the firmware.

Interchangeability

Version 3.3.0 of the SSRC1 firmware is for exclusive use of the GNSS with "AsteRx2e OEM receiver board (G3100-R1 and STM888-3G)

Note: The 3.3.0 of the SSRC1 firmware is not applied to G3100-R2 and SMT888-3G V3(SSRC3).

Update procedure

1. Introduction

This manual is for upgrade of G3100-R1 or STM888-G3 to 3.3 Firmware.



Figure 1: AsteRx Board Type

1.1. Requirements

The Firmware upgrade process needs the followings

- GC15 Communication cable to connect to G3100-R1 or SMT888-3G Serial 1 port
- G3100-R1 or SMT888-3G with AsteRx2e on <u>fully charged batteries</u>
- Firmware 3.3.0 package (downloaded from the TIA website)
- RxTools 1_9_2 installer or later version (downloaded from the TIA website)
- PC with RxControl version 4.10.1 (from RxTools 1.9.2 installer)

1.2. Overview

To upgrade the GNSS firmware, three main actions must be completed.

- Install 3.3.0 firmware
- Load appropriate G3100-R1 or SMT888-3G default configuration script file.
 - PENTAX_G3100_Default_Config_V3.3
 - PENTAX_SMT888_Default_Config_V3.3

2. Setup

- 2.1.1. Connect the UHF antenna to G3100-R1 or SMT888-3G
- 2.1.2. Power on the G3100-R1 or SMT888-3G
- 2.1.3. Connect the GC15 communication cable to G3100-R1 or SMT888-3G and PC
- 2.1.4. Start RxControl and connect to G3100-R1 or SMT888-3G on the appropriate COM port

3. Procedure

3.1 Bootloader Upgrade

*Ensure the G3100-R1 or SMT888-3G has fully charged batteries or is powered by a reliable external power source.

3.1.1. Once connected, click on the File \rightarrow 'Upgrade Receiver using Current Connection'.

File	View Communication Navigation Tools	Logging
=	Change Connection	Ctrl+N
	Manage Connections	Ctrl+M
12	Preferences	Ctrl+P
	Display Diagnostic Report	Ctrl+C
	Save MIB Description As	Ctrl+S
	Upload script	Ctrl+U
	Show Receiver Configurations	
	Copy Configuration	
	Power Mode	•
	Reset Receiver	
1	Upgrade Receiver using Current Connection	
0	Exit	Ctrl+W

Figure 2: File--> Upgrade



Figure 3: Click 'OK'

3.1.3. Click 'Next" on the Introduction pop-up window.

8

Introduction				
This wizard will h	elp you to upgrade yo	ur receiver.		
Please make sur	to use a receiver por	t that is capable	of performing update	s.

Figure 4: Click Next

3.1.4. Select 'Browse' on the Select Septentrio Upgrade File Window.

Select Septent	rio Upgrade File		
Please 'Browse' for a	valid Septentrio Upgrade File	(SUF)	
SUF file:		Brou	vse

Figure 5: Select Browse

3.1.5. Browse to the appropriate bootloader .suf file:

AsteRx2e : Select ssrc1-1.0.3_upgrade_all.suf.

Name	Туре	Size
ssrc1-1.0.3_upgrade_all.suf	SUF File	2,110 KB

Figure 6: Bootloader '.suf' File

3.1.6. Click 'Next'

Introduction	
This wizard will help you	to upgrade your receiver.
Please make sure to use	a receiver port that is capable of performing updates.

Figure 7: Click Next

3.1.7. Click Upgrade; this process will take 1-3 minutes.

Upgrade	
The receiver speci	fied with the settings of "1.serial" will be upgraded
z:/PRODUCTION/F	o Upgrade File: Firmware/3.3 FW/AsteRx2e Firmware Package v3.3.0/firmware/ssrc1
Please make su	ire that RxControl is connected to a receiver port that allows upgrade
ricase make su	The chart excentron is connected to a receiver port that allows upgrade
If you don't know consult your manu	which receiver ports are capable of an upgrade please al.
This advised to de-	an all active comparisons to the construct before compared as
It is adviced to do	se all active connections to the receiver before upgrading.
It is adviced to clo. Upgrade	se all active connections to the receiver before upgrading. Value
It is adviced to do Upgrade Platform	se all active connections to the receiver before upgrading. Value SSRC1
It is adviced to do Upgrade Platform Description	se all active connections to the receiver before upgrading. Value SSRC1 Firmware (version 3.3.0 type=std) for SSRC1
It is adviced to do Upgrade Platform Description S/N	se all active connections to the receiver before upgrading. Value SSRC1 Firmware (version 3.3.0 type=std) for SSRC1 All

Figure 8: Click 'Upgrade'

3.1.8. Let the process complete.

O O RxControl: Upgrade Receiver	O O RoxControl: Upgrade Receiver
Opening connection part to receiver Connected to the receiver's COM3 part Rebooting receiver in Upgrade mode Uploading	Upgrading Opening connection port to receiver Connected to the receiver's COM3 port Rebooting receiver in Upgrade mode Uplading
Uploading	Programming (expected duration 66s) 76% Programming (remaining duration 26s).
Finah Cancel	Finish Cancel

Figure 9: Upgrading...

3.1.9. Bootloader firmware upgrade complete.

15	
Opening connection port to receiver Connected to the receiver's COM3 port Rebooting receiver in Upgrade mode Uploading Programming (expected duration 66s) Checking if upgrade succeeded The upgrade finished successfully	

Figure 10: Bootloader Firmware Upgrade Complete

3.2. Firmware Upgrade

3.2.1. Reconnect to RxControl using the last connection.

Select Conne	ection	-
Use last connection:	1.serial	
Serial Connection:	Select 👻	
TCP/IP Connection:	Select 🔻	
SBF File Connection:	Select 🔻	

Figure 11: RxControl

3.2.2. Click on the File Menu \rightarrow 'Upgrade receiver using Current Connection'

(*) 1	serial - RxControl - S/N 3003569	
File	View Communication Navigation Tools	Logging
=	Change Connection	Ctrl+N
	Manage Connections	Ctrl+M
38	Preferences	Ctrl+P
	Display Diagnostic Report	Ctrl+C
	Save MIB Description As	Ctrl+S
	Upload script	Ctrl+U
	Show Receiver Configurations	
	Copy Configuration	
	Power Mode	•
	Reset Receiver	
1	Upgrade Receiver using Current Connection	
0	Exit	Ctrl+W

Figure 12: File -->Upgrade

3.2.3. Click 'OK' on the next pop-up window.

Â	RxControl is connected to a receiver, if you proceed this connection will be closed. Proc	ceed?
	OK Cance	el

3.2.4. Click 'Next' on the Introduction pop-up window.

1

Introduction	1				
This wizard will h	elp you to upgrade	your receiver.			
Please make sur	e to use a receiver	port that is cap	able of perfo	rming update	s.

7

Figure 14: Click Next

3.2.5. Select 'Browse' on the Select Septentrio Upgrade File window.

Select Septentrio Upgrade	File
Please 'Browse' for a valid Septentrio	Upgrade File (SUF)
SUF file:	Browse

Figure 15: Select Browse

3.2.6. Browse to the appropriate firmware .suf file:

AsteRx2e: Select ssrc1-3.3.suf

Name	Туре	Size
ssrc1-fw-3.3.0.suf	SUF File	2,110 KB

Figure 16: Upgrade '.suf' File

3.2.7. Click Next

Select S	ententrio Ungrade File
Please 'Bro	wse' for a valid Sententrin Llograde File (SLIE)
SUF file:	AsteRx2e Firmware Package v3.3.0/firmware/ssrc1-(Browse

Figure 17: Click 'Next'

3.2.8. Click Upgrade

Upgrade	
The receiver speci	ified with the settings of "1.serial" will be upgraded
with the Septentria	o Upgrade File:
Z:/PRODUCTION/F	Firmware/3.3 FW/AsteRx2e Firmware Package v3.3.0/firmware/ssrc1
Planca make su	we that PyControl is connected to a receiver part that allows weare do
Please make su	ire that excontrol is connected to a receiver port that allows upgrade
If you don't know	which receiver ports are capable of an upgrade please
If you don't know	which receiver ports are capable of an upgrade please
consult your manu	al.
If you don't know	which receiver ports are capable of an upgrade please
consult your manu	al.
It is adviced to do	ise all active connections to the receiver before upgrading.
If you don't know	which receiver ports are capable of an upgrade please
consult your manu	ial.
It is adviced to do	Inse all active connections to the receiver before upgrading.
Upgrade	Value
If you don't know	which receiver ports are capable of an upgrade please
consult your manu	al.
It is adviced to do	se all active connections to the receiver before upgrading.
Upgrade	Value
Platform	SSRC1
If you don't know	which receiver ports are capable of an upgrade please
consult your manu	ial,
It is adviced to do	ise all active connections to the receiver before upgrading,
Upgrade	Value
Platform	SSRC1
Description	Firmware (version 3.3.0 type=std) for SSRC1
If you don't know	which receiver ports are capable of an upgrade please
consult your manu	ial.
It is adviced to do	Ise all active connections to the receiver before upgrading.
Upgrade	Value
Platform	SSRC1
Description	Firmware (version 3.3.0 type=std) for SSRC1
S/N	All
If you don't know	which receiver ports are capable of an upgrade please
consult your manu	ial.
It is adviced to do	Ise all active connections to the receiver before upgrading.
Upgrade	Value
Platform	SSRC1
Description	Firmware (version 3.3.0 type=std) for SSRC1
S/N	All
If you don't know	which receiver ports are capable of an upgrade please
consult your manu	ial.
It is adviced to do	ise all active connections to the receiver before upgrading.
Upgrade	Value
Platform	SSRC1
Description	Firmware (version 3.3.0 type=std) for SSRC1
S/N	All
If you don't know	which receiver ports are capable of an upgrade please
consult your manu	ial.
It is adviced to do	Ise all active connections to the receiver before upgrading.
Upgrade	Value
Platform	SSRC1
Description	Firmware (version 3.3.0 type=std) for SSRC1
S/N	All

Figure 18: Click 'Upgrade'

3.2.9. Let the process complete: It will take about 10 minutes.

🕞 🕣 RxControl: Upgrade Receiver	😡 🕀 RuControl: Upgrade Receiver
Upgrading Opening connection port to receiver Connected to the receiver's COM3 port Rebooting receiver in Upgrade mode Uploading	Upgrading Opening connection port to receiver Connected to the receiver's COM3 port Rebooting receiver in Upgrade mode Uploading Proceedings (expected duration (Fe)
9% Uploading	Programming (remaining duration 26s).
Finish Cancel	Finish Cancel

Figure 19: Upgrading...

3.2.10. Firmware upgrade is completed when the progress bar is at 100% and the status says 'Upgrade succeeded'.

Upgrading			
Opening connection port to receiver Connected to the receiver's COM3 por Rebooting receiver in Upgrade mode Uploading Programming (expected duration 66s) Checking if upgrade succeeded The upgrade finished successfully	ť		
Upgrade succeeded.			100

Figure 20: Upgrade Succeeded

3.3. G3100-R1 and SMT888-3G Default Configuration Upload.

- 3.3.1. After the firmware upgrade is done, the GNSS receiver must be configured for operation within the G3100-R1 or SMT888-3G. The configuration is done with a script file of the commands. The final item is to upload the G3100-R1 or SMT888-3G default configuration file.
- 3.3.2. Open RxControl to the last connection.

Select Conne	ection	=
Use last connection:	1.serial	
Serial Connection:	Select 💌	
TCP/IP Connection:	Select 💌	
SBF File Connection:	Select	

Figure 21: RxControl

3.3.3. Select File \rightarrow Update Script.

File	View Communication Navigation Tools	Logging
=	Change Connection	Ctrl+N
	Manage Connections	Ctrl+M
B	Preferences	Ctrl+P
	Display Diagnostic Report	Ctrl+C
	Save MIB Description As	Ctrl+S
	Upload script	Ctrl+U
	Show Receiver Configurations	
	Copy Configuration	
	Power Mode	•
	Reset Receiver	
3	Upgrade Receiver using Current Connection	
0	Exit	Ctrl+W

Figure 22: Upload Script

3.3.4. Select appropriate file:

Name	Type	Size
PENTAX_G3100_Defau	It_Config_V3.3.txt Text Document	1 KB
PENTAX_SMT888_Defa	ult_Config_V3.3.txtText Document	1 KB

Figure 23: Select Appropriate Script

3.3.5. Click 'Yes'



Figure 24: Click 'Yes'

3.3.6. The process will complete in \sim 15 seconds.

Attribute	Description
 rxproduct 	
hwplatform	
name	SSRC1
serialnr	3003569
product	AsteRx2e_OEM
nxfullid	SN11503003569
mainboard	
type	GRB00131000AB0108
 firmware 	
version	3.3.0
interface	1.0
type	std
a bootloader	
version	2.5
type	ssn-u-boot-ssrc1
gnssfw	
version	3.3.0
type	std
 upgrfw 	
version	1.0.1
fpgaconfiguration	1
jedeccode	00B21102
 files 	
 permfile 	
permid	04100015-3003569-1
antinfo	242
format	3.0
ngs2bin	1.0
ngsid	NGS-13/09/20=466

3.3.7. Click on Help \rightarrow Receiver ID to verify all settings are correct.

Figure 25: Receiver ID

3.3.8. Upgrade complete. Disconnect GC15 communication cable from G3100-R3 or STM888-3G to enable Bluetooth communication.

*Note the antenna file in version 3.3.0 has the full NGS listing for 09/20/2013. Application software must ensure the correct antenna model is set.