Topcon GB-1000 - Receiver Board Firmware Version 3.4p2

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Topcon has recently released GNSS receiver board firmware version 3.4p2 (.zip) for GB-1000, Net-G3 and Net-G3A receivers. This firmware has been tested and accepted for use by UNAVCO's Development and Testing group.

Release notes:

User visible changes in the firmware version 3.4 p2 since version 3.4 p1

Highlights.

For G3-based boards only (GR-3, Net-G3, GMS-X, Net-G3A):

N.1 Acquisition of P1, P2 and L2C signals has been tuned.

N.2 [CE], [1E], [2E], [3E] messages have been supported.

N.3 TCP client functionality has been added to EG2 (Net-G3, Euro-160PII) and E2G3 (Net-G3A) boards.

N.4 New parameter for disabling the login prompt while establishing TCP connection has been added.

N.5 Logic for determination the correspondance between GLONASS frequency channel numbers and slot numbers has been improved.

N.6 Transformation from PZ-90.02 to WGS 84 datum has been corrected (stand-alone and code differential modes only).

N.7 Additional noise in computed coordinates has been removed (stand-alone and code differential modes only).

N.8 mmGPS has been made supported in GMS-X boards.

N.9 Internal logic of AFRM mode has been improved.

For all boards (including GR-3, Net-G3, GMS-X, Net-G3A):

A.1 Maximum number of satellites included in RTCM 3.x messages is now user-controllable.

A.2 Problem connected with the appearance of 0.5 cycles in GLONASS P2 carrier

phase observables when working at update rates of less than 2 Hz
in Paradigm1 receivers has been solved.

A.3 Problem connected with FH915 modem detection during PPP connection has been resolved.

A.4 NTRIP connection stablilty during PPP session has been improved.

A.5 For HGGDT boards: functionality for HiPer AG receivers has been implemented.

A.6 For HGGDT_OMNI boards: "omni" input mode has been made working in assigned
serial ports.

A.7 The contents of NMEA-0183 GSA message has been corrected.

A.8 The support of meteo sensors that output data in the form
$PASHS,XDR... has been added.

A.9 BINEX message type 7F-05 has been supported.

A.10 The opening of a file and starting file system initialization at the same
time could lead to the system crash. This problem has been resolved.

A.11 Recording into "slow" flash cards has been optimized.

A.12 New options (HPAG: Hiper AG) and (RADR: radar output) have been added.

A.13 For EGGDT boards: support of new model of quartz oscillator
has been implemented.

A.14 Bug with processing RTCM 3 1017 message (MAC) has been fixed.

A.15 Bug connected with carrier phase multipath reduction for GLONASS
satellites has been fixed (Paradigm1 boards only).

A.16 The problem that manifested itself by means of position degrading in
code differential mode has been resolved (Paradigm1 boards only).

0. Compatibility Notes

0.1 When HPAG option is enabled, HGGDT boards will change some of the default
values to ones required for HiPer AG.

1. Messages.

1.1 [3E]

[3E] L2C code Energy Potential {nSats+1}.

Contains array of energy potentials multiplied by 4 for each satellite
from previous [SI] message.

```
struct EnergyPotentialL2C {
  u1 sn4[nSats]; // Energy potential [dB*Hz/4]
+ u1 cs;         // Checksum
};
```

2. Parameters.

2.1 Reference station parameters

Name: /par/rtcm3/base/svm
Access: rw
Type: integer
Values: [0..127]
Default: 0
Description: Maximum number of satellites for RTCM3 GPS and GLONASS RTK mesages.

Name: /par/base/glnoffs
Access: rw
Type: integer
Values: [-90..90]
Default: 0
Description: GLONASS elevation offset for weigthning scheme on reference station side used
when number of satellites included in appropriate messages is limited by user
(See: /par/{rtcm,cmr,rtcm3}/base/svm)
Example: To make sure that GPS satellites will be inclded in
RTK messages even if they have lower elevation than GLONASS
ones send set,/par/base/glnoffs,-90.

2.2 TCP client functionality has been added

Name: /par/net/tcpc/addr
Access: rw
Type: string
Description: IP address of external TCP server

Name: /par/net/tcpc/port
Access: rw
Type: integer
Values: [0..65535]
Description: Port of external TCP server

Name: /par/net/tcpc/timeout
Access: rw
Type: integer
Values: [1..3600]
Description: Seconds to try reastablish connection until give-up if losing connection with server

Name: /par/net/tcpc/enable
Access: rw
Type: boolen
Values: [on,off]
Default: off
Description: Start/stop TCP client port

Name: /par/net/tcpc/error
Access: r
Type: integer
Values: [-11..0]
Default: 0
Description: Error of last attempt to connect to external sever
0 - No error
-2 - Socket error
-3 - No such host
-5 - Out of buffer space
-6 - Connection attempts timeout. Need to switch /par/net/tcpc/enable to off and then to on to start connection again.

Corresponding port /dev/tcpc/a has been added. For example, command "em,/dev/tcpc/a,nmea/GGA" enabling
GGA message from GNSS receiver to external TCP server.

2.3 New parameter for disable login promt while establishing TCP connection has been added

Name: /par/net/tcp/noauth
Access: rw
Type: boolen
Values: [on,off]
Default: off
Description: Setting noauth=on will disable login promt

2.5 Enable or disable outputing of L2 signal from NAVSTAR GPS system in BINEX format.

Name: /par/binex/meas/gps/l2
Access: rw
Type: boolean
Values: on | off
Default: on
Description: Enable or disable outputing of L2 signal from NAVSTAR GPS system in BINEX format.

2.6 Enable or disable outputing of L2 signal from GLONASS system in BINEX format.

Name: /par/binex/meas/glo/l2
Access: rw
Type: boolean
Values: on | off
Default: on
Description: Enable or disable outputing of L2 signal from GLONASS system in BINEX format.

2.7 Signal type in L2 slot for NAVSTAR GPS system in BINEX format.

Name: /par/binex/meas/gps/l2type
Access: rw
Type: enumerated
Values: all | p2 | l2c
Default: all
Description: Signal type in L2 slot for NAVSTAR GPS system in BINEX format.

2.8 Signal type in L2 slot for GLONASS system in BINEX format.

Name: /par/binex/meas/glo/l2type
Access: rw
Type: enumerated
Values: all | p2 | l2c
Default: all
Description: Signal type in L2 slot for GLONASS system in BINEX format.

2.9 Priority of signal type for NAVSTAR GPS system in BINEX format.

Name: /par/binex/meas/gps/l2prio

Access: rw
Type: enumerated
Values: p2 | l2c
Default: p2
Description: Priority signal type for NAVSTAR GPS system in BINEX format.

2.10 Priority of signal type for GLONASS system in BINEX format.

Name: /par/binex/meas/glo/l2prio
Access: rw
Type: enumerated
Values: p2 | l2c
Default: p2
Description: Priority signal type for GLONASS system in BINEX format.

2.11 Enabled NAVSTAR GPS systems in BINEX format.

Name: /par/binex/meas/sys/gps
Access: r
Type: boolean
Values: y
Default: y
Description: Enabled NAVSTAR GPS systems in BINEX format. .

2.12 Enabled GLONASS systems in BINEX format.

Name: /par/binex/meas/sys/glo
Access: r
Type: boolean
Values: y|n
Default: y
Description: Enabled GLONASS systems in BINEX format. .

3. Options.

3.1 Radar output

Name: RADR
Values: [0..1]
Description: Enables the radar output

3.2 HiPer AG

Name: HPAG
Values: [0..1]
Description: Enables HGGDT boards to run in HiPer AG mode
This is a bit-field option.
bit#0: enables HGGDT boards to run in HiPer AG mode

Online URL:
https://kb.unavco.org/article/topcon-gb-1000-receiver-board-firmware-version-3-4p2-669.html