NovAtel

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FIRMWARE BULLETIN

4.503 Firmware for OEM3 GPS Receivers

Firmware 4.503 is now available for all OEM3 GPSCard receivers except for GEO and Radian models. It has the following enhancements since Firmware 4.501:

- Fixed TM1 log to correctly display the week field, as Field #2 (week) and not Field #3 (seconds), of the log
- Improvements to L1 / L2 AGC Power Calculations. MiLLennium GPS Cards are now better equipped to handle increased ionospheric activity and atmospheric disturbances caused by the increasing solar activity of the approaching solar maximus.
- Decreased Sensitivity to RF Interference and Jamming. MiLLennium GPS Cards will now more accurately track L1 and L2 GPS signals through high levels of external RF interference. Examples of RF interference sources include intentional or accidental RF jamming and increased solar activity.
- Aircraft & Rapid Kinematic Application Optimisation. Enhanced satellite tracking ability under demanding high velocity and rapidly changing altitude circumstances, especially applications involving aircraft and photogrammetry.

4.501 Firmware for OEM3 GPS Receivers

Firmware 4.501 has the following enhancements since Firmware 4.50:

- New RTCM1819 commands: USE and IGNORE
- Two new status numbers, 11 (Narrow lane solution – high standard deviation) and 12 (Wide lane solution – high standard deviation), were added for Position Type 4 (RT2)

4.50 Firmware for OEM3 GPS Receivers

Firmware 4.50 has the following enhancements since Firmware 4.47:

- The tracking loops have been improved for greater stability while in dynamic situations.
- WAAS positions for most of our Millennium models receivers are now offered. This gives the availability for a WAAS differential position solution, auto assignment, and almanac save.
- It is now possible to log RTK positions or raw measurements at a rate of up to 10 Hz.
- A NovAtel RT2 can operate in RT2 or RT20 mode using broadcast Trimble CMR RTK messages in addition to the NovAtel proprietary messages. It is also now possible to transmit CMR type messages.
- MILLENSTD and MILLENRT2 models now transmit and receive RTCM type 18/19 in either RTCM version 2.1 or version 2.2.
- In addition to the magnetic variation, the receiver can automatically calculate the variation based on position.
- Quality Status Indicators show correct values for the latest NMEA specs version 2.30 (4 & 5 for NMEA). This, for example, is seen in the GPGGA log. A value of 9 has been designated for WAAS differential and should be noted that this is not in the NMEA spec at this time.
- Through software optimizations the power consumption of the receiver has decreased by approximately 5%.
- When more than six satellites are visible, satellites that drop below the ECUTOFF value will no longer be tracked. This means ECUTOFF now affects the RGEA/B log contents.

- The position averaging minimum time value is now 0.025 hrs (1.5 minutes).
- Slightly de sensitized AGC to prevent wrongful jamming detection.

4.47 Firmware for OEM3 GPS Receivers

Firmware 4.47 has the following enhancements since Firmware 4.45:

- A MiLLennium GPSCard rover receiver can operate in either RT-2 or RT-20 mode while receiving pseudorange and carrier phase data via messages form a non-NovAtel base-station receiver.
- A previously reserved bit in the Channel Tracking Status table, bit 18, is now used to indicate antenna status in a two antenna system.
- A new option, AUTO, has been added to the MAGVAR command.
- The ECUTOFF command permits a negative cut-off angle; it could be used in these situations:
  - the antenna is at high altitude, and thus can look below the horizon
  - satellites are visible below the horizon due to atmospheric refraction

4.45 Firmware for OEM3 GPS Receivers

Firmware 4.45 has the following enhancements since Firmware 4.44:

New	Obsolete	No Longer Supported	Modified
Commands:			
DIFF_PROTOCOL	ACCEPT RT20	SETCHAN	DYNAMICS
	ACCEPT DCSB	UNACCEPT	FIX HEIGHT
	RESETRT20		FREQUENCY_OUT
			UNLOGALL
Logs:			
CLMA/B	CTSA/B	CMSA/B	CLKA/B
RASA/B	DCSA/B	RNGA/B	
RGED	P20A/B	RQGA/B	
RTKOA/B	RCSA/B	SVCA/B	
	RT20A/B	SVPA/B	
	RGEC		

- All commands have been modified so that in response to an invalid command input, the response is "Invalid Command Name" rather than "Invalid Command Option" in order to be more descriptive.
- You are now able to include an optional checksum on all input commands in order to ensure that the correct command is processed.
- **Obsolete** commands and logs are ones which are still supported for backwards-compatibility; however, they are being phased out due to having been superseded by superior ones, and will disappear in the next major revision of software. On the other hand, commands and logs which are **no longer supported** were once obsolete, and have finally been deleted from the software; attempting to invoke them will result in an error message

For the best performance, users are urged to use the latest firmware available.

If you require more information on these or other NovAtel GPS products, please contact the Customer Service Department:

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