



## Firmware Release Notes

## Survey

Date: September 3<sup>rd</sup>, 2013  
Product: ProFlex 800 and ProFlex 800 CORS  
Subject: ProFlex 800 V1.9 Firmware Release

### Introduction:

This document is the firmware release note of the [ProFlex 800 V1.9](#).  
This version is minor and does not require any registration code.

### Upgrade procedure

The procedure to upgrade the receiver is the following:

- 1- Copy the file [p\\_800\\_upgrade\\_V1.9.S829Kv26.tar.bz2](#) to an USB memory key.
- 2- Make sure that there are at least 10Mb of free memory after having copied these files
- 3- Switch off the ProFlex 800
- 4- Plug the ProFlex 800 into an external power and make sure that there is also an internal battery
- 5- Connect the USB memory key to the ProFlex 800
- 6- Turn on the ProFlex 800 while keeping pressed the button 'Scroll' (during about 5 seconds)
- 7- Wait for the complete upgrade, which should take about 30 minutes.

Before upgrading the ProFlex800, it is recommended to stop the recording, the sessions and the embedded NTRIP caster.

### Firmware list and versions

General version number: [V1.9 – S829Kv26](#)

SYS: [S228](#)

GNSS: [Kv26](#)

RFS: [829](#)

BOOT LOADER: [1.1.5.9](#)

KERNEL: [2.6.19](#)

PMU: [2.31](#)

GSM: [R7.46](#)

The radio firmware compatible with the ProFlex 800 V1.9 are:

- Internal Pacific Crest ADL Foundation: 3.04 (2280, 2288 or 2300)
- External Pacific Crest ADL Vantage: 3.04 (2280, 2288 or 2300)
- External Pacific Crest ADL Vantage Pro: 3.04 (2280, 2288 or 2300)
  
- External Pacific Crest HPB: [2.58](#) or [2.42](#)
- Internal U-Link: [1.02](#)
- External U-Link: [1.03](#) (HW: AD), [1.04](#) (HW: AE) or [1.09](#) (With Connector)

The software compatible with ProFlex 800 V1.9 are:

- FAST Survey: [3.1](#)
- GNSS Solutions: [3.80](#)
- RINEX Converter: [4.4](#)
- Conf Radio: [2.3](#)
- Spectra Precision Survey Pro: [5.3](#)
- Spectra Precision Survey Office: [2.90](#)

## New features (compared to ProFlex 800 V1.3)

- **Z-Blade performances:** further improvements with GLONASS data processing (especially against 3<sup>rd</sup> party bases/networks) resulting in enhanced Z-Blade performance.
- **RTK engine tuned:** the RTK engine is fine-tuned to deliver higher fixed ambiguity solutions reliability.
- **GLONASS mode only:** the receiver is able to compute RTK position with only the GLONASS satellites and without receiving any GPS satellites.
- **GLONASS-only mode:** raw data output is now available in GLONASS only mode.
- **QZSS tracking:** the receiver is able to tracks the QZSS satellites, and they are used in position. By default, the QZSS tracking is not enabled. The new command [\\$PASHS,QZS,ON](#) allow to enable the QZSS tracking.
- **Reported SNR:** the algorithm was modified and now reported SNR appears to be more reactive and noisy in dynamic conditions.
- **Extra CMR messages:** few encoded CMR messages are now processed by RTK rover; this brings performance enhancement against CMR VRS mount points.
- **Galileo raw data:** the raw data output for E1 and E5 is enabled in ATOM RNX messages.
- **Galileo navigation data:** the receiver outputs almanac and ephemeris for Galileo satellites.
- **GPS L5:** the raw data output for GPS L5 is enabled in ATOM RNX messages.
- **New VE2 message:** this message is the same as the VEC message. It is used to output the vector corresponding to the heading computation when the mode [RTK+Heading](#) are enabled.
- **VEC/VE2 message:** the vector components are expressed in ECEF (default) or ENU. The new command [\\$PASHS,VCT](#) allows to select the type of components to be outputted.
- **SBAS manual selection:** it possible to select manually the SBAS satellite to be tracked by issuing the command [\\$PASHS,SBA,MAN](#).

- **Satellite reacquisition:** optimization of channel monitor resulting in faster GNSS L1 signal reacquisition.
- **Multipath mitigation:** further optimization of Ashtech Strobe™ technique resulted to reducing CA L1 GPS and GLONASS code multipath error.
- **MT1030,1031:** the RTCM messages 1030 and 1031 are now decoded and processed by Z-Blade.
- **New CMR messages:** some Trimble proprietary messages are now decoded and processed by Z-Blade.
- **User Message:** there is now the possibility to output a user message on any port with the command *\$PASHS,NME,USR*. This user message can be specified with the command *\$PASHS,USR,TXT* or can be a GGA message with a position entered with the command *\$PASHS,USR,POS*.
- **Antenna height:** the maximum antenna height is now 100 m. However the maximum antenna height written in raw data and broadcasted in differential messages remain 6.553 m.
- **MT1025:** The receiver is able to process the RTCM message type 1025 and compute local projected coordinates. When local projected coordinate are computed, the receiver displays easting and northing coordinates on the OLED screen.
- **\$\_GMP:** the NMEA GMP message is now supported. It allows outputting the local projected coordinates when the RTCM message type 1025 is received and processed.
- **Enable/disable a satellite:** there is now the possibility to enable or disable the tracking of a particular satellite, with the new command *\$PASHS,GPS/GLO/SBA/QZS,USE*.
- **Wrong base position at the base:** an alarm is raised at the base when the base is transmitting a position too far from the computed position.
- **Wrong base position at the rover:** an alarm is raised at the rover when the received base position is too far from the computed base position. Short term alarm can be raised when Network provider change reference data ID.
- **Delete files:** it is now possible to delete all the G-Files or all the files from the internal memory by using the user interface of the receiver (buttons and OLED screen).
- **Format memory:** it is now possible to format the internal memory by using the user interface of the receiver (buttons and OLED screen).
- **XDL Rover:** the XDL Rover external UHF radio is now supported.
- **Display:** one digit is added to the heading display.

ProFlex 800 Web Server related:

- **GPS:** with the pages *Rover Setup*, *Base Setup* and *Heading* it is now possible to disable the GPS satellites tracking in order to activate the GLONASS only mode.
- **QZSS:** with the pages *Rover Setup*, *Base Setup* and *Heading* it is now possible to enable or disable the QZSS satellites tracking.
- **Satellites:** the QZSS satellites are now displayed.
- **Russian:** the Web Server is translated into Russian language.

## Resolved Problems (compared to ProFlex 800 V1.3)

- **FNC#3124:** the command *\$PASHS,FIL,D* could reset the receiver. This command was used by FAST Survey to delete a G-File from the memory.

- **GLONASS network corrections:** by default, these corrections were ignored by the receiver in the RTK computation. They are now used (by default) with the possibility to disable them with the command `$PASHS,CPD,NET`.
- **Trimble CMR messages:** many new Trimble CMR messages are now decoded and processed by Z-Blade.
- **Received base antenna height:** the command `$PASHQ,CPD,ANT` returned 0.0 as antenna height when no antenna height was received. Now it returns empty field.
- **Reboot when no SIM card:** when the modem was in automatic power mode and there were no SIM card, the receiver could reboot automatically.
- **Base auto-detection:** the auto-detection of the base manufacturer has been improved, providing better performances against third party base
- **Antenna name with NONE:** antenna names are not checked for "NONE" radome name. Antenna name with this prefix is mapped to legacy name, which was without prefix.
- **Coordinate Transformation:** in messages MT1021 and MT1022, "Undefined area of validity" is now considered as "Global area of validity".
- **MAC correction:** MAC age is extended from 32 to 64 seconds.
- **RMS:** the RMS reported by the receiver has been improved.
- **Embedded NTRIP Caster:** the internal NTRIP\_map.log file could increase very fast (e.g. from few kB to 18MB in less than 4 mn...).
- **Embedded NTRIP Caster:** connection/disconnection has been improved.
- **File count:** when the number of files in the memory (internal or USB) was too important, the receiver could work very slowly.
- **NMEA configuration:** when the user pressed the button Configure on the page [Configuration/Data Output/NMEA messages](#) it was taking a long time before completing the configuration.
- **GGA message:** the GGA message reported wrong base ID and age of correction when the receiver worked in SBAS DGPS mode.
- **ZDA message:** the ZDA message reported a wrong day number (day+1) when the receiver worked with GLONASS as primary GNSS System.
- **Base antenna height:** the command `$PASHQ,CPD,ANT` returned a wrong antenna height when ATOM was used as differential messages.
- **Ring File Memory:** with 8 GB internal memory, the ring file memory did not work properly and slowed down the receiver (measurement was lost in session).

## Known issues

1. When you connect the ProFlex 800 to a PC with the USB cable and you delete some files of the internal memory with the Windows Explorer of the PC, the list of files returned by the `$PASHQ,FIL/FLS` commands is not correct (so are files displayed by FAST Survey). It is necessary to perform a power cycle in order to retrieve a correct list of files.
2. When the command `$PASHS,RST` is issued, the message *GNSS Board not detected* may appear sometimes. Then after few seconds, the receiver works properly.

## Recommendations

1. The GSM Modem power consumption is higher in the 3G mode than in the 2G mode. When the 2G is available, it is recommended to force the modem to the 2G mode in order to increase the autonomy of the receiver.
2. The Ring File Memory may not work properly with 8 GB internal memory in specific condition. The receiver may lose measurement in sessions when there are many files in the memory. It is recommended to disabled the Ring File Memory feature and to delete manually the files and directories when the memory is almost full.