



# **FlexPak6D™ /OEM617D™ Application Note**

## 1 Overview

This application note provides an overview of the different models available on NovAtel’s OEM617D and FlexPak6D receiver. These receiver platforms offer dual antenna ALIGN® heading functionality combined with NovAtel CORRECT™ dual frequency RTK for precise positioning and heading information in one form factor. Model descriptions, hardware set-up, and various use cases will be discussed.

## 2 Models

The FlexPak6D/OEM617D can support multi-constellation ALIGN and RTK applications. Data output rates are limited based on the constellations being used by the receiver. These limitations are as follows:

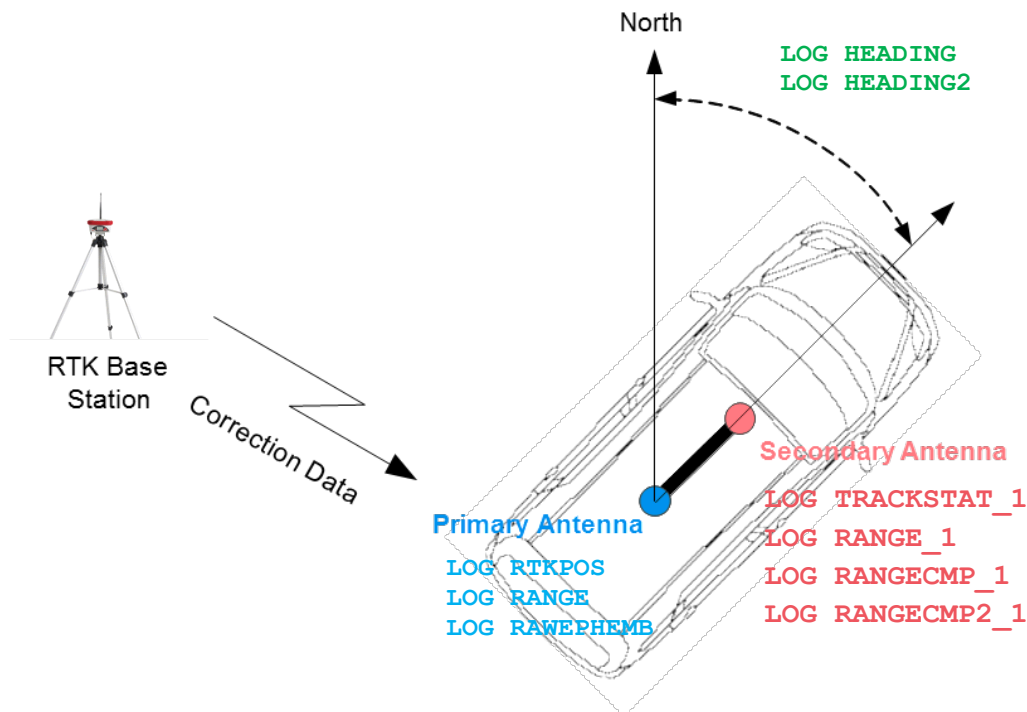
Constellation	Max Data Rate
GPS	20 Hz
GPS+GLONASS	20 Hz
GPS+BEIDOU	10 Hz
GPS+BEIDOU+GLONASS	5 Hz

There are four different firmware model designators available on the FlexPak6D/OEM617D:

Model	Position Output		Measurement Output	
	Primary Antenna	Secondary Antenna	Primary Antenna	Secondary Antenna
‘W’	Yes	No	Yes	Yes
‘X’	Yes	No	No	No
‘Y’	Yes	Yes	Yes	Yes
‘Z’	Yes	No	No	No

### 3 Model Use Cases

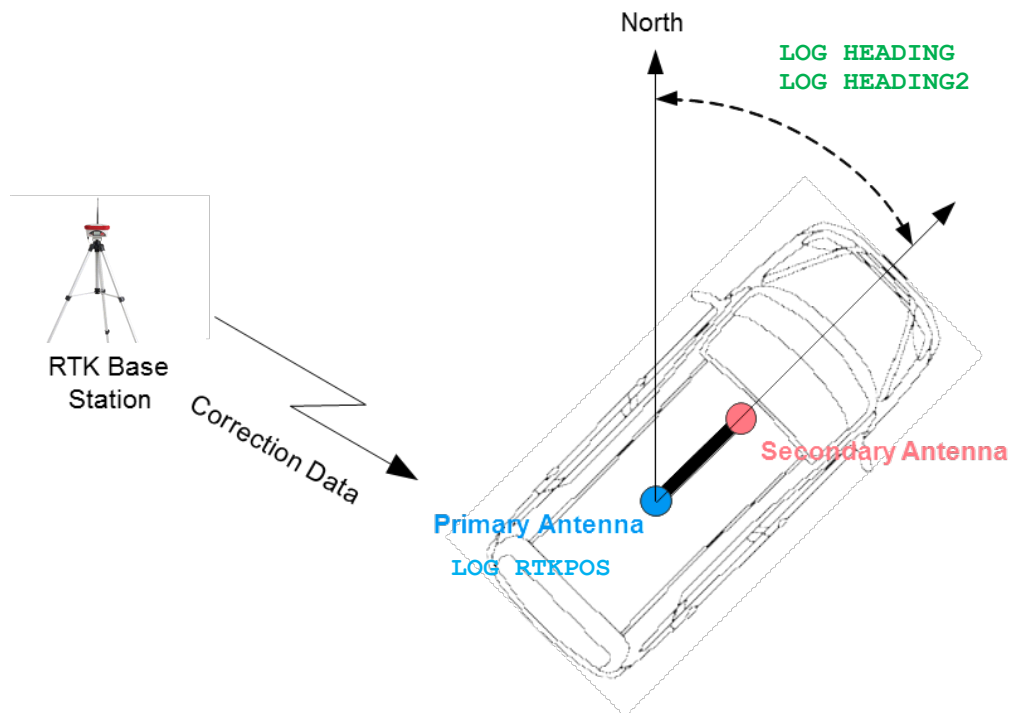
1. **'W' Model – RTK positions, Heading, and Raw Measurements:** provides RTK positions and measurements at the Primary Antenna, heading and pitch measurements referenced to the Secondary Antenna, and raw measurements at the Secondary Antenna. The 'W' model can act as a NovAtel CORRECT with RTK Base or Rover receiver.



The following ALIGN logs are available at any free port:

Log	Description	Output
HEADING HEADING2	Heading and pitch information referenced from Primary to Secondary Antenna	Primary Antenna
GPHDT	NMEA heading log	Primary Antenna
ALIGNDOP	DOP of heading computation	Primary Antenna
TRACKSTAT_1 RANGE_1 RANGECMP_1 RANGECMP2_1	Satellite tracking and range logs	Secondary Antenna

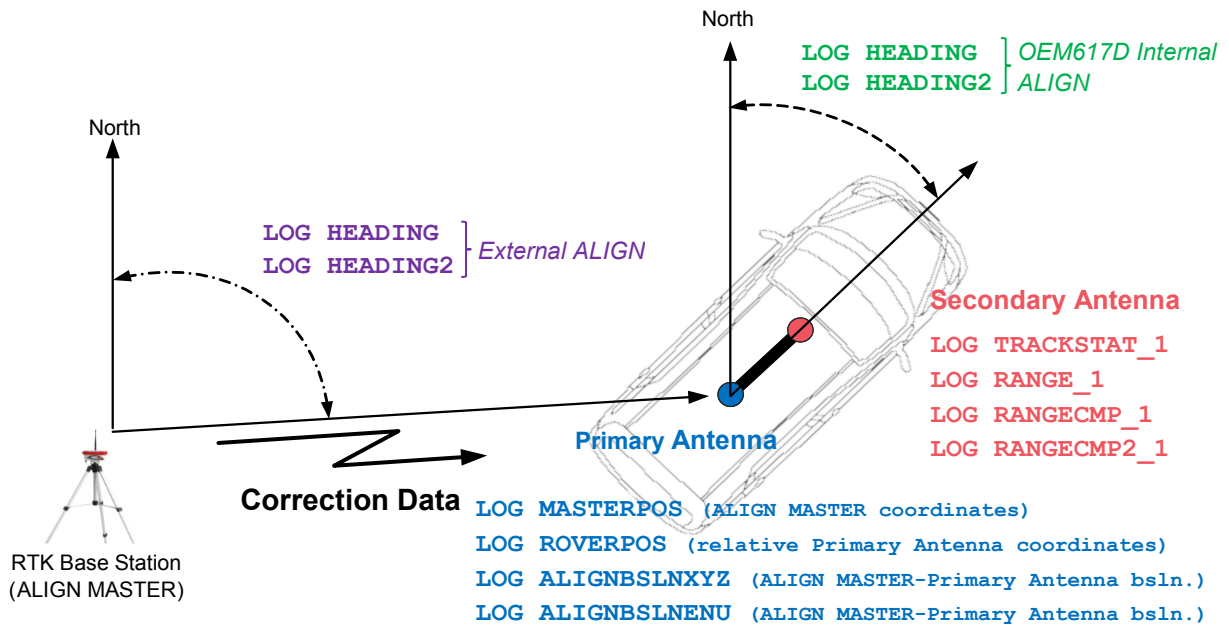
2. **'X' Model – RTK Positions and Heading:** provides RTK positions only at the Primary Antenna, and heading and pitch measurements referenced to the Secondary Antenna. There is no position or measurement data available at the Secondary Antenna. The 'X' model can act as a NovAtel Correct with RTK Rover receiver only.



The following ALIGN logs are available on any free port:

Log	Description	Output
HEADING HEADING2	Heading and pitch information referenced from Primary to Secondary Antenna	Primary Antenna
GPHDT	NMEA heading log	Primary Antenna
ALIGNDOP	DOP of heading computation	Primary Antenna

3. **'Y' Model – RTK positions, ALIGN Relative Positioning/Heading, and Raw Measurements:** provides heading and pitch measurements referenced to the Secondary Antenna, heading and pitch measurements referenced to the external ALIGN Master, precise relative positioning, and relative baseline information.

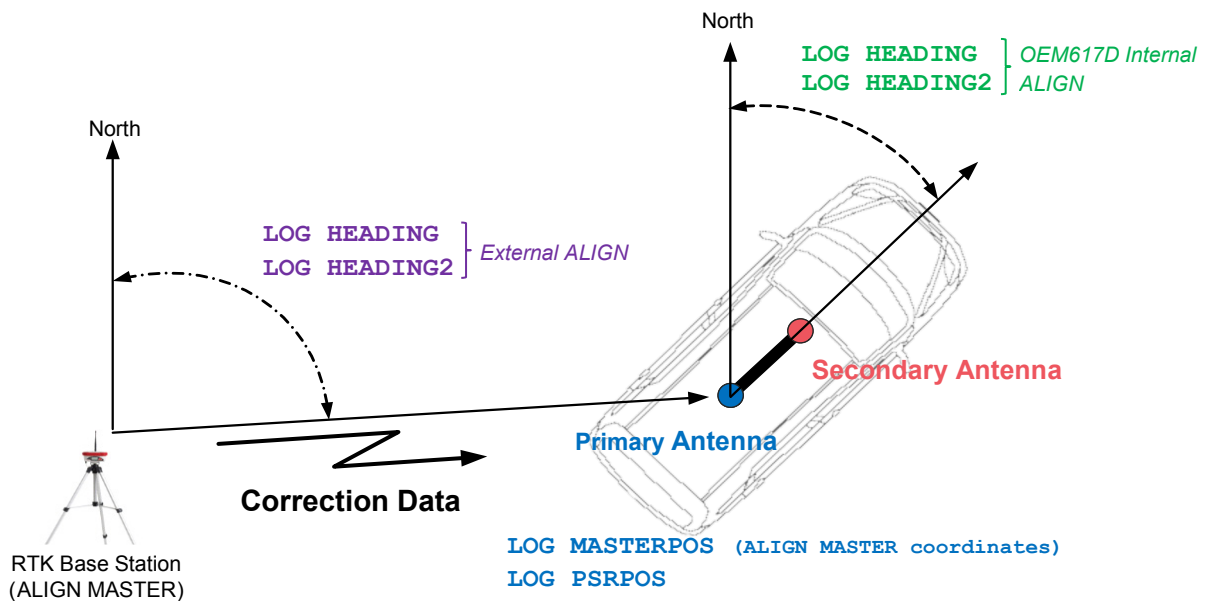


The following ALIGN logs are available at any free port:

Log	Description	Output
MASTERPOS	Position of ALIGN Master	Primary Antenna
ROVERPOS	Position at the Primary Antenna relative to ALIGN Master	Primary Antenna
ALIGNBSLNXYZ	XYZ baseline between ALIGN Master and Primary Antenna	Primary Antenna
ALIGNBSLENU	Easting, Northing, Up baseline between ALIGN Master and Primary Antenna	Primary Antenna
HEADING HEADING2	Heading and pitch information referenced from Primary to Secondary Antenna	Primary Antenna
	Heading and pitch information referenced from ALIGN Master to Primary Antenna	Primary Antenna
GPHDT	NMEA heading log	Primary Antenna
ALIGNDOP	DOP of heading computation	Primary Antenna

TRACKSTAT_1 RANGE_1 RANGECMP_1 RANGECMP2_1	Satellite tracking and range logs	Secondary Antenna
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4. **'Z' Model – Heading:** provides Single point or WAAS positions at the Primary Antenna, heading and pitch measurements referenced from Primary to Secondary Antenna, and heading and pitch measurements referenced to an ALIGN Master receiver. There is no position or measurement data available at the Secondary Antenna.



The following ALIGN logs are available at any free port:

Log	Description	Output
MASTERPOS	Position of ALIGN Master	Primary Antenna
HEADING HEADING2	Heading and pitch information referenced from Primary to Secondary Antenna	Primary Antenna
	Heading and pitch information referenced from ALIGN Master to Primary Antenna	Primary Antenna
GPHDT	NMEA heading log	Primary Antenna
ALIGNDOP	DOP of heading computation	Primary Antenna

## 4 Commands and Logs

Command/Log	Description
DUALANTENNAALIGN	Configure the ALIGN operation rates
ALIGNAUTOMATION	Configure the ALIGN plug and play feature. This command should only be issued at the ALIGN Rover
GENERATEALIGNCORRECTIONS	Configure the ALIGN Master receiver
SETROVERID	Sets the Rover ID output in ROVERPOS, HEADING2, ALIGNBSLNXYZ and ALIGNBSLNENU logs
DGPSTXID	Sets receiver station ID
ALIGNBSLNENU	Outputs Easting, Northing, Up baseline between ALIGN Master and Primary Antenna
ALIGNBSLNXYZ	Outputs XYZ baseline between ALIGN Master and Primary Antenna
MASTERPOS	Outputs ALIGN Master position
ROVERPOS	Outputs ALIGN Rover position
HEADING	Outputs the pitch and angle from True North of the base to rover vector in a clockwise direction
HEADING2	Outputs the pitch and angle from True North of the base to rover vector in a clockwise direction with an additional Rover ID field
GPHDT	NMEA heading log
ALIGNDOP	DOP of heading computation