

# POS MV v5 RTK Options (f/m 7.42, POSview 7.41)

POS MV is designed to use the optimal GPS/GNSS source of aiding to ensure the most robust georeferencing in any given conditions. Consequently, there are two main methods of applying RTK observables in the system. Both methods are detailed in that document.

Note that these two methods should not be combined, but should be employed as appropriate to conditions and available inputs.

# COM Port Input (Tightly coupled mode)

This method provides optimal performance in areas of **reduced GPS coverage**. Examples of such scenarios are when operating inshore near bridges, buildings, large vessels and other structures which might impede signal reception.

The RTK observables are input on any COM PORT (1-4)

Format supported -RTCM v2.x -CMR/CMR+

### **POS View Configuration**

The COM ports configuration is done via *Settings/Input/Output Ports*, where the appropriate communication parameters and Base GPS input type may be set:

Baud Rate 9600 💌		Parity (● None (○ Even (○ Odd	Data Bits C 7 Bits ( 8 Bits	Stop Bits ( 1 Bit C 2 Bits	Flow Control None Hardware XON/XOFF
Output Select	NMEA Output SGPGST SGPGA SGPHDT SGPZDA SGPVTG SPASHR	Tall	late Rate	Roll Positive Se Port Up Pitch Positive S Bow Up Heave Positive Heave Up	ense C Starboard Up Sense C Stern Up Sense C Heave Down
Input Select	Base GPS Input				
Base 1 GPS 💌	Input Type	RTCM 18/19 c	r RTCM 2.3 💌	RTC	M v2.x
	Line Serial C	Modem	odem Settings	- CMR	/CMR+

\$xxGGA output can also be configured on the same COM port to enable operation with a VRS network. Often such services require the user to send their current position in order that the correct virtual observables can be computed and broadcast.



The number and type of observables received can be monitored under Diagnostics | Base GPS.

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NB: During initial setting to work, and before GAMS has been calibrated, the NAV status may remain in Float RTK. "Fixed" mode will appear once the vessel is in dynamic conditions and /or GAMS is calibrated and online.

If POSPac data is logged, this method allows the interpolation of RTK observables to create an "autonomous" IAPPK solution using POSPac MMS v5.4 or higher. In this way, outages and latency issues that may affect RTK can be overcome. Please contact Applanix for further details on this POSPac methodology.

# **GNSS1** Port Input (Close Coupled Mode)

Input via the GNSS1 port provides best performance when operating farther from the GPS / GNSS reference station. Typically this would be the most appropriate method of operations when **more than 15-20 km** (atmospheric conditions dependent) from the reference station. This mode also provides **full GNSS support**, using both GPS and GLONASS signals.

#### **Format supported**

-RTCM v2.x -RTCM v3.x -CMR/CMR+ -CMRx

NB: CMRx is supported by POS MV but for systems received before April 2013, the GNSS f/m requires an update and an option needs to be turned on. If that case applies to you please contact the Marine Support (<u>marinesupport@applanix.com</u>) with the screen grabs of the view/statistics window.

#### **GNSS1** Port

In POS MV v4, the GNSS1 port is accessed via a dedicated DB9 connector on the PCS. In POS MV v5, the GNSS1 port is accessed by configuring COM3 appropriately (see below for details).



## **POS View Configuration**

The GNSS port configuration is partly achieved via Settings/Installation/GPS Receiver, where the appropriate communication parameters can be set.

GNSS Receiver Configuration			X	
Primary GNSS Receiver Sec Primary GNSS GNSS Output Rate 1 Hz	ondary GNSS R GNSS 1 Port- Baud Rate	Receiver		
Auto Configuration Enabled Disabled	Parity None C Even C Odd	Data Bits C 7 Bits 8 Bits	Stop Bits 1 Bit C 2 Bits	
Ok Close Apply				

In POS MV v5 systems, the GNSS1 port is mappable through COM3. This should be configured by selecting the GNSS1 option from the Output / Input Select drop down menu in the *Settings*/*Input/Output Port*/*COM3* window. The appropriate communication parameters should be set correctly here as well.

Baud Rate	Interface	Parity	Data Bits	Stop Bits	Flow Control
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The GNSS1 port implements autosensing capabilities and will therefore recognize and apply the RTK or differential data without further user input.

POS MV Nav Status will switch to "Pri Fixed", regardless of vessel dynamics or GAMS status. In clear sky conditions fixed solution status should appear nearly instantaneously.



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	<u>File S</u> ettings Logging <u>V</u> iew <u>T</u> ools <u>D</u> iagnostics	s GNSS Data
	M 🚳 🔯 🚺	Primary Receiver Secondary Receiver Au
		Mode Narrow Lane RTK
	⊂Status	HDOP 1.106
	oldido	VDOP 1.460
	POS Mode Nav: Degraded	Geoidal Separation (m) 49.653
	IMU Status OK	Timing
	Nav Status Pri. Fixed	GPS/OTC Week Number 1660 GPS Time Offset (sec) 15.000
	GAMS Not Ready	Nav Message Latency (sec) 0.020
	Dick Statue Idle	Differential GPS
		Reference Station 319
	Disk Usage 0%	Correction Latency (sec) 1.000

Under View/GNSS data the Primary receiver status will report Narrow Lane or Wide Lane RTK as appropriate.