

WinFrog Device Group:	GPS
Device Name/Model:	FUGRO RVM
Device Manufacturer:	Fugro N.V. Veurse Achterweg 10 P.O. Box 41, 2260 AA Leidschendam tel +31 (0)70 3111422 fax +31 (0)70 320 2703 E-mail: holding@fugro.nl
Device Data String(s) Output to WinFrog:	Item, Code, Time, Latitude, Latitude Direction, Longitude, Longitude Direction, Altitude, Geoidal Undulation, Status Item, EDOP, NDOP, VDOP, prn#
WinFrog Data String(s) Output to Device:	
WinFrog Data Item(s) and their RAW record:	POSITION 303

DEVICE DESCRIPTION:

The Fugro RVM (Remote Vessel Monitoring) device allows you to track up to 8 remote vessels at one time in WinFrog. Each remote vessel is connected via a telemetry network with a unique code assigned to each unit installed on each vessel. The Master unit, which is interfaced directly with WinFrog, collects the positional data from the remote units. WinFrog then polls the Master unit for these position data updates.

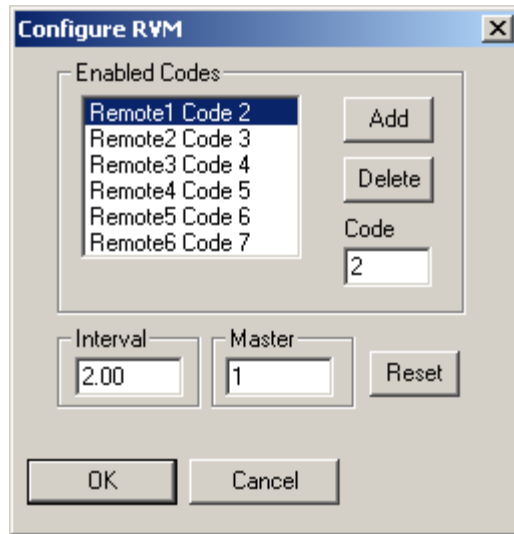
DEVICE CONFIGURATION INSTRUCTIONS

WINFROG I/O DEVICES > EDIT I/O:

Serial
Configurable Parameters

WINFROG I/O DEVICES > CONFIGURE DEVICE:

This device must be configured at the I/O Device window level. In the I/O Devices window, click the FUGRO RVM device to select it, then right-click and select Configure Device. The Configure RVM dialog box appears, as seen below.



Use this dialog to assign the code numbers for the Master unit and the units on the Remote vessels (maximum of 8) that are to be monitored via the telemetry network. In the example shown above, the Master unit has been assigned the code 1. Note that the Master unit cannot be used for positional updates, rather it collects positional data from all of the remote units on the telemetry network and sends this information to WinFrog.

To assign or change the codes for each remote, highlight the particular remote in the **Enabled Codes** list, enter the desired code number in the **Code** field, and then click either **OK** or on another entry in the Enabled Codes list.

You can change the update interval by entering the desired value, in seconds, in the Interval dialog box. In the above example WinFrog would poll the Master unit for Remote vessel data every 2.00 seconds.

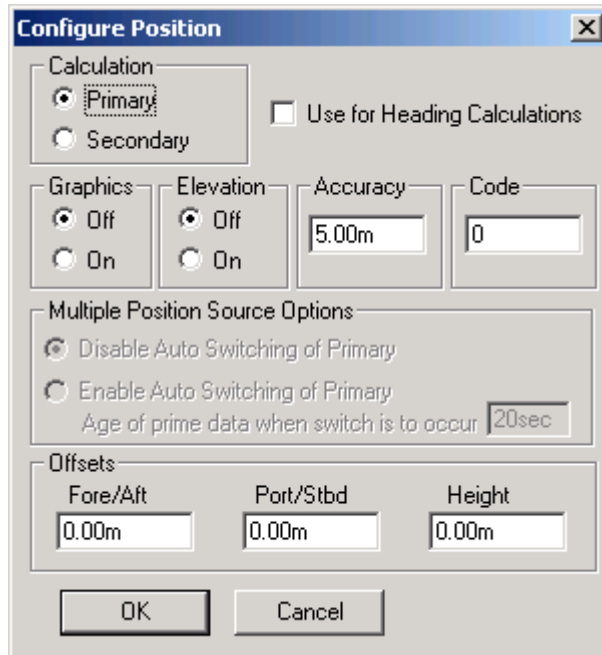
WINFROG VEHICLE > CONFIGURE VEHICLE DEVICES > DEVICE DATA ITEM > EDIT:

Adding the FUGRO RVM device creates the POSITION data item. Once the data item has been added to the vehicle, it must be edited to suit the application.

In order to monitor multiple remote vessels, each vessel must be created in WinFrog. See chapter 6 of the WinFrog User's Guide for details on adding and configuring vessels in WinFrog. The GPS, FUGRO RVM, POSITION data item must be added to each vehicle's device list and the code that was assigned in the Configure RVM dialog box (see above) must be entered in the Code field of the Configure Position dialog box (see below).

Data item: GPS, FUGRO RVM, POSITION

Highlight the GPS, FUGRO RVM, POSITION data item in the vehicle's device list, then select the Edit button. The Configure Position dialog box appears as seen below.



Calculation:

Set the Calculation selection to Primary or Secondary. Devices set to Primary calculation are used to provide a vessel position. Note that more than one Primary positioning device can be added to a vehicle's device list; data from these devices will be combined in a weighted mean solution. (See the paragraph on Accuracy below for more on the weighting of Primary calculation device data).

If the Calculation type is set to Secondary, WinFrog will simply monitor the device's data. WinFrog will not use the data from a secondary device in the final solution of the vehicle's position.

If auto switching is enabled (see below) a secondary may automatically become a primary should all the primaries fail.

Use For Heading Calculations:

Select this checkbox if the device is to be used in conjunction with another GPS device for determination of the heading of the vessel. The vessel's heading will be derived by the inverse of the GPS antenna coordinates.

Graphics:

If On is selected, a labeled square will show the raw (offset but unfiltered) location of the GPS antenna in the Graphics and Bird's Eye windows. This provides a means of comparing raw device and filtered vehicle positions.

Elevation:

Setting the Elevation option to On will result in the elevation determined by GPS to be used as the elevation of the vessel referencing the GPS (WGS84) Ellipsoid. The sounder data recorded in WinFrog's .RAW data files will not be affected.

This option is meant only for those applications where there is no fixed vertical reference (i.e. mean sea level), such as on a river. For acceptable results, this option requires the use of high accuracy "RTK" GPS data.

Accuracy:

The Accuracy value entered provides WinFrog with the expected accuracy of the position from this device. This value is used in the weighting of this device compared to other positioning devices that may be added to the vehicle's device list. The smaller the value entered, the more accurate it is considered to be, and hence the more weight that will be applied to the device's data. The Accuracy parameter can be changed from the suggested values; changes should be made with caution, however, as they will affect the final filtered position of the vehicle.

Code:

Set the Code to coincide with the code number assigned to the remote vessel in the Configure RVM dialog box (I/O Devices > Configure Device). Using the above example, if this data item is assigned to remote vessel 1 the code entry here would be 2.

For all other applications, the Code entry must be set to 0.

Multiple Position Source Options:

This group box allows you to enable automatic switching of a secondary to primary should the data from all POSITION and PSEUDORANGE data items set to primary timeout. The **Age** entered is the length of time that the secondary will wait in the absence of data from all primaries, before taking over as primary. This age is only entered for the secondary.

For example, if the POSITION or PSEUDORANGE data items associated with two GPS receivers were set to primary and the POSITION or PSEUDORANGE data item of a third GPS receiver was set to secondary, both primary GPS receivers must time out before the secondary will become the primary. Upon the recovery of either of the original primary data items, the original primary will be reset to primary and the original secondary will be reset to secondary.

Note for the auto switching feature to work, there must be at least one primary and one secondary enabled. For example, given two data items, one set to primary with the auto switching disabled and the other set to secondary with the auto switching enabled, if the primary fails the secondary is not set to primary and the vehicle positioning stops until the primary data item recovers.

Disable Auto Switching of Primary:

If this data item is not to be involved in the auto switching process, check this box. As stated above, this data item is then not involved in the auto switching process in any way.

Enable Auto Switching of Primary:

If this data item is to be involved in the auto switching process, either as a primary or a secondary, check this box. If set to secondary, enter the Age of data the primary data items must reach before this secondary is switched to act as the primary.

In order for this option to be effective you must have at least one primary and one secondary. If there are multiple secondary data items that are enabled for switching, the first one to receive data will become primary.

Note: This option is not enabled unless WinFrog determines that there is more than one POSITION and/or PSEUDORANGE data item associated with the respective vehicle. The exception to this is the case of a WinFrog with the Remote module operating as a Controlled Remote being configured remotely from the Controller. In this case, the option is always enabled even though it may not be applicable. The operator must be aware of what is available on the Remote and configure the data item accordingly.

Note: This option is not available in the WinFrog Remote package.

Note: This option is not available for USBL based POSITION data items.

Offsets:

Offsets are required to associate the GPS antenna position with the vessel's Common Reference Point (CRP). The offsets are applied *from* CRP (of the vehicle) *to* the GPS antenna location.

Forward Offsets are entered as positive values.

Aft Offsets are entered as negative values.

Starboard Offsets are entered as positive values.

Port Offsets are entered as negative values.

Height Offsets are positive upwards. (It is suggested that the vessel's Height origin should be at the water line.)

TELGRAM SPECIFICATION:

Each unit on each vessel will transmit a message pair. Each message pair for each unit is sent together (i.e. unit 1 message1,message2; unit 2 message1,message2, etc.)

The message formats are:

Message 1:

Field	Item
1	Code (unit number)
3	Time of position (s)
4	Latitude (ddmm.mmmmmm)
5	Latitude direction
6	Longitude (dddmm.mmmmmm)
7	Longitude direction
8	Altitude
9	Geoidal Undulation
12	Status

Message 2:

Field	Item
3	EDOP
4	NDOP
5	VDOP
6-18	prn #