

# 1. Nereus ROV Device

Revision History			
Revision	Date	Author	Comments
01A	Nov 21, 2024	G Wright	Initial release

#### 1.1 Overview

The Nereus ROV device supports input from and output to the Nereus ROV. Input and output messages are comma delimited, with the additional condition that the fields in the output message are fixed length and require leading zeros.

### 1.2 Message Validation

The input message is tested for valid ASCII alpha and numeric characters.

#### 1.3 Add Device

- 1. From the Explorer view or Setup ribbon, select Devices to display the IO Devices
- 2. From the dropdown list, select Nereus ROV and click the + button



3. Configure the Device IO parameters and apply them accordingly (refer to the Devices section of the User Guide)

### 1.4 Configure Device

 Access the Configure Nereus ROV view by either right mouse clicking on the Nereus ROV device in the list and selecting Device Settings or selecting it in the list and clicking the Configure device icon () in the Device view tool bar





Figure 1 Nereus ROV Input Configuration

- 2. The configuration of the input and output are addressed on separate tabs
- 3. Input
  - a. Input latency:
    - i. If the latency of the input message is known, enter it here, otherwise leave this at 0
  - b. The units used for inputs to NavView are configured on the ROV system by the ROV operator, NavView supports configuring this device to match the data accordingly
    - i. From the respective dropdown list, select the units
  - c. Figure 1 is an example of the settings
- 4. Output
  - a. NavView supports the selection of the data source for each output item to provide the greatest flexibility and the units to use for the output
    - i. For each output type, the respective dropdown list presents all available data sources of that type
    - ii. For each output type selected, the respective dropdown list presents the appropriate unit options
    - iii. From the respective dropdown lists, select the data source and units to use
    - iv. Even though the output is comma delimited, each field is fixed length and includes leading zeros
    - v. If the option None is selected for a data source, the respective field in the output message is al zeros
  - b. Figure 2 is an example of appropriate data source selections and units



Configure Nereus Plow — 🗆 🗙			
Input Output			
Ship Position:	Vehicles/CS Responder/Offsets/ROV LARS/Geo2D (WGS 84-4326) (Working)	<b>•</b>	
Ship Speed:	Vehicles/CS Responder/Linear Velocity	<b>~</b>	
Speed Output Unit:	knots	•	
Ship Heading:	Vehicles/CS Responder/Heading	•	
Water Depth:	Devices/EA600/Telegram 1/DistanceObservation(D1)	*	
Depth Output Unit:	metre	-	
Tool Position:	Vehicles/Nereus ROV/Offsets/JET LEGS/Geo2D (WGS 84-4326) (Working)	*	
Tool Depth:	Vehicles/Nereus ROV/Offsets/JET LEGS/Elevation (MSL height-5714)	*	
ROV Heading:	Vehicles/CS Responder/Heading	•	
USBL Source:	Devices/HiPAP USBL/PSIMSSB/USBL	*	
USBL Output Unit:	metre	-	
LCE Tension:	Devices/Honeywell Experion/Inputs/LCEDyn_Ten	*	
Tension Output Unit:	metric ton	-	
KP:	Guidance/NEREUS to ROUTE/Geodesic/Station	*	
KP Output Unit:	metre	-	
	OK Car	ncel	

Figure 2 Nereus ROV Output Configuration

- c. The output message is terminated with <CR><LF>
- 5. Once configuration is complete click OK

### 1.5 Monitoring

- 1. Open a Device Status view (see the Devices section in the User Guide)
- 2. ASCII Decode Tab



Figure 3 Nereus ROV Device Status View - ASCII Decode Tab

- a. Rx Packets/Second: Displays the input rate of the received messages
- b. Tx Packets/Second: Displays the output rate of transmitted messages
- c. Rx Overflow: Displays the number of bytes in the case of an input buffer flow
- d. Scrolling list of received (green) and transmitted (blue) messages

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- 3. Data Tab
  - a. Displays the decoded and published data

Nereus Rov					
ASCII Decode Data					
Nereus	ŧ.				
	✓ Plow		Nereus Rov		
Speed	Burial Depth	9,990 cm			
New-Travel	Heading	270.00°	ASCII Decode Data		
Total-Travel	New Travel	0 m	Vereus	Heading	
Burial-Depth	Pitch	0.00°	Umbilical-Out	Heading	270.00°
Pitch-Roll	Roll	0.00°	Umbilical-Tension	σHeading	
Sub-Depth	Speed	0 m/h	Speed		
Heading	Sub Depth	-9,450 dm	New-Travel		
	Total Travel	0 m	Total-Travel		
	✓ Umbilical		Burial-Depth		
	Umbilical Pavout	-27 m	Pitch-Roll		
	Limbilical Tansion	22 <del>+f</del>	Sub-Depth		
	omblicar tension	22 U	Heading		

Figure 4 Nereus ROV Device Status View – Decoded and Published Data

- b. Selecting the top of the tree (e.g. Nereus) displays the decoded data in the right panel in the units and number of decimal places expected based on the documentation provided
- c. Expanding the branches in the tree (e.g., Umbilical Out, Umbilical Tension, etc.) lists the respective observation that are published and available for use elsewhere in NavView such as Text views and Data Recording

### 1.6 Input Telegram

Nereus ROV Message to NavView			
Field	Format	Description	
1		Unknown	
2		Unknown	
3		ROV umbilical out (m)	
4		ROV umbilical tension (tonnes)	
5		ROV speed	
6		ROV new travel (m)	
7		ROV total travel	
8		Burial depth (mm)	
9		ROV roll (degrees)	
10		ROV pitch (degrees)	
11		Unknown	
12		ROV depth (m)	
13		ROV heading (degrees)	
25	<cr><lf></lf></cr>	Carriage return Line feed	



## 1.7 Output Telegram

NavView to Nereus ROV Message			
Field	Format	Description	
1	dd.MM'mmm.H <sup>1</sup>	Ship latitude	
2	ddd.M'mmm. H <sup>2</sup>	Ship longitude	
3	dddd	Ship speed * 10	
4	dddd	ROV reference vehicle (ship) heading * 10	
5	ddddd	Water depth	
6	dd.MM'mmm.H <sup>1</sup>	ROV jetting tool latitude	
7	ddd.M'mmm. H <sup>2</sup>	ROV jetting tool longitude	
8	ddddd	ROV jetting tool depth	
9	ddd	Vehicle reference – ROV reference vehicle heading <sup>3</sup>	
10	ddddd	USBL X	
11	ddddd	USBL Y	
12	ddddd	USBL Z	
13	ddddd	LCE tension	
14	dddddd	ROV jetting tool KP	
15	<cr><lf></lf></cr>	Carriage Return Line Feed	

Notes:

- 1. Ship latitude format where:
  - dd Degrees w/ leading zeros
  - MM Minutes w/ leading zeros
  - mmm Decimal of minutes with trailing zeros
  - H Hemisphere, north = N, south = S
  - Example N 3° 8.120' would be formatted to 03.08'.120.N
- 2. Ship latitude and longitude format where:
  - ddd Degrees w/ leading zeros
  - MM Minutes w/ leading zeros
  - mmm Decimal of minutes with trailing zeros
  - H Hemisphere, west = W, east = E
  - Example W 33° 8.120' would be formatted to 033.08'.120.W
- 3. This term is not defined in available documentation, the user can select the heading data source as deemed appropriate, but no math is performed, and the selected heading is output as is.