WinFrog Device Group:	COUNTER
Device Name/Model:	Generic DGH
Device Manufacturer:	DGH Corporation http://www.dghcorp.com/aboutus.asp
Device Data String(s) Output to WinFrog:	Refer to DGH manual (d1000.pdf).
WinFrog Data String(s) Output to Device:	Configuration dependent
WinFrog Data Item(s) and their RAW record:	COUNT 492

DEVICE DESCRIPTION:

This is a driver designed to read data from various models of DGH sensors. It can be configured to read count, speed and/or tension data. The configuration parameters are designed to be flexible to allow you to configure the settings to instruct WinFrog how to use the incoming data.
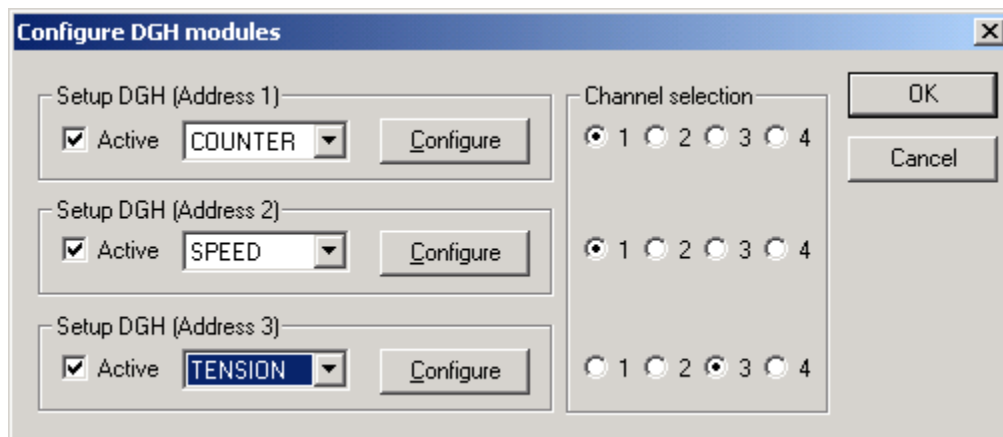

DEVICE CONFIGURATION INSTRUCTIONS

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 device name to select it, then right-click and select Configure Device. The Configure DGH modules dialog box appears, as seen below.

This dialog box consists of three sections, each of which need to be configured for the proper input of the three data types, Counter, Speed and Tension, sent from the DGH counter. The Channels assigned to each data type instructs WinFrog as to how to use the data in the telegram. Channel 1 is used for product (e.g., telephone) cable data and Channel 2 is used for tow cable data. The data from these two channels are available to be used in other WinFrog functions such as WinFrog's Cable Model Extension Module, a towed vehicle model etc. Channels 3 & 4 are used to log the selected data to the raw files only.

COUNTER

Selecting COUNTER from the drop down menu and clicking on the Configure button opens the Configure Counter Settings for DGH Module dialog box as seen below.
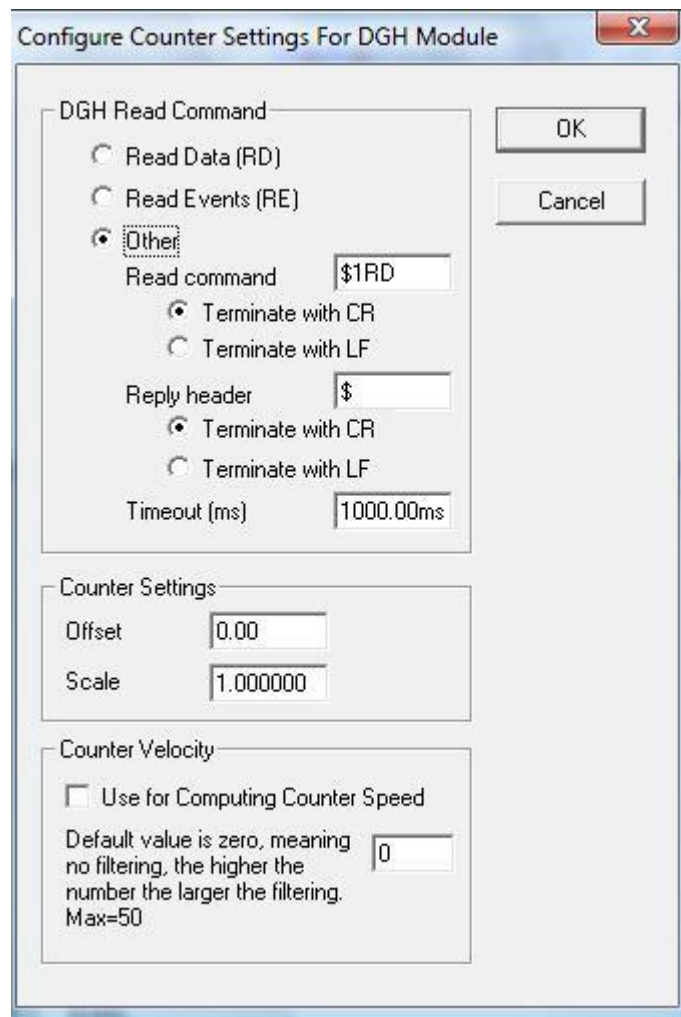
DGH Read Command
The command used to query the DGH module can be configured to use Read Data (RD) or Read Events (RE) commands. The Read Data option reads the data input into the DGH module directly. The Read Events option reads the number of events that have been accumulated in the Events Counter. For more information on these

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two functions you should refer to DGH documentation entitled d1000.pdf. Note that the direction of the cable deployment wheel (payout or pickup) is not determined from the counter data alone. The counter data is used in conjunction with the speed data to determine whether the cable is being deployed or recovered.

The format of these commands is "#nRD$^{C}_{R}{}^{L}_{F}$" and "#nRE$^{C}_{R}{}^{L}_{F}$" respectively where the n is the DGH address to interrogate. The address is based on which of the Setup DGH (Address n) panels the Configure button that was clicked was in. The response starts with a header that duplicates the query command followed by the actual data, e.g. the response to "#1RD$^{C}_{R}{}^{L}_{F}$" would be "#1RDdddd$^{C}_{R}{}^{L}_{F}$" where dddd is the actual data. The response may be terminated with $^{C}_{R}$ or $^{C}_{R}{}^{L}_{F}$. The queries are transmitted in sequence at 250ms intervals to allow for the module to respond.

In addition, the operator can select Other and configure the command and the terminating character ($^{C}_{R}$ or $^{L}_{F)}$) to use to query the DGH module, and the header and the terminating character ($^{C}_{R}$ or $^{L}_{F)}$) to expect in the response. The data is to follow immediately after the header. This option includes setting the time to wait for the reply and how the query and response are terminated.

Counter Settings
If you determine that the incoming cable count is incorrect, possibly due to a mis-calibration of the counter itself, a compensating Scale Factor can be entered here. The Scale Factor entry can also be used to convert the incoming units to the desired units. Also an offset value for the cable count can be entered in the appropriate dialog.

Counter Velocity
You also have the option to use the Counter data to compute the cable payout speed. Keep in mind that the more filtering that is applied to the raw cable data the less responsive this device will be to real time changes. It should be noted that this option should only be used if the cable speed data is not available directly from the DGH module itself.

SPEED

Selecting SPEED from the drop down menu and clicking on the Configure button opens the Configure SPEED Settings for DGH Module dialog box as seen below.
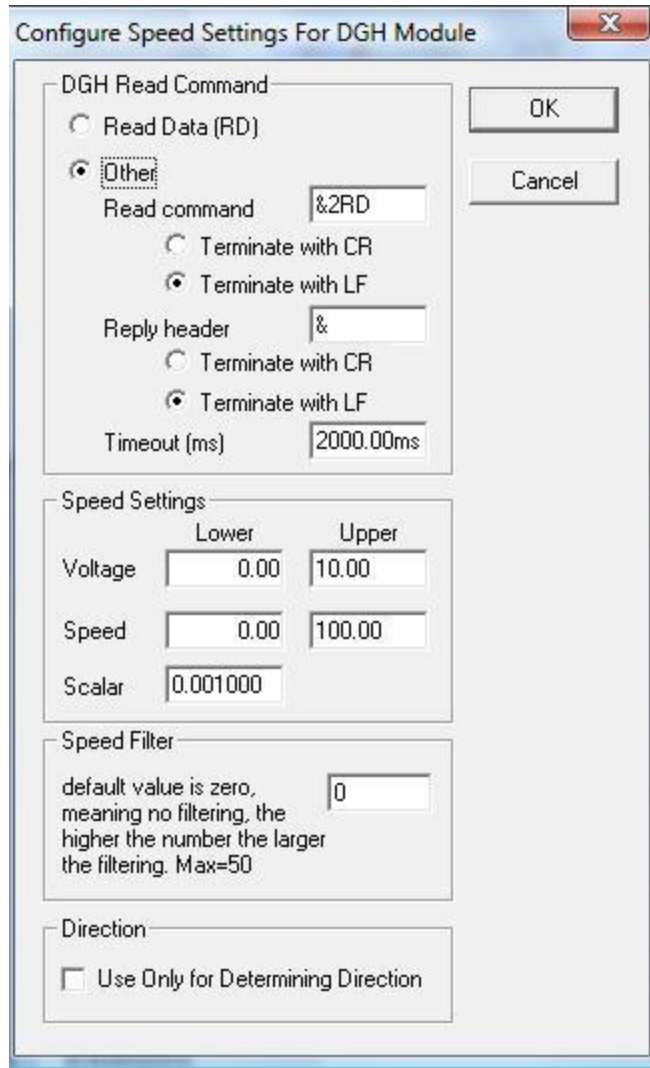
DGH Read Command
As with the Counter setup, the command used to query the DGH module can be configured to use Read Data (RD) or be operator configurable. See the COUNTER section above for details.

Note: The Read Event option is not supported for speed.

Speed Settings
The data received from the DGH module for speed is a voltage level. This device works as an analog to digital converter to convert observed voltages to an actual speed value in meters per minute. Enter the Lower and Upper values for the Voltage and the corresponding Lower and Upper values for the Speed. These limits should be determined at the start of each project by the operators of the DGH equipment.

A Scalar value can also be entered. The Scalar is used to multiply the input voltage value before being used in the interpolation to determine a speed value. This could

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be used as a compensating factor for any errors in calibrations or to convert the incoming speed units to the desired units.

Speed Filter
You can also make use of the speed filter in order to smooth the cable payout speed data. Use of such a filter helps to smooth the cable speed data by eliminating instantaneous spikes giving a general trend. Keep in mind that the larger the value entered the more filtering is applied and the less responsive the filtered values will be to changes in real time cable speed.

Direction
Enabling the Direction option will instruct WinFrog to only use the cable speed data to determine the direction of the cable (i.e. positive speed = cable out, negative speed = cable in). Leaving this option unchecked will allow WinFrog to use the cable speed data for determining the cable direction as well as to use it for other purposes, for example in cable management software.

TENSION

Selecting TENSION from the drop down menu and clicking on the Configure button opens the Configure TENSION Settings for DGH Module dialog box as seen below.

DGH Read Command

As with the Counter setup, the command used to query the DGH module can be configured to use Read Data (RD) or be operator configurable. See the COUNTER section above for details.

Note: The Read Event option is not supported for tension.

Tension Settings

The data received from the DGH module for tension is a voltage level. This device works as an analog to digital converter to convert observed voltages to an actual tension value in Tonnes. Enter the Lower and Upper values for the Voltage and the corresponding Lower and Upper values for the Tension. These limits should be determined at the start of each project by the operators of the DGH equipment.

A Scalar value can also be entered. The Scalar is used to multiply the input voltage value before being used in the interpolation to determine a tension value. This could be used as a compensating factor for any errors in calibrations or to convert the incoming tension units to the desired units.

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

Adding the Generic DGH device creates the COUNT data item. Once the data item has been added to the vehicle, it must be edited to suit the application.

**Data item: COUNTER, Generic DGH, COUNT**

Highlighting the COUNTER, Generic DGH, COUNT data item in the vehicle's device list and clicking on Edit opens the Configure Counter dialog box.

This data item configuration dialog has two pages, the Reference Counters page and the Real-Time Navigation Updates page.

Reference Counters Page

This page (shown below) is used in conjunction with the Calculations window to maintain up to five reference counts based on the Channel One (cable) count. These reference counts are not used for any real-time calculations and are not logged to any file; they are intended for reference purposes only.

One common use for the Reference Counters page is to have a 'count down' between cable body deployment. This is accomplished by entering the cable spans between cable bodies in the 'Set Specific Cable Count' dialog(s), selecting the 'Direction' as 'Down' and exiting with OK when the first cable body is launched. The results of this configuration are typically viewed in a Calculations window.
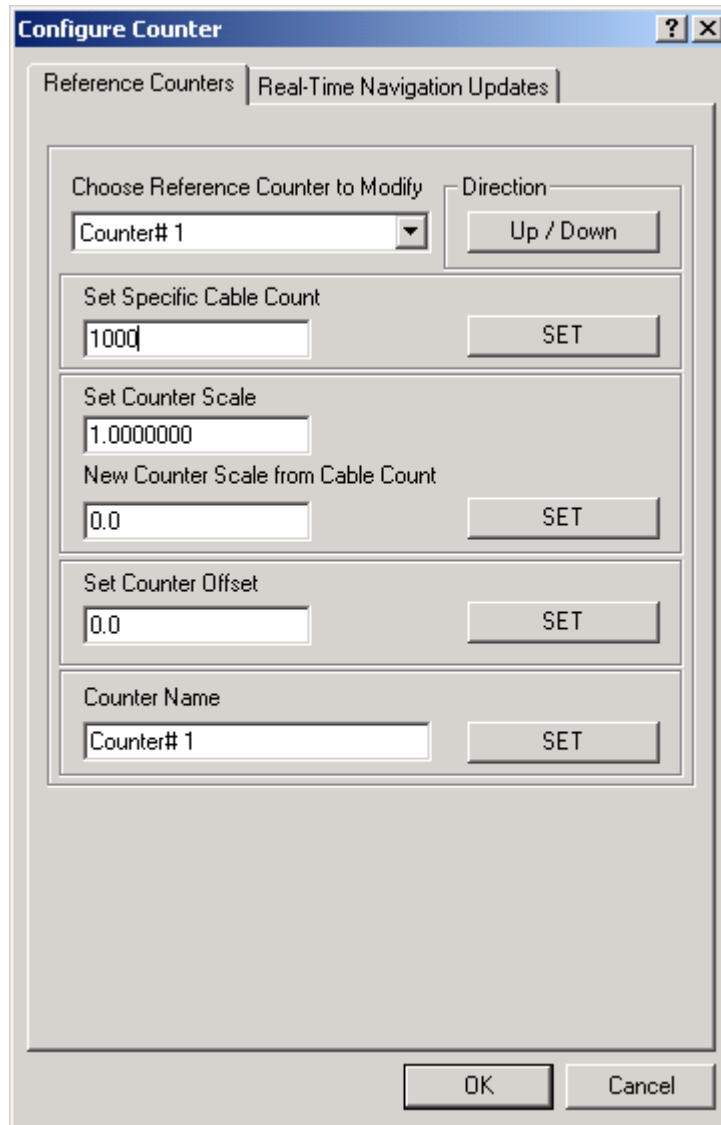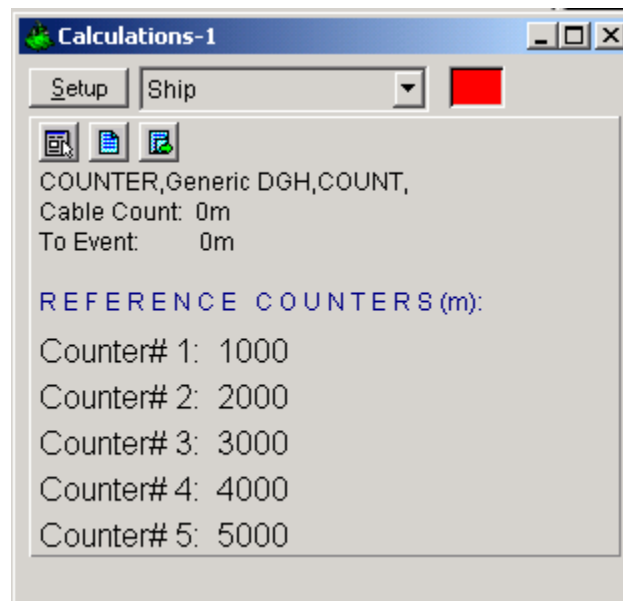
View and configure the Calculations window (shown below) by completing the following steps.

Note: To view the reference counts the COUNT data item must be attached to the vehicle.

1. From the WinFrog View menu select the Calculations item to open the Calculations window.
2. In the Calculations window click the Setup button to open the Setup Calculation Views dialog box shown below.
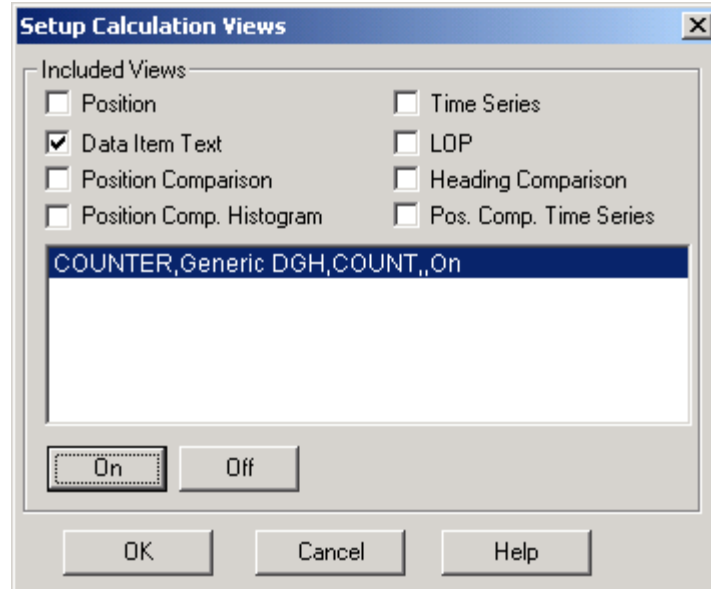
3. In the Setup Calculation Views dialog select the Data Item Text checkbox. Then turn On the COUNT data item by selecting the COUNT data item from the list and click the On button.

4. Click OK and the Calculations window opens as seen below.

Once the Calculations window has been opened and configured, the five reference counters can be modified using the Reference Counters page of the Configure Counter dialog. (Note: the Configure Counter dialog can be directly accessed from the Calculations window by clicking the 🖼 icon in the Calculations window.)

The Reference Counter page allows the reference counters to be modified in a number of ways, as described below. Start by selecting the reference counter you want to modify from the drop down list box at the top of the page.

Direction
When the *Up/Down* button is not depressed the reference count will increase if the input cable count increases and decrease if the input cable count decreases. When the *Up/Down* button is depressed the reference count will decrease if the input cable count increases and increase if the input cable count decreases.

Set Specific Cable Count
To set the reference counter to a specific cable count enter the desired value in the edit field then click the *Set* button. When the Configure Counter dialog OK button is then clicked the desired reference counter value will be set to the entered value. This value will then continue to increment or decrement based on the input cable count and the current settings for the reference count.

Set Counter Scale
To change the scale at which the reference count will increment or decrement relative to the input cable count enter the desired scale factor into the scale field. Leave the *New Counter Scale from Cable Count* value at its present value to apply the scale from the current point onward. Enter in a count value into the *New Counter Scale from Cable Count* field to apply the scale from a previous count value onward. Once the desired scale factor and count value is entered click the *Set* button and then click the *OK* button.

Set Counter Offset
To set an offset from the input cable count to the reference count enter the desired value into the Set Counter Offset field, click the *Set* button and then click the *OK* button. This value will be added to the input cable count.

Counter Name
To change the reference counter name enter the desired name into the *Counter Name* field. Click the *Set* and then the *OK* button to enter the change.

Real-Time Navigation Updates Page

This page enables/disables certain data from this device to be passed to the vehicle. Unlike the Reference Counters page, data from the Real-Time Navigation Updates page can be logged to the raw files if this data item is associated with a vehicle. This allows the vehicle to have more than one COUNT without one conflicting with the other. One COUNTER device may provide the telephone cable count while the other provides the tow count. If a checkbox is selected (checked) the data value will be passed to the vehicle. For example, if the *Cable Count* checkbox is selected in the *Channel 1* section then the cable count from the input device will be passed to the vehicles channel 1 count.

It is important to note that if the data string from the counter device does not contain certain data types (count, tension or speed), these options should not be selected from this page. Selecting an option for which there is no data in the string causes

WinFrog to assign a zero in the selected field and it may result in valid data from other sources being overwritten with zeroes.

The *Interval* section sets the data logging interval used when the "With Events" Logging Control option is selected (refer to chapter 10 of the WinFrog User's Guide for more information).