WinFrog Device Group:	COUNTER
Device Name/Model:	MHI Counter
Device Manufacturer:	For interfacing to the Port Cable Engine and Starboard Cable Engine
Device Data String(s) Output to WinFrog:	See below
WinFrog Data String(s) Output to Device:	See below
WinFrog Data Type(s) and their RAW record	COUNT 492

DEVICE DESCRIPTION:
The MHI Counter provides a cable speed, count and tension at about 1 hz. The interface is RS232 serial.

WinFrog does not provide any control over the cable engine.

DEVICE CONFIGURATION INSTRUCTIONS:

WINFROG I/O DEVICES > EDIT I/O:

Operator configurable

Baud Rate: 9600
Bits Per Character: 8
Stop Bits: 1
Parity: NONE

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 MHI Counter Configuration dialog box appears, as seen below.
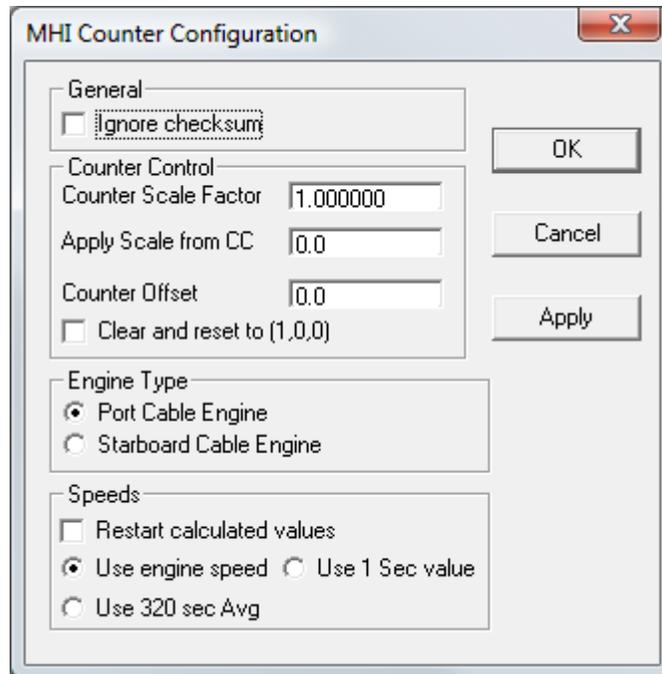
General
Ignore checksum
The telegram from the cable engine contains a check sum so this should be left
unchecked.

Counter Control
Scaling within WinFrog should only be used as a last resort. It is always better to
have the cable engine output the correct cable count.

This scale factor can be applied along the entire length of cable or you can choose
to apply the scale factor from a certain cable count onward. Enter the desired cable
count from which to start applying the scale factor in the "Apply scale from CC" edit
box. An offset can also be added to the cable count from the cable engine; scale is
applied first, followed by the addition of the offset. All scale factor applications are
accumulative, i.e. all previous scale factors entered are also applied. Only the last
application is displayed when the dialog is opened.

To clear all scaling and offsets, select the Clear and reset (1,0,0) checkbox.

Care is required when entering values here, as applying a scale to the current cable
count can result in a cable count jump that will adversely affect the cable model. If
the cable model is running, apply new scale factor changes to the current count. You
will not see an immediate change in the count. All entries should to be logged, as the
INI and CFG files only record the accumulated effect of all the scale changes.

Engine Type
Select either Port Cable Engine or Starboard Cable Engine, whichever is to be used. The Port Cable Engine has its data in the first half of the telegram and the Starboard Cable Engine in the last half.

Speeds (observed output speed of the cable)
There are three output cable speeds that are displayed in the decoded data window: 1) speed from the cable engine read from the telegram, 2) WinFrog calculated speed between two successive telegrams received from the cable engine and 3) a speed calculated over about 320 seconds (i.e. the two telegrams are about 320 seconds apart). Both calculated speeds use the count and corresponding time within the telegram.

The three radio buttons allow you to select which speed is assigned to the vehicle and stored in the raw file. Regardless of which speed is selected, the time and count from the telegram is stored in the raw file.

The restart checkbox starts the WinFrog calculation over. This may be necessary if the cable engine is stopped or reset.

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

The MHI Counter device is added to WinFrog from the COUNTER device group. Adding this 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, MHI Counter, COUNT
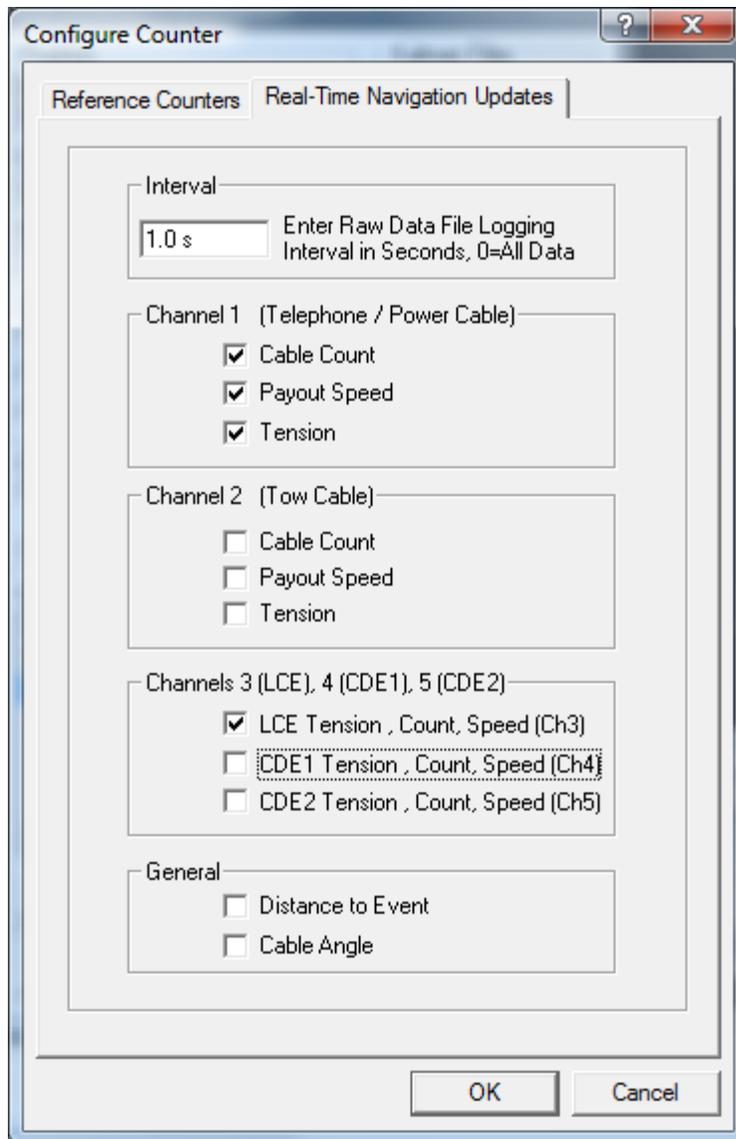
This dialog has two tabs. The first, **Reference Counters**, does not apply to this counter and should be left at the defaults. The second, **Real-Time Navigation Updates**, enables or disables this device's data from being passed to the vehicle. The data from whichever engine type you selected in the device's configuration dialog above (Port or Starboard) will be placed in channel one, this is the location for product cable. The other data in the telegram will be placed in channel 3; if you don't want this data assigned to the vehicle leave the channel 3 box unchecked. In either case all data will be recorded in the *.RAW file if RAW data recording is enabled.

You can control the amount of data written to the *.RAW file by changing the value in the interval box.

If another counter is attached to this vehicle you must place its data into another channel. If this is not done, the other device will overwrite the values assigned to the

vehicle from this device. For example, if a tow winch counter and load cell is available, this same configuration dialog is used for that device's COUNT data item. Its data must be placed into channel two and all the other boxes left unchecked.

TELGRAM SPECIFICATION:

Sent by the cable machinery to WinFrog.

Field	Data
1	Header $PDWA
2	Port Cable Engine time in 10 millisecond units. Range 0 to 8640000
3	Port Cable Engine cable count in centimeters. Range +/-0 to +/-999999999
4	Port Cable Engine speed of Port Cable Engine in cm/sec
5	Port Cable Engine tension in kiloNewtons in units of 1kN
6	Port Cable Engine mode byte. A= automatic, M= manual
7-11	Fields 2 to 6 are repeated for the starboard engine
12	*hh Asterisk delimiter followed by 2 character check sum