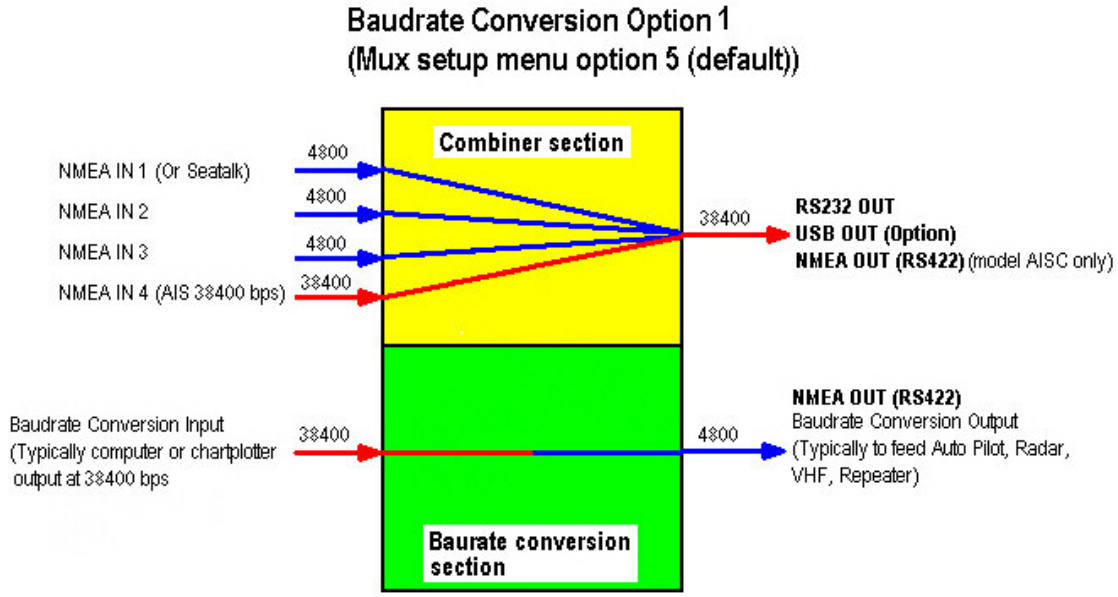
Baudrate Conversion Options
For Brookhouse NMEA multiplexers models AIS and AISC

Three baudrate conversion options are offered in the multiplexer setup menu (menu options 5, 6 and 7 for baudrate conversion options 1, 2 and3):

Baudrate Conversion Option 1

Brookhouse NMEA multiplexers models AIS and AISC



Combiner and Baudrate conversion work independently. There are no data-paths between the two processes.
The same applies to baudrate conversion option 2 as long as data is delivered to the baudrate conversion input port.

This is the standard, factory set default option.
The baudrate conversion feature is completely independent from the multiplexer combine function. Any NMEA sentences input by the mux via the baudrate conversion input port at 38400 bps are output from the RS422 NMEA OUT port at 4800 bps.
In case AIS sentences (starting with !) are included in the input, the multiplexer always automatically filters these sentences out.

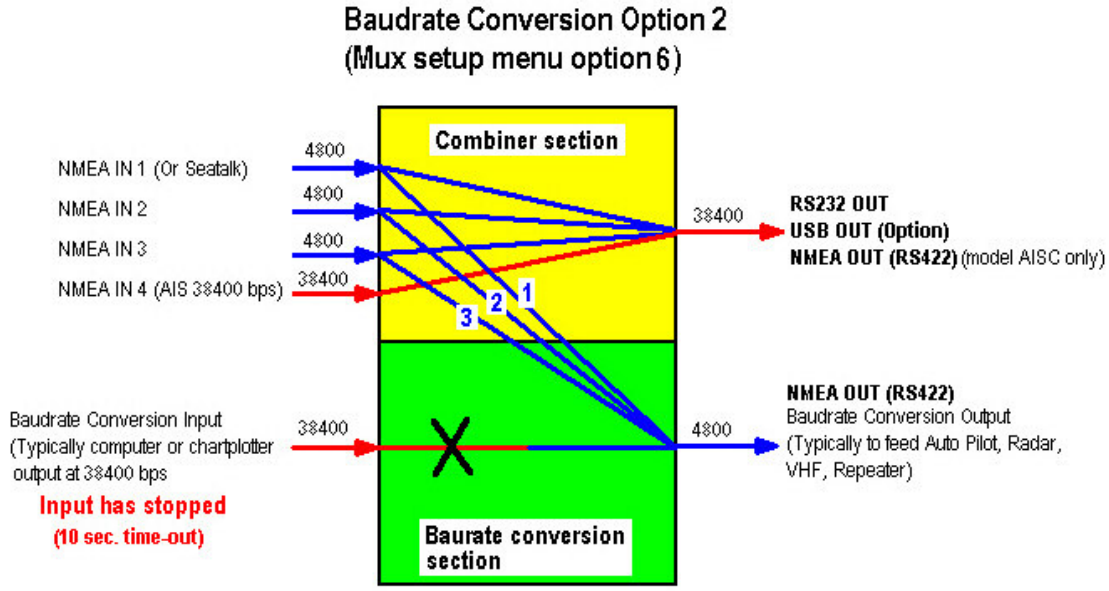
For model AIS, the 38400 bps baudrate conversion input port is labelled RS232 RxD IN / RS232 Gnd. The 4800 bps baudrate conversion output port is labelled 4800 NMEA (RS422) OUT.

For model AISC, the 38400 bps baudrate conversion input port is labelled Yellow C-series NMEA OUT+ / Brown C-series NMEA OUT -.
The colours refer to the Raymarine cable product code R08004. The baudrate conversion of multiplexer model AISC does not necessarily have to be used for conversion of the NMEA output of the C- or E-series. The Yellow and Brown wires can be left disconnected and instead computer output (RS232 or USB) can be converted from 38400 to 4800 bps, as shown in diagram Configuration 3.
In case of baudrate conversion of data received from the computer via USB, the blue wire from under the green mux connector has to be inserted in the mux terminal labelled Yellow C-series NMEA OUT +. In case of baudrate conversion of data received via RS232, pin 3 of the RS232 computer connector (assuming 9-pin D-sub) has to be connected to this terminal.
The 4800 bps baudrate conversion output port is the grey extra connector labelled NMEA 4800 A/B.

Applications
Baudrate conversion option 1 can be used to convert NMEA data from the chartplotter or computer back to 4800 bps to feed NMEA listeners at the NMEA standard baudrate 4800. Examples: GPS data for DSC VHF radio, Auto pilot data (APA, APB, XTE sentences)
Up to 4 NMEA listeners can be connected in parallel.

Baudrate Conversion Option 2

Brookhouse NMEA multiplexers models AIS and AISC



If Baudrate Conversion input is present, the mux behaves the same as for Baudrate Conversion option 1
If Baudrate Conversion input ceases, data paths 1, 2 and 3 are established as illustrated.
Data paths 1 and/or 2 and/or 3 can be blocked with channel block mask.

The baudrate conversion is identical to option 1 and is completely independent from the multiplexer combine function. Any NMEA sentences input by the mux via the baudrate conversion input port at 38400 bps are output from the RS422 NMEA OUT port at 4800 bps.
In case AIS sentences (starting with !) are included in the input, the multiplexer always automatically filters these sentences out.

In addition, if no data is received from the baudrate conversion input port for 10 seconds (chartplotter or computer is switched off or is disconnected), the multiplexer now outputs (via the baudrate conversion output port) the combined data stream **minus AIS data** at 4800 bps.

Connections for models AIS and AISC are as described under Baudrate Conversion Option 1 above.

Applications.

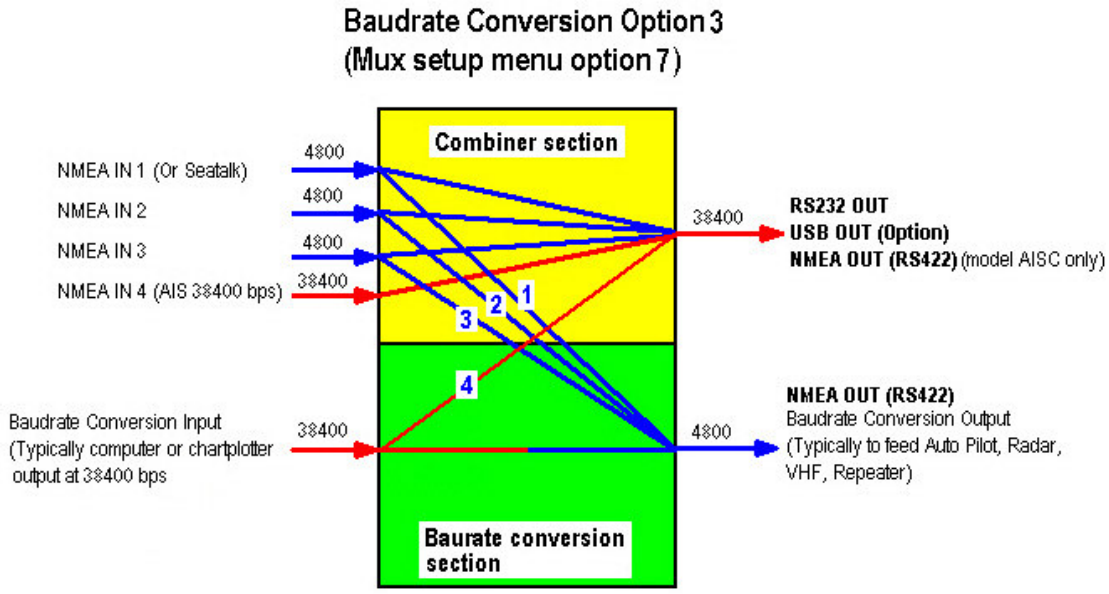
Baudrate conversion option 2 can be used to feed GPS and other NMEA data from the computer or chartplotter to standard NMEA listeners at 4800 bps and switch to the combined data stream as an alternative source if the computer or chart plotter is not sending any NMEA data or is switched off.
If an auto pilot is connected to the 4800 bps NMEA OUT port, it can receive NMEA sentences from the computer for auto pilot steering in track mode, and when the computer does not send output, GPS, wind instrument and other NMEA data is sent directly to the auto pilot. The auto pilot can now be used in wind (vane) mode with computer switched off. GPS speed data (SOG) or water speed is often used by modern auto pilots for improved performance.

If used in combination with the Seatalk-NMEA conversion option, Seatalk instrument and GPS data can be used to feed standard NMEA listeners independently from the computer or chartplotter.

As data from the 38400 bps data stream is now also transmitted at 4800 bps, care should be taken that the amount of data transmitted does not exceed the bandwidth capacity of 4800bps transmission, in spite of the suppression of AIS data. The bandwidth will be sufficient for most instrument configurations, but in case of high volume/ high density NMEA traffic, check for incomplete NMEA sentences. The Brookhouse NMEA filtering mechanism is available to filter out redundant data if necessary.

Baudrate Conversion Option 3

Brookhouse NMEA multiplexers models AIS and AISC



Data from NMEA inputs 1, 2 and 3 is also included in the baudrate conversion output stream.
Data from the Baudrate conversion input port is also included in the combined data output stream.
Data paths 1 and/or 2 and/or 3 and/or 4 can be blocked with channel block mask.

If this option is selected, data read from the baudrate conversion input port is converted from 38400 to 4800 bps as for options 1 and 2.
In addition, the following datastream processing takes place (always):

1. NMEA data from the high speed combined data stream **minus AIS data** is combined with the baudrate conversion data stream and the total is transmitted at 4800 bps from the baudrate conversion output port.
2. NMEA data from the baudrate conversion data stream is included in the high speed combined data stream. This means that effectively the baudrate conversion input port also has the function of a 5th input port for the multiplexer combine function.

Connections for models AIS and AISC are as described under Baudrate Conversion Option 1 above.

Applications
In addition to the baudrate conversion benefits explained under options 1 and 2, option 3 offers the following:

1. In installations with a computer and chartplotter connected, computer output can be transmitted to the chartplotter via the combined data stream or vice versa.
   This is advantageous in case waypoints or routes created on the computer need to be loaded to a chartplotter with single-port NMEA input, such as Raymarine C- and E-series.
2. As the 4800 bps NMEA output contains all data of all talkers (including Seatalk if Seatalk option is installed), an NMEA or GPS repeater can be connected to the mux 4800 output and all data including computer generated data such as XTE, CTS etc. can be displayed.
3. An auto pilot connected to the NMEA OUT port receives all data for different steering modes at all times.

As data from the 38400 bps and baudrate conversion data streams is now transmitted combined at 4800 bps, extra care should be taken that the amount of data transmitted does not exceed the bandwidth capacity of 4800bps transmission, in spite of the suppression of AIS data. The bandwidth will be sufficient for most instrument configurations, but in case of high volume/ high density NMEA traffic, check for incomplete NMEA sentences. The Brookhouse NMEA filtering mechanism is available to filter out redundant data if necessary.

Channel block mask
For options 6 and 7, a channel block mask can be specified. This allows exclusion of input channels 1 and/or 2 and/or 3 from the baudrate conversion output data stream. Also, for option 7, baudrate conversion input data can be blocked from inclusion in the combined data stream.

Channel block mask values:
0 - No channels are blocked. Options 6 and 7 work as described above.
1 - NMEA Input channel 1 is blocked.
2 - NMEA Input channel 2 is blocked.
3 - NMEA Input channel 1 and 2 are blocked.
4 - NMEA Input channel 3 is blocked.
5 - NMEA Input channels 1 and 3 are blocked.
6 - NMEA Input channels 2 and 3 are blocked.
7 - NMEA Input channels 1, 2 and 3 are blocked.
8 - Baudrate conversion input data is blocked from combined data stream.
9 - 8 and 1 above
A - 8 and 2 above
B - 8 and 3 above
Etc.