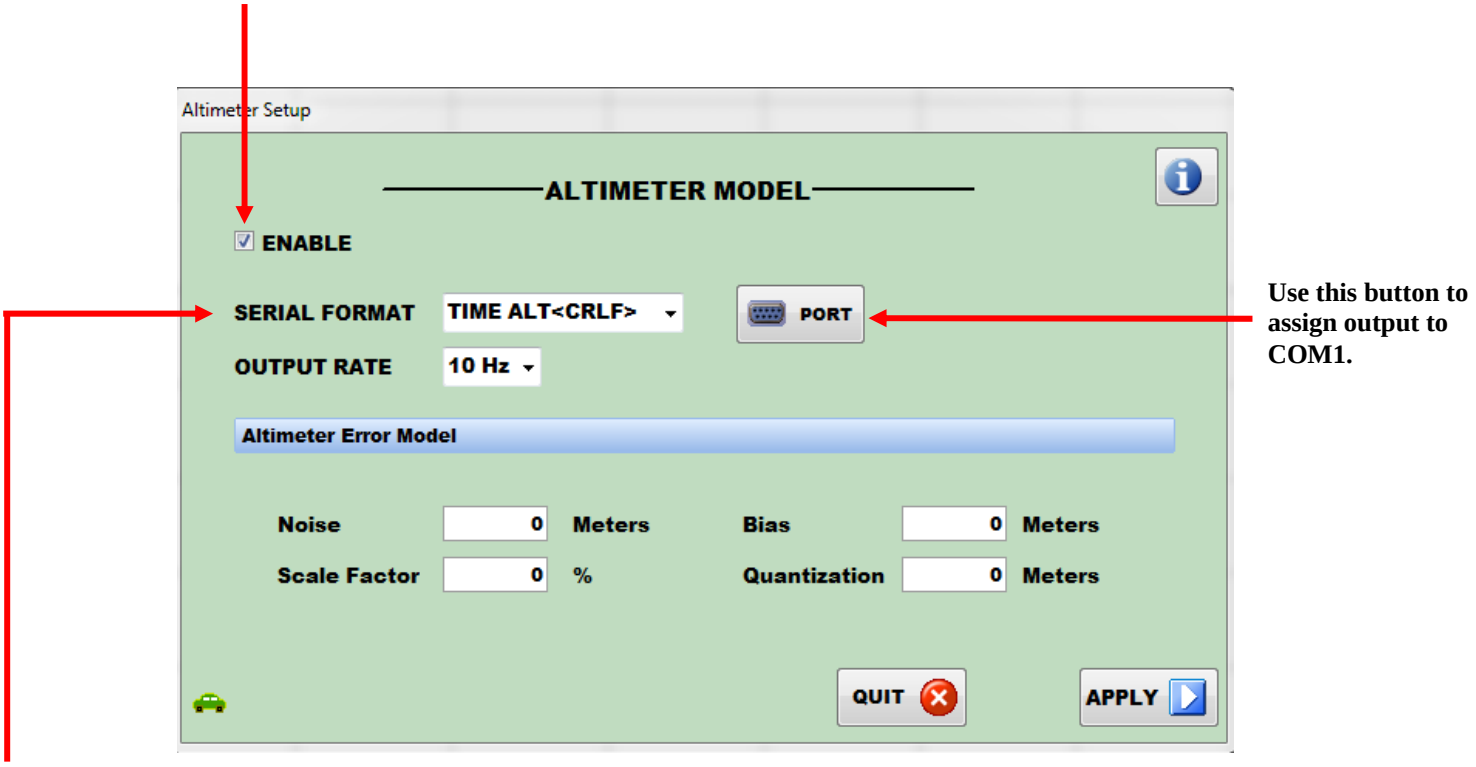
ALTIMETER MODEL

TAPESTRY constructs and outputs simulated Barometric-Altitude (height above WGS84 Geod). Baro-Altitude is used for two purposes within Tapestry. Firstly, Baro-Altitude can be output as a standalone sensor via COM1 or COM4. The second use is for support of the Vertical channel within the Inertial Navigation Sensor (INS) simulated as an ICD-GPS-059 CADC input. When used to support the INS model, no Serial Data output is required.

There are four modeled effects:

- Bias.
- Scale Factor.
- Uncorrelated Noise.
- Quantization.

Check this to enable this model. Otherwise, Baro Altitude is set equal to true Altitude.



Use this button to assign output to COM1.

Select Format

- **INS Model Support (data used internally)**
- **RMS**
- **Time Tagged Baro-Altitude followed by carriage return <CR> and line feed <LF>**
- **Baro-Altitude followed by carriage return <CR> and line feed <LF>**

MODEL IMPLEMENTATION

$$H_{BARO} = H_{TRUE} + Bias + SF(H_{TRUE}) + Noise$$

If you enter a non-zero Quantization, it is implemented as follows:

$$H_Q = [(H_{BARO}) / Quantization + 0.5]$$

$$H_{BARO} = (H_Q) Quantization$$

FORMAT DESCRIPTIONS

a) RMS format. This format constructs altitude and transmits it via assigned RS232 port in the following byte-wise format ;

unsigned char AltBytes[18];

AltBytes[0] = 'R'
AltBytes[1] = 'M'
AltBytes[2] = 'S'
AltBytes[3] = ' '

sprintf(&AltBytes[4],"%+06ld", (long) Baro-Altitude (feet)

AltBytes[10] = 'T'
AltBytes[11] = '-'
AltBytes[12] = '9'
AltBytes[13] = '9'
AltBytes[14] = checksum_byte[0]
AltBytes[15] = checksum_byte[1]
AltBytes[16] = 0x0d (carriage return)
AltBytes[17] = '/0'

b) Time tagged <CRLF> format. This format constructs and outputs Baro-Altitude in the following serial format;

sprintf(&AltBytes[0],&AltBytes[9],"%8.1lf,%+6ld%c%c", (double) GpsTime , (long) Altitude ,0x0d,0x0a)

c) <CRLF> format. This format constructs and outputs baro-altitude in the following serial format;

sprintf(&AltBytes[0],"%+6ld%c%c", (long) Altitude ,0x0d,0x0a)