

## 2GIG UART Protocol

The UART (TTL) series of tilt sensors communicates via the TX and RX (transfer and receive) wires. The sensor outputs the X (°), Y (°), and the current output rate. The sensor can receive commands through UART to adjust the baud rate, output rate, or zero out the device. The standard output message, input message, baud rate, and configuration settings can be modified to fit most systems.

Specification	UART																																				
<b>Adjustable Output Rate (Hz)</b>	1 – 100 (Default: 10 Hz)																																				
<b>Adjustable Baud Rates (bits/sec)</b> <i>(Max Output Rate (Hz))</i>	2400 <i>(8)</i>	9600 <i>(20)</i>	19200 (Default) <i>(40)</i>	57600 <i>(100)</i>	115200 <i>(100)</i>																																
<b>Communication Specs</b>	<b>Data Bits</b> 8	<b>Parity</b> None	<b>Stop Bits</b> 1	<b>Handshaking</b> None																																	
<b>2GIG Output Message Format</b>	<p><b>Dual Axis Format:</b> \$2gig,[X Angle],[Y Angle],[Output Rate]*[Checksum][LF]  <b>Single Axis Format:</b> \$2gig,[X or Y Angle],[Output Rate]*[Checksum][LF]</p> <p style="text-align: center;"><b>Message Descriptions</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #D9E1F2;">X Angle</th> <th style="background-color: #D9E1F2;">Y Angle</th> <th style="background-color: #D9E1F2;">Output Rate</th> <th style="background-color: #D9E1F2;">Checksum (Hex)</th> <th style="background-color: #D9E1F2;">LF</th> </tr> </thead> <tbody> <tr> <td>X Angle reading in hundredths of a degree (0.00)</td> <td>Y Angle reading in hundredths of a degree (0.00)</td> <td>Current Output Rate Frequency (Hz)</td> <td>Data Validation Check by XORing all ASCII values between the \$ and * characters</td> <td>Line Feed (New Line) Character – ASCII 10</td> </tr> </tbody> </table>					X Angle	Y Angle	Output Rate	Checksum (Hex)	LF	X Angle reading in hundredths of a degree (0.00)	Y Angle reading in hundredths of a degree (0.00)	Current Output Rate Frequency (Hz)	Data Validation Check by XORing all ASCII values between the \$ and * characters	Line Feed (New Line) Character – ASCII 10																						
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## EXAMPLE OUTPUT MESSAGES

### Dual Axis Output Message

\$2gig,-0.38,-0.19,10\*75[LF]

**X Angle = -0.38°**

**Y Angle = -0.19°**

**Output Rate = 10 Hz**

**Checksum = 0x75**

### Single Axis Output Message

\$2gig,2.54,20\*44[LF]

**Angle = 2.54°**

**Output Rate = 20 Hz**

**Checksum = 0x44**

## EXAMPLE INPUT MESSAGES

R5[LF]

**Set the baud rate to 115200**

O50[LF]

**Set the output rate to 50 Hz**

Z2[LF]

**Relative zero the device**

- All input commands are ASCII values (not including [LF])
- [LF] is a decimal value of 10, and it's also known as line feed or '\n'