2GIG Engineering
194 Main Rd
Abbot, ME 04406

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.

<table>
<tr><th>Specification</th><th>UART</th></tr>
<tr><td>Adjustable Output Rate (Hz)</td><td>1 – 100 (Default: 10 Hz)</td></tr>
<tr><td>Adjustable Baud Rates (bits/sec)
(Max Output Rate (Hz))</td><td>2400
(8) | 9600
(20) | 19200 (Default)
(40) | 57600
(100) | 115200
(100)</td></tr>
<tr><td>Communication Specs</td><td>Data Bits
8 | Parity
None | Stop Bits
1 | Handshaking
None</td></tr>
<tr><td>2GIG Output Message Format</td><td>Dual Axis Format: $2gig,[X Angle],[Y Angle],[Output Rate]*[Checksum][LF]
Single Axis Format: $2gig,[X or Y Angle],[Output Rate]*[Checksum][LF]

Message Descriptions
<table><tr><td>X Angle</td><td>X Angle reading in hundredths of a degree (0.00)</td></tr><tr><td>Y Angle</td><td>Y Angle reading in hundredths of a degree (0.00)</td></tr><tr><td>Output Rate</td><td>Current Output Rate Frequency (Hz)</td></tr><tr><td>Checksum (Hex)</td><td>Data Validation Check by XORing all ASCII values between the <b>$ and * characters</td></tr><tr><td>LF</td><td>Line Feed (New Line) Character – ASCII 10</td></tr></table></td></tr>
<tr><td>Input Commands</td><td><table><tr><th>Adjustment</th><th>Command Format</th><th>Values for ‘x’</th><th>Description</th></tr><tr><td rowspan="5">Baud Rate</td><td rowspan="5">Rx[LF]</td><td>1</td><td>2400 Bps</td></tr><tr><td>2</td><td>9600 Bps</td></tr><tr><td>3</td><td>19200 Bps</td></tr><tr><td>4</td><td>57600 Bps</td></tr><tr><td>5</td><td>115200 Bps</td></tr><tr><td>Output Rate</td><td>Oxxx[LF]</td><td>1 – 100</td><td>1 Hz – 100 Hz*</td></tr><tr><td rowspan="2">Zero Device</td><td rowspan="2">Zx[LF]</td><td>1</td><td>Revert to Factory Zero</td></tr><tr><td>2</td><td>Relative Zero</td></tr><tr><td rowspan="2">Protocol</td><td rowspan="2">Px[LF]</td><td>1</td><td>2GIG Format</td></tr><tr><td>2</td><td>TSS1 Format (Pitch and Roll)
For models manufactured after 6/18/2018</td></tr></table> If the adjusted output rate exceeds the max output rate for the current baud rate, then the max output rate will be chosen.</td></tr>
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