

BruGi Gimbal Controller

IMU Orientation Worksheet

Table of change values to accomodate different IMU orientations not possible with the standard BruGi GUI.

Standard Configuration Assumptions:

1. "Reverse Z" checkbox **IS** checked
2. "Swap X-Y" checkbox **IS NOT** checked

Note: Columns with green heading are tested values

The BruGi software comes with the Z-reverse parameter (checkbox) set true. This makes the standard orientation set-up with the +Z axis down and +X axis pointing forward.

| | | | | | | | | | |
|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Axis Directions { | +X Frwrd | +Z Frwrd | +Z Frwrd | +Z Frwrd | +Z Frwrd | -Z Frwrd | -Z Frwrd | -Z Frwrd | -Z Frwrd |
| | +Y Right | +Y Right | +X Right | -Y Right | -X Right | +Y Right | -X Right | -Y Right | +X Right |
| | +Z Down | -X Down | +Y Down | +X Down | -Y Down | +X Down | +Y Down | -X Down | -Y Down |

IMU.ino Sketch Changes:

// channel assignment

```
sensorDef.Gyro[ROLL].idx =
sensorDef.Gyro[PITCH].idx =
sensorDef.Gyro[YAW].idx =
```

| Default (r217) | +z to +x | +z to +x & +x to +y | +z to +x & +x to -x | +z to +x & +x to -y | +z to -x | +z to -x & +y to +x | +z to -x & +y to -y | +z to -x & +y to -x |
|----------------------------|----------|---------------------|---------------------|---------------------|----------|---------------------|---------------------|---------------------|
| 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 2 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| sensorDef.Acc[ROLL].idx = | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| sensorDef.Acc[PITCH].idx = | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| sensorDef.Acc[YAW].idx = | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |

// direction

```
sensorDef.Gyro[ROLL].dir =
sensorDef.Gyro[PITCH].dir =
sensorDef.Gyro[YAW].dir =

sensorDef.Acc[ROLL].dir =
sensorDef.Acc[PITCH].dir =
sensorDef.Acc[YAW].dir =
```

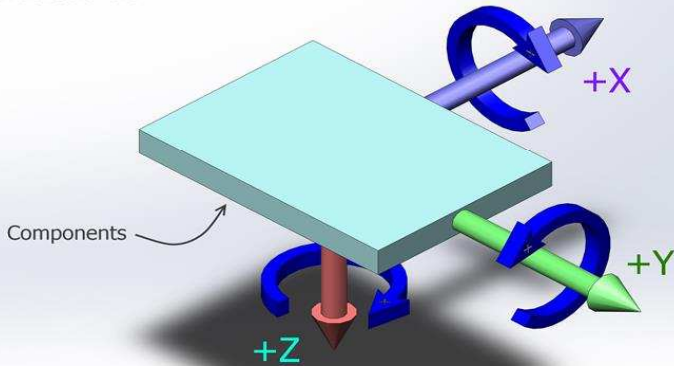
| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| 1 | 1 | 1 | 1 | 1 | -1 | -1 | -1 | -1 |
| -1 | -1 | -1 | 1 | 1 | -1 | 1 | 1 | -1 |
| 1 | -1 | 1 | 1 | -1 | 1 | 1 | -1 | -1 |
| 1 | 1 | 1 | 1 | 1 | -1 | -1 | -1 | -1 |
| 1 | 1 | 1 | -1 | -1 | 1 | -1 | -1 | 1 |
| 1 | -1 | 1 | 1 | -1 | 1 | 1 | -1 | -1 |

// initialize coordinate system in EstG

```
EstG.V.X =
EstG.V.Y =
EstG.V.Z =
```

| | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0 | ACC_1G | 0 | ACC_1G | 0 | ACC_1G | 0 | ACC_1G | 0 |
| 0 | 0 | ACC_1G | 0 | ACC_1G | 0 | ACC_1G | 0 | ACC_1G |
| ACC_1G | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

IMU Standard Orientation
BruGi Software



+Z to +X Change

