Quadcopter Bus Descriptions

# Flight Software Buses

|  |  |
| --- | --- |
| Full Name | Simulink Moniker |
| Body | body |
| North-East-Down (NED) | ned |
|  |  |

# Plant Buses

The top-level plant bus is the PLANT bus. Its contents are listed below.

| Signal Name | Data Type | Dimensions | Units | Description |
| --- | --- | --- | --- | --- |
| STATE | Bus: STATE | 1 | N/A | A bus containing the current state of the vehicle. |
| SENSORS | Bus: SENSORS | 1 | N/A | Start with ‘omega\_’, followed by the reference frame in which the angular rate is measured. |
|  |  |  |  |  |
|  |  |  |  |  |

## STATE Bus

| Signal Name | Data Type | Dimensions | Units | Description |
| --- | --- | --- | --- | --- |
| x\_NED | double | 3 | m | The current position of the vehicle in the NED frame. The three components represent the x,y and z components of the position, respectively. |
| v\_NED | double | 3 | m/s | The current velocity of the vehicle in the NED frame. The three components represent the x,y and z components of the velocity, respectively. |
| a\_NED | double | 3 | m/s2 | The current acceleration of the vehicle in the NED frame. The three components represent the x,y and z components of the acceleration, respectively. |
| q\_body\_NED | double | 4 | N/A | The current orientation of the vehicle represented by the quaternion from the NED frame to the body frame. |
| omega\_body | double | 3 | rad/s | The current angular velocity of the vehicle represented in the body frame. |
| alpha\_body | double | 4 | rad/s | The current angular acceleration of the vehicle represented in the body frame. |