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| --- | --- | --- | --- |
| **Symbol** | **Nominal Value** | **Units** | **Brief Description** |
| *mq* | 0.986 | *kg* | Quadrotor mass |
| *mb* | 0.204 | *kg* | Battery mass |
| *m* | 1.19 | *kg* | Quadrotor + battery mass |
| *g* | 9.81 | *m/s2* | Acceleration of gravity |
| *Jxx* | 0.0218 | *kgm2* | Quadrotor + battery moment of inertia around bx |
| *Jyy* | 0.0277 | *kgm2* | Quadrotor + battery moment of inertia around by |
| *Jzz* | 0.0332 | *kgm2* | Quadrotor + battery moment of inertia around bz |
| *Jreq* |  | *kgm2* | Rotor + motor m.o.i. around motor axis of rotation |
| *KT* |  |  | Rotor thrust constant |
| *KH* |  |  | Rotor in-plane drag constant |
| *Kd* |  |  | Rotor drag constant |
|  |  |  | Rotor velocity thrust adjustment factor |
| *||* | 0.16 | *m* | x-axis distance from center of mass to a rotor hub |
| *||* | 0.16 | *m* | y-axis distance from center of mass to a rotor hub |
| *||* | 0.03 | *m* | z-axis distance from center of mass to a rotor hub |
| *Rm* | 0.2308 |  | Motor resistance |
| *KQ* | 96.3422 |  | Motor torque constant |
| *KV* | 96.3422 |  | Motor back-emf constant |
| *if* | 0.511 | *A* | Motor internal friction current |
| *P* | 117000 | *(none)* | ESC turn-on duty cycle command |
| *P* | 100000 | *(none)* | Minimum Zybo output duty cycle command |
| *P* | 200000 | *(none)* | Maximum Zybo output duty cycle command |
| *δV* |  |  | Approximate constant battery discharge rate |
| *TC* | 0.01 | *s* | Camera system sampling period |
|  |  | *s* | Camera system total latency |

**\*0.175 ms single trip latency between camera system and ground station (ping).**