|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ACRO\_BAL\_PITCH | 1 |  | 0 3 | rate at which pitch angle returns to level in acro mode |
| ACRO\_BAL\_ROLL | 1 |  | 0 3 | rate at which roll angle returns to level in acro mode |
| ACRO\_RP\_P | 4.5 |  | 1 10 | Converts pilot roll and pitch into a desired rate of rotation in ACRO and SPORT mode.  Higher values mean faster rate of rotation. |
| ACRO\_TRAINER | 2 |  | 0:Disabled 1:Leveling 2:Leveling and Limited | Type of trainer used in acro mode |
| ACRO\_YAW\_P | 4.5 |  | 1 10 | Converts pilot yaw input into a desired rate of rotation in ACRO, Stabilize and SPORT modes.  Higher values mean faster rate of rotation. |
| AHRS\_COMP\_BETA | 0.1 |  | 0.001 0.5 | This controls the time constant for the cross-over frequency used to fuse AHRS (airspeed and heading) and GPS data to estimate ground velocity. Time constant is 0.1/beta. A larger time constant will use GPS data less and a small time constant will use air data less. |
| AHRS\_GPS\_DELAY | 2 |  |  |  |
| AHRS\_GPS\_GAIN | 1 |  | 0.0 1.0 | This controls how how much to use the GPS to correct the attitude. This should never be set to zero for a plane as it would result in the plane losing control in turns. For a plane please use the default value of 1.0. |
| AHRS\_GPS\_MINSATS | 6 |  | 0 10 | Minimum number of satellites visible to use GPS for velocity based corrections attitude correction. This defaults to 6, which is about the point at which the velocity numbers from a GPS become too unreliable for accurate correction of the accelerometers. |
| AHRS\_GPS\_USE | 1 |  | 0:Disabled 1:Enabled | This controls whether to use dead-reckoning or GPS based navigation. If set to 0 then the GPS won't be used for navigation, and only dead reckoning will be used. A value of zero should never be used for normal flight. |
| AHRS\_ORIENTATION | 0 |  | 0:None 1:Yaw45 2:Yaw90 3:Yaw135 4:Yaw180 5:Yaw225 6:Yaw270 7:Yaw315 8:Roll180 9:Roll180Yaw45 10:Roll180Yaw90 11:Roll180Yaw135 12:Pitch180 13:Roll180Yaw225 14:Roll180Yaw270 15:Roll180Yaw315 16:Roll90 17:Roll90Yaw45 18:Roll90Yaw90 19:Roll90Yaw135 20:Roll270 21:Roll270Yaw45 22:Roll270Yaw90 23:Roll270Yaw136 24:Pitch90 25:Pitch270 26:Pitch180Yaw90 27:Pitch180Yaw270 28:Roll90Pitch90 29:Roll180Pitch90 30:Roll270Pitch90 31:Roll90Pitch180 32:Roll270Pitch180 33:Roll90Pitch270 34:Roll180Pitch270 35:Roll270Pitch270 36:Roll90Pitch180Yaw90 37:Roll90Yaw270 | Overall board orientation relative to the standard orientation for the board type. This rotates the IMU and compass readings to allow the board to be oriented in your vehicle at any 90 or 45 degree angle. This option takes affect on next boot. After changing you will need to re-level your vehicle. |
| AHRS\_RP\_P | 0.1 |  | 0.1 0.4 | This controls how fast the accelerometers correct the attitude |
| AHRS\_TRIM\_X | -0.008930371 | Radians | -0.1745 +0.1745 | Compensates for the roll angle difference between the control board and the frame. Positive values make the vehicle roll right. |
| AHRS\_TRIM\_Y | -0.004448458 | Radians | -0.1745 +0.1745 | Compensates for the pitch angle difference between the control board and the frame. Positive values make the vehicle pitch up/back. |
| AHRS\_TRIM\_Z | 0 | Radians | -0.1745 +0.1745 | Not Used |
| AHRS\_WIND\_MAX | 0 | m/s | 0 127 | This sets the maximum allowable difference between ground speed and airspeed. This allows the plane to cope with a failing airspeed sensor. A value of zero means to use the airspeed as is. |
| AHRS\_YAW\_P | 0.1 |  | 0.1 0.4 | This controls the weight the compass or GPS has on the heading. A higher value means the heading will track the yaw source (GPS or compass) more rapidly. |
| ANGLE\_MAX | 4500 |  |  | Maximum lean angle in all flight modes |
| ANGLE\_RATE\_MAX | 18000 |  |  |  |
| ARMING\_CHECK | -9 |  | 0:Disabled  1:Enabled  -3:Skip Baro  -5:Skip Compass  -9:Skip GPS  -17:Skip INS  -33:Skip Parameters  -65:Skip RC  127:Skip Voltage | Allows enabling or disabling of pre-arming checks of receiver, accelerometer, barometer, compass and GPS |
| BATT\_AMP\_OFFSET | 0 | Volts |  | Voltage offset at zero current on current sensor |
| BATT\_AMP\_PERVOLT | 17.53101 | A/V |  | Number of amps that a 1V reading on the current sensor corresponds to. On the APM2 or Pixhawk using the 3DR Power brick this should be set to 17. For the Pixhawk with the 3DR 4in1 ESC this should be 17. |
| BATT\_CAPACITY | 10000 | mAh |  | Capacity of the battery in mAh when full |
| BATT\_CURR\_PIN | 12 |  | -1:Disabled  1:A1  2:A2  3:Pixhawk  12:A12  101:PX4 | Setting this to 0 ~ 13 will enable battery current sensing on pins A0 ~ A13. For the 3DR power brick on APM2.5 it should be set to 12. On the PX4 it should be set to 101. On the Pixhawk powered from the PM connector it should be set to 3. |
| BATT\_MONITOR | 4 |  | 0:Disabled 3:Voltage Only 4:Voltage and Current | Controls enabling monitoring of the battery's voltage and current |
| BATT\_VOLT\_MULT | 10.19546 |  |  | Used to convert the voltage of the voltage sensing pin (BATT\_VOLT\_PIN) to the actual battery's voltage (pin\_voltage \* VOLT\_MULT). For the 3DR Power brick on APM2 or Pixhawk, this should be set to 10.1. For the Pixhawk with the 3DR 4in1 ESC this should be 12.02. For the PX4 using the PX4IO power supply this should be set to 1. |
| BATT\_VOLT\_PIN | 13 |  | -1:Disabled  0:A0  1:A1  2:Pixhawk  13:A13  100:PX4 | Setting this to 0 ~ 13 will enable battery voltage sensing on pins A0 ~ A13. For the 3DR power brick on APM2.5 it should be set to 13. On the PX4 it should be set to 100. On the Pixhawk powered from the PM connector it should be set to 2. |
| CAM\_DURATION | 10 |  | 0 50 | How long the shutter will be held open in 10ths of a second (i.e. enter 10 for 1second, 50 for 5seconds) |
| CAM\_SERVO\_OFF | 1100 |  | 1000 2000 | PWM value to move servo to when shutter is deactivated |
| CAM\_SERVO\_ON | 1300 |  | 1000 2000 | PWM value to move servo to when shutter is activated |
| CAM\_TRIGG\_DIST | 0 |  | 0 1000 | Distance in meters between camera triggers. If this value is non-zero then the camera will trigger whenever the GPS position changes by this number of meters regardless of what mode the APM is in. Note that this parameter can also be set in an auto mission using the DO\_SET\_CAM\_TRIGG\_DIST command, allowing you to enable/disable the triggering of the camera during the flight. |
| CAM\_TRIGG\_TYPE | 0 |  | 0:Servo 1:Relay | how to trigger the camera to take a picture |
| CH7\_OPT | 4 |  | 0:Do Nothing  2:Flip  3:Simple Mode  4:RTL  5:Save Trim  7:Save WP  8:Multi Mode  9:Camera Trigger  10:RangeFinder  11:Fence  12:ResetToArmedYaw  13:Super Simple Mode  14:Acro Trainer  16:Auto  17:AutoTune  18:Land  19:EPM  20:EKF  21:Parachute Enable  22:Parachute Release  23:Parachute 3pos  24:Auto Mission Reset  25:AttCon Feed Forward  26:AttCon Accel Limits  27:Retract Mount  28:Relay On/Off | Select which function if performed when CH7 is above 1800 pwm |
| CH8\_OPT | 0 |  | 0:Do Nothing  2:Flip  3:Simple Mode  4:RTL  5:Save Trim  7:Save WP  8:Multi Mode  9:Camera Trigger  10:RangeFinder  11:Fence  12:ResetToArmedYaw  13:Super Simple Mode  14:Acro Trainer  16:Auto  17:AutoTune  18:Land  19:EPM  20:EKF  21:Parachute Enable  22:Parachute Release  23:Parachute 3pos  24:Auto Mission Reset  25:AttCon Feed Forward  26:AttCon Accel Limits  27:Retract Mount  28:Relay On/Off | Select which function if performed when CH8 is above 1800 pwm |
| CIRCLE\_RADIUS | 10 | cm | 0 10000 | Defines the radius of the circle the vehicle will fly when in Circle flight mode |
| CIRCLE\_RATE | 20 | deg/s | -90 90 | Circle mode's turn rate in deg/sec.  Positive to turn clockwise, negative for counter clockwise |
| COMPASS\_AUTODEC | 1 |  | 0:Disabled 1:Enabled | Enable or disable the automatic calculation of the declination based on gps location |
| COMPASS\_DEC | 0 | Radians | -3.142 3.142 | An angle to compensate between the true north and magnetic north |
| COMPASS\_EXTERNAL | 0 |  | 0:Internal 1:External | Configure compass so it is attached externally. This is auto-detected on PX4 and Pixhawk, but must be set correctly on an APM2. Set to 1 if the compass is externally connected. When externally connected the COMPASS\_ORIENT option operates independently of the AHRS\_ORIENTATION board orientation option |
| COMPASS\_LEARN | 0 |  | 0:Disabled 1:Enabled | Enable or disable the automatic learning of compass offsets |
| COMPASS\_MOT\_X | 0 | Offset per Amp or at Full Throttle | -1000 1000 | Multiplied by the current throttle and added to the compass's x-axis values to compensate for motor interference |
| COMPASS\_MOT\_Y | 0 | Offset per Amp or at Full Throttle | -1000 1000 | Multiplied by the current throttle and added to the compass's y-axis values to compensate for motor interference |
| COMPASS\_MOT\_Z | 0 | Offset per Amp or at Full Throttle | -1000 1000 | Multiplied by the current throttle and added to the compass's z-axis values to compensate for motor interference |
| COMPASS\_MOTCT | 0 |  | 0:Disabled 1:Use Throttle 2:Use Current | Set motor interference compensation type to disabled, throttle or current.  Do not change manually. |
| COMPASS\_OFS\_X | -41.45687 |  | -400 400 | Offset to be added to the compass x-axis values to compensate for metal in the frame |
| COMPASS\_OFS\_Y | 36.27537 |  | -400 400 | Offset to be added to the compass y-axis values to compensate for metal in the frame |
| COMPASS\_OFS\_Z | -13.32077 |  | -400 400 | Offset to be added to the compass z-axis values to compensate for metal in the frame |
| COMPASS\_ORIENT | 0 |  | 0:None 1:Yaw45 2:Yaw90 3:Yaw135 4:Yaw180 5:Yaw225 6:Yaw270 7:Yaw315 8:Roll180 9:Roll180Yaw45 10:Roll180Yaw90 11:Roll180Yaw135 12:Pitch180 13:Roll180Yaw225 14:Roll180Yaw270 15:Roll180Yaw315 16:Roll90 17:Roll90Yaw45 18:Roll90Yaw90 19:Roll90Yaw135 20:Roll270 21:Roll270Yaw45 22:Roll270Yaw90 23:Roll270Yaw136 24:Pitch90 25:Pitch270 26:Pitch180Yaw90 27:Pitch180Yaw270 28:Roll90Pitch90 29:Roll180Pitch90 30:Roll270Pitch90 31:Roll90Pitch180 32:Roll270Pitch180 33:Roll90Pitch270 34:Roll180Pitch270 35:Roll270Pitch270 36:Roll90Pitch180Yaw90 37:Roll90Yaw270 | The orientation of the compass relative to the autopilot board. This will default to the right value for each board type, but can be changed if you have an external compass. See the documentation for your external compass for the right value. The correct orientation should give the X axis forward, the Y axis to the right and the Z axis down. So if your aircraft is pointing west it should show a positive value for the Y axis, and a value close to zero for the X axis. On a PX4 or Pixhawk with an external compass the correct value is zero if the compass is correctly oriented. NOTE: This orientation is combined with any AHRS\_ORIENTATION setting. |
| COMPASS\_USE | 1 |  | 0:Disabled 1:Enabled | Enable or disable the use of the compass (instead of the GPS) for determining heading |
| ESC | 0 |  | 0:Normal Start-up  1:Start-up in ESC Calibration mode if throttle high  2:Start-up in ESC Calibration mode regardless of throttle | Controls whether ArduCopter will enter ESC calibration on the next restart.  Do not adjust this parameter manually. |
| FENCE\_ACTION | 1 |  | 0:Report Only 1:RTL or Land | What action should be taken when fence is breached |
| FENCE\_ALT\_MAX | 121.92 | Meters | 10 1000 | Maximum altitude allowed before geofence triggers |
| FENCE\_ENABLE | 1 |  | 0:Disabled 1:Enabled | Allows you to enable (1) or disable (0) the fence functionality |
| FENCE\_MARGIN | 2 | Meters | 1 10 | Distance that autopilot's should maintain from the fence to avoid a breach |
| FENCE\_RADIUS | 609.6 | Meters | 30 10000 | Circle fence radius which when breached will cause an RTL |
| FENCE\_TYPE | 3 |  | 0:None 1:Altitude 2:Circle 3:Altitude and Circle | Enabled fence types held as bitmask |
| FLOW\_ENABLE | 0 |  | 0:Disabled 1:Enabled | Setting this to Enabled(1) will enable optical flow. Setting this to Disabled(0) will disable optical flow |
| FLTMODE1 | 0 |  | 0:Stabilize 1:Acro 2:AltHold 3:Auto 4:Guided 5:Loiter 6:RTL 7:Circle 9:Land 10:OF\_Loiter 11:Drift 13:Sport 16:PosHold | Flight mode when Channel 5 pwm is <= 1230 |
| FLTMODE2 | 2 |  | 0:Stabilize 1:Acro 2:AltHold 3:Auto 4:Guided 5:Loiter 6:RTL 7:Circle 9:Land 10:OF\_Loiter 11:Drift 13:Sport 16:PosHold | Flight mode when Channel 5 pwm is >1230, <= 1360 |
| FLTMODE3 | 5 |  | 0:Stabilize 1:Acro 2:AltHold 3:Auto 4:Guided 5:Loiter 6:RTL 7:Circle 9:Land 10:OF\_Loiter 11:Drift 13:Sport 16:PosHold | Flight mode when Channel 5 pwm is >1360, <= 1490 |
| FLTMODE4 | 6 |  | 0:Stabilize 1:Acro 2:AltHold 3:Auto 4:Guided 5:Loiter 6:RTL 7:Circle 9:Land 10:OF\_Loiter 11:Drift 13:Sport 16:PosHold | Flight mode when Channel 5 pwm is >1490, <= 1620 |
| FLTMODE5 | 9 |  | 0:Stabilize 1:Acro 2:AltHold 3:Auto 4:Guided 5:Loiter 6:RTL 7:Circle 9:Land 10:OF\_Loiter 11:Drift 13:Sport 16:PosHold | Flight mode when Channel 5 pwm is >1620, <= 1749 |
| FLTMODE6 | 3 |  | 0:Stabilize 1:Acro 2:AltHold 3:Auto 4:Guided 5:Loiter 6:RTL 7:Circle 9:Land 10:OF\_Loiter 11:Drift 13:Sport 16:PosHold | Flight mode when Channel 5 pwm is >=1750 |
| FRAME | 1 |  | 0:Plus  1:X  2:V  3:H  4:V-Tail  5:A-Tail  10:Y6B (New) | Controls motor mixing for multicopters.  Not used for Tri or Traditional Helicopters. |
| FS\_BATT\_ENABLE | 2 |  | 0:Disabled 1:Land 2:RTL | Controls whether failsafe will be invoked when battery voltage or current runs low |
| FS\_BATT\_MAH | 2500 | mAh |  | Battery capacity remaining to trigger failsafe. Set to 0 to disable battery remaining failsafe. If the battery remaining drops below this level then the copter will RTL |
| FS\_BATT\_VOLTAGE | 9.8 | Volts |  | Battery voltage to trigger failsafe. Set to 0 to disable battery voltage failsafe. If the battery voltage drops below this voltage then the copter will RTL |
| FS\_GCS\_ENABLE | 0 |  | 0:Disabled 1:Enabled always RTL 2:Enabled Continue with Mission in Auto Mode | Controls whether failsafe will be invoked (and what action to take) when connection with Ground station is lost for at least 5 seconds |
| FS\_GPS\_ENABLE | 2 |  | 0:Disabled 1:Land 2:AltHold 3:Land even from Stabilize | Controls what action will be taken if GPS signal is lost for at least 5 seconds |
| FS\_THR\_ENABLE | 1 |  | 0:Disabled 1:Enabled always RTL 2:Enabled Continue with Mission in Auto Mode 3:Enabled always LAND | The throttle failsafe allows you to configure a software failsafe activated by a setting on the throttle input channel |
| FS\_THR\_VALUE | 975 | pwm | 925 1100 | The PWM level on channel 3 below which throttle sailsafe triggers |
| GND\_ABS\_PRESS | 100273.9 |  |  | calibrated ground pressure in Pascals |
| GND\_ALT\_OFFSET | 0 | meters | -128 127 | altitude offset in meters added to barometric altitude. This is used to allow for automatic adjustment of the base barometric altitude by a ground station equipped with a barometer. The value is added to the barometric altitude read by the aircraft. It is automatically reset to 0 when the barometer is calibrated on each reboot or when a preflight calibration is performed. |
| GND\_TEMP | 21.97614 |  |  | calibrated ground temperature in degrees Celsius |
| GPS\_HDOP\_GOOD | 200 |  | 100 900 | GPS Hdop value at or below this value represent a good position.  Used for pre-arm checks |
| GPSGLITCH\_ACCEL | 1000 | cm/s/s | 100 2000 | GPS glitch protection's max vehicle acceleration assumption |
| GPSGLITCH\_ENABLE | 1 |  | 0:Disabled 1:Enabled | Allows you to enable (1) or disable (0) gps glitch protection |
| GPSGLITCH\_RADIUS | 200 | cm | 100 2000 | GPS glitch protection radius within which all new positions are accepted |
| HLD\_LAT\_I | 0 |  |  |  |
| HLD\_LAT\_IMAX | 0 |  |  |  |
| HLD\_LAT\_P | 1 |  | 0.500 2.000 | Loiter position controller P gain.  Converts the distance (in the latitude direction) to the target location into a desired speed which is then passed to the loiter latitude rate controller |
| HLD\_LON\_I | 0 |  |  |  |
| HLD\_LON\_IMAX | 0 |  |  |  |
| HLD\_LON\_P | 1 |  |  |  |
| INAV\_TC\_XY | 2.5 |  | 0 10 | Time constant for GPS and accel mixing. Higher TC decreases GPS impact on position estimate |
| INAV\_TC\_Z | 5 |  | 0 10 | Time constant for baro and accel mixing. Higher TC decreases barometers impact on altitude estimate |
| INS\_ACCOFFS\_X | 0.04339416 | m/s/s | -300 300 | Accelerometer offsets of X axis. This is setup using the acceleration calibration or level operations |
| INS\_ACCOFFS\_Y | 0.1220771 | m/s/s | -300 300 | Accelerometer offsets of Y axis. This is setup using the acceleration calibration or level operations |
| INS\_ACCOFFS\_Z | 0.4803344 | m/s/s | -300 300 | Accelerometer offsets of Z axis. This is setup using the acceleration calibration or level operations |
| INS\_ACCSCAL\_X | 0.9901029 |  | 0.8 1.2 | Accelerometer scaling of X axis.  Calculated during acceleration calibration routine |
| INS\_ACCSCAL\_Y | 0.9925317 |  | 0.8 1.2 | Accelerometer scaling of Y axis  Calculated during acceleration calibration routine |
| INS\_ACCSCAL\_Z | 0.9845408 |  | 0.8 1.2 | Accelerometer scaling of Z axis  Calculated during acceleration calibration routine |
| INS\_GYROFFS\_X | 0.005379629 | rad/s |  | Gyro sensor offsets of X axis. This is setup on each boot during gyro calibrations |
| INS\_GYROFFS\_Y | 0.02354853 | rad/s |  | Gyro sensor offsets of Y axis. This is setup on each boot during gyro calibrations |
| INS\_GYROFFS\_Z | -0.0007901835 | rad/s |  | Gyro sensor offsets of Z axis. This is setup on each boot during gyro calibrations |
| INS\_MPU6K\_FILTER | 0 | Hz | 0:Default 5:5Hz 10:10Hz 20:20Hz 42:42Hz 98:98Hz | Filter frequency to ask the MPU6000 to apply to samples. This can be set to a lower value to try to cope with very high vibration levels in aircraft. The default value on ArduPlane, APMrover2 and ArduCopter is 20Hz. This option takes effect on the next reboot or gyro initialisation |
| INS\_PRODUCT\_ID | 88 |  | 0:Unknown 1:APM1-1280 2:APM1-2560 88:APM2 3:SITL 4:PX4v1 5:PX4v2 256:Flymaple 257:Linux | Which type of IMU is installed (read-only). |
| LAND\_SPEED | 50 | cm/s | 30 200 | The descent speed for the final stage of landing in cm/s |
| LED\_MODE | 9 |  |  |  |
| LOG\_BITMASK | 830 |  | 830:Default 894:Default+RCIN 958:Default+IMU 1854:Default+Motors -6146:NearlyAll 0:Disabled | 2 byte bitmap of log types to enable |
| LOITER\_LAT\_D | 0 |  | 0.0 0.6 | Loiter latitude rate controller D gain.  Compensates for short-term change in desired speed vs actual speed |
| LOITER\_LAT\_I | 0.5 |  | 0.02 1.00 | Loiter latitude rate controller I gain.  Corrects long-term difference in desired speed and actual speed in the latitude direction |
| LOITER\_LAT\_IMAX | 400 | Centi-Degrees | 0 4500 | Loiter rate controller I gain maximum.  Constrains the lean angle that the I gain will output |
| LOITER\_LAT\_P | 1 |  | 0.1 6.0 | Loiter latitude rate controller P gain.  Converts the difference between desired speed and actual speed into a lean angle in the latitude direction |
| LOITER\_LON\_D | 0 |  | 0.0 0.6 | Loiter longitude rate controller D gain.  Compensates for short-term change in desired speed vs actual speed |
| LOITER\_LON\_I | 0.5 |  | 0.02 1.00 | Loiter longitude rate controller I gain.  Corrects long-term difference in desired speed and actual speed in the longitude direction |
| LOITER\_LON\_IMAX | 400 | Centi-Degrees | 0 4500 | Loiter longitude rate controller I gain maximum.  Constrains the lean angle that the I gain will output |
| LOITER\_LON\_P | 1 |  | 0.1 6.0 | Loiter longitude rate controller P gain.  Converts the difference between desired speed and actual speed into a lean angle in the longitude direction |
| MAG\_ENABLE | 1 |  | 0:Disabled 1:Enabled | Setting this to Enabled(1) will enable the compass. Setting this to Disabled(0) will disable the compass |
| MNT\_ANGMAX\_PAN | 4500 | Centi-Degrees | -18000 17999 | Maximum physical pan (yaw) angular position of the mount |
| MNT\_ANGMAX\_ROL | 4500 | Centi-Degrees | -18000 17999 | Maximum physical roll angular position of the mount |
| MNT\_ANGMAX\_TIL | 4500 | Centi-Degrees | -18000 17999 | Maximum physical tilt (pitch) angular position of the mount |
| MNT\_ANGMIN\_PAN | -4500 | Centi-Degrees | -18000 17999 | Minimum physical pan (yaw) angular position of mount. |
| MNT\_ANGMIN\_ROL | -4500 | Centi-Degrees | -18000 17999 | Minimum physical roll angular position of mount. |
| MNT\_ANGMIN\_TIL | -4500 | Centi-Degrees | -18000 17999 | Minimum physical tilt (pitch) angular position of mount. |
| MNT\_CONTROL\_X | 0 | Degrees | -180.00 179.99 | Mount roll angle when in MavLink or RC control operation mode |
| MNT\_CONTROL\_Y | 0 | Degrees | -180.00 179.99 | Mount tilt/pitch angle when in MavLink or RC control operation mode |
| MNT\_CONTROL\_Z | 0 | Degrees | -180.00 179.99 | Mount pan/yaw angle when in MavLink or RC control operation mode |
| MNT\_JSTICK\_SPD | 0 |  | 0 100 | 0 for position control, small for low speeds, 100 for max speed. A good general value is 10 which gives a movement speed of 3 degrees per second. |
| MNT\_MODE | 0 |  | 0:retract 1:neutral 2:MavLink\_targeting 3:RC\_targeting 4:GPS\_point | Camera or antenna mount operation mode |
| MNT\_NEUTRAL\_X | 0 | Degrees | -180.00 179.99 | Mount roll angle when in neutral position |
| MNT\_NEUTRAL\_Y | 0 | Degrees | -180.00 179.99 | Mount tilt/pitch angle when in neutral position |
| MNT\_NEUTRAL\_Z | 0 | Degrees | -180.00 179.99 | Mount pan/yaw angle when in neutral position |
| MNT\_RC\_IN\_PAN | 0 |  | 0:Disabled 5:RC5 6:RC6 7:RC7 8:RC8 | 0 for none, any other for the RC channel to be used to control pan (yaw) movements |
| MNT\_RC\_IN\_ROLL | 0 |  | 0:Disabled 5:RC5 6:RC6 7:RC7 8:RC8 | 0 for none, any other for the RC channel to be used to control roll movements |
| MNT\_RC\_IN\_TILT | 0 |  | 0:Disabled 5:RC5 6:RC6 7:RC7 8:RC8 | 0 for none, any other for the RC channel to be used to control tilt (pitch) movements |
| MNT\_RETRACT\_X | 0 | Degrees | -180.00 179.99 | Mount roll angle when in retracted position |
| MNT\_RETRACT\_Y | 0 | Degrees | -180.00 179.99 | Mount tilt/pitch angle when in retracted position |
| MNT\_RETRACT\_Z | 0 | Degrees | -180.00 179.99 | Mount yaw/pan angle when in retracted position |
| MNT\_STAB\_PAN | 0 |  | 0:Disabled 1:Enabled | enable pan/yaw stabilisation relative to Earth |
| MNT\_STAB\_ROLL | 0 |  | 0:Disabled 1:Enabled | enable roll stabilisation relative to Earth |
| MNT\_STAB\_TILT | 0 |  | 0:Disabled 1:Enabled | enable tilt/pitch stabilisation relative to Earth |
| MOT\_SPIN\_ARMED | 70 |  | 0:Do Not Spin 70:VerySlow 100:Slow 130:Medium 150:Fast | Controls whether motors always spin when armed (must be below THR\_MIN) |
| MOT\_TCRV\_ENABLE | 1 |  | 0:Disabled 1:Enable | Controls whether a curve is used to linearize the thrust produced by the motors |
| MOT\_TCRV\_MAXPCT | 93 |  | 20 80 | Set to the lowest pwm position that produces the maximum thrust of the motors.  Most motors produce maximum thrust below the maximum pwm value that they accept. |
| MOT\_TCRV\_MIDPCT | 52 |  | 20 80 | Set the pwm position that produces half the maximum thrust of the motors |
| OF\_PIT\_D | 0.12 |  | 0.100 0.140 | Optical Flow based loiter controller pitch axis D gain.  Compensates for short-term change in speed in the pitch direction |
| OF\_PIT\_I | 0.5 |  | 0.250 0.750 | Optical Flow based loiter controller pitch axis I gain.  Corrects long-term position error by more persistently pitching left or right |
| OF\_PIT\_IMAX | 100 | Centi-Degrees | 0 4500 | Optical Flow based loiter controller pitch axis I gain maximum.  Constrains the maximum pitch angle that the I term will generate |
| OF\_PIT\_P | 2.5 |  | 2.000 3.000 | Optical Flow based loiter controller pitch axis P gain.  Converts the position error from the target point to a pitch angle |
| OF\_RLL\_D | 0.12 |  | 0.100 0.140 | Optical Flow based loiter controller roll axis D gain.  Compensates for short-term change in speed in the roll direction |
| OF\_RLL\_I | 0.5 |  | 0.250 0.750 | Optical Flow based loiter controller roll axis I gain.  Corrects long-term position error by more persistently rolling left or right |
| OF\_RLL\_IMAX | 100 | Centi-Degrees | 0 4500 | Optical Flow based loiter controller roll axis I gain maximum.  Constrains the maximum roll angle that the I term will generate |
| OF\_RLL\_P | 2.5 |  | 2.000 3.000 | Optical Flow based loiter controller roll axis P gain.  Converts the position error from the target point to a roll angle |
| PILOT\_VELZ\_MAX | 250 | Centimeters/Second | 50 500 | The maximum vertical velocity the pilot may request in cm/s |
| RATE\_PIT\_D | 0.011 |  | 0.001 0.02 | Pitch axis rate controller D gain.  Compensates for short-term change in desired pitch rate vs actual pitch rate |
| RATE\_PIT\_I | 0.14 |  | 0.01 0.5 | Pitch axis rate controller I gain.  Corrects long-term difference in desired pitch rate vs actual pitch rate |
| RATE\_PIT\_IMAX | 500 | Percent\*10 | 0 4500 | Pitch axis rate controller I gain maximum.  Constrains the maximum motor output that the I gain will output |
| RATE\_PIT\_P | 0.14 |  | 0.08 0.25 | Pitch axis rate controller P gain.  Converts the difference between desired pitch rate and actual pitch rate into a motor speed output |
| RATE\_RLL\_D | 0.01 |  | 0.001 0.02 | Roll axis rate controller D gain.  Compensates for short-term change in desired roll rate vs actual roll rate |
| RATE\_RLL\_I | 0.115 |  | 0.01 0.5 | Roll axis rate controller I gain.  Corrects long-term difference in desired roll rate vs actual roll rate |
| RATE\_RLL\_IMAX | 500 | Percent\*10 | 0 4500 | Roll axis rate controller I gain maximum.  Constrains the maximum motor output that the I gain will output |
| RATE\_RLL\_P | 0.115 |  | 0.08 0.25 | Roll axis rate controller P gain.  Converts the difference between desired roll rate and actual roll rate into a motor speed output |
| RATE\_YAW\_D | 0 |  | 0.000 0.02 | Yaw axis rate controller D gain.  Compensates for short-term change in desired yaw rate vs actual yaw rate |
| RATE\_YAW\_I | 0.02 |  | 0.010 0.05 | Yaw axis rate controller I gain.  Corrects long-term difference in desired yaw rate vs actual yaw rate |
| RATE\_YAW\_IMAX | 800 | Percent\*10 | 0 4500 | Yaw axis rate controller I gain maximum.  Constrains the maximum motor output that the I gain will output |
| RATE\_YAW\_P | 0.2 |  | 0.150 0.50 | Yaw axis rate controller P gain.  Converts the difference between desired yaw rate and actual yaw rate into a motor speed output |
| RC\_SPEED | 490 | Hz | 50 490 | This is the speed in Hertz that your ESCs will receive updates |
| RC1\_DZ | 30 | pwm | 0 200 | dead zone around trim. |
| RC1\_MAX | 1918 | pwm | 800 2200 | RC maximum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC1\_MIN | 1119 | pwm | 800 2200 | RC minimum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC1\_REV | 1 |  | -1:Reversed 1:Normal | Reverse servo operation. Set to 1 for normal (forward) operation. Set to -1 to reverse this channel. |
| RC1\_TRIM | 1517 | pwm | 800 2200 | RC trim (neutral) PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC10\_DZ | 0 | pwm | 0 200 | dead zone around trim. |
| RC10\_FUNCTION | 0 |  | 0:Disabled 1:RCPassThru 2:Flap 3:Flap\_auto 4:Aileron 6:mount\_pan 7:mount\_tilt 8:mount\_roll 9:mount\_open 10:camera\_trigger 11:release 12:mount2\_pan 13:mount2\_tilt 14:mount2\_roll 15:mount2\_open 16:DifferentialSpoiler1 17:DifferentialSpoiler2 18:AileronWithInput 19:Elevator 20:ElevatorWithInput 21:Rudder 24:Flaperon1 25:Flaperon2 26:GroundSteering 27:Parachute | Setting this to Disabled(0) will setup this output for control by auto missions or MAVLink servo set commands. any other value will enable the corresponding function |
| RC10\_MAX | 1900 | pwm | 800 2200 | RC maximum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC10\_MIN | 1100 | pwm | 800 2200 | RC minimum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC10\_REV | 1 |  | -1:Reversed 1:Normal | Reverse servo operation. Set to 1 for normal (forward) operation. Set to -1 to reverse this channel. |
| RC10\_TRIM | 1500 | pwm | 800 2200 | RC trim (neutral) PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC11\_DZ | 0 | pwm | 0 200 | dead zone around trim. |
| RC11\_FUNCTION | 0 |  | 0:Disabled 1:RCPassThru 2:Flap 3:Flap\_auto 4:Aileron 6:mount\_pan 7:mount\_tilt 8:mount\_roll 9:mount\_open 10:camera\_trigger 11:release 12:mount2\_pan 13:mount2\_tilt 14:mount2\_roll 15:mount2\_open 16:DifferentialSpoiler1 17:DifferentialSpoiler2 18:AileronWithInput 19:Elevator 20:ElevatorWithInput 21:Rudder 24:Flaperon1 25:Flaperon2 26:GroundSteering 27:Parachute | Setting this to Disabled(0) will setup this output for control by auto missions or MAVLink servo set commands. any other value will enable the corresponding function |
| RC11\_MAX | 1900 | pwm | 800 2200 | RC maximum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC11\_MIN | 1100 | pwm | 800 2200 | RC minimum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC11\_REV | 1 |  | -1:Reversed 1:Normal | Reverse servo operation. Set to 1 for normal (forward) operation. Set to -1 to reverse this channel. |
| RC11\_TRIM | 1500 | pwm | 800 2200 | RC trim (neutral) PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC2\_DZ | 30 | pwm | 0 200 | dead zone around trim. |
| RC2\_MAX | 1913 | pwm | 800 2200 | RC maximum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC2\_MIN | 1118 | pwm | 800 2200 | RC minimum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC2\_REV | 1 |  | -1:Reversed 1:Normal | Reverse servo operation. Set to 1 for normal (forward) operation. Set to -1 to reverse this channel. |
| RC2\_TRIM | 1510 | pwm | 800 2200 | RC trim (neutral) PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC3\_DZ | 30 | pwm | 0 200 | dead zone around trim. |
| RC3\_MAX | 1920 | pwm | 800 2200 | RC maximum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC3\_MIN | 1119 | pwm | 800 2200 | RC minimum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC3\_REV | 1 |  | -1:Reversed 1:Normal | Reverse servo operation. Set to 1 for normal (forward) operation. Set to -1 to reverse this channel. |
| RC3\_TRIM | 1122 | pwm | 800 2200 | RC trim (neutral) PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC4\_DZ | 40 | pwm | 0 200 | dead zone around trim. |
| RC4\_MAX | 1918 | pwm | 800 2200 | RC maximum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC4\_MIN | 1119 | pwm | 800 2200 | RC minimum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC4\_REV | 1 |  | -1:Reversed 1:Normal | Reverse servo operation. Set to 1 for normal (forward) operation. Set to -1 to reverse this channel. |
| RC4\_TRIM | 1520 | pwm | 800 2200 | RC trim (neutral) PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC5\_DZ | 0 | pwm | 0 200 | dead zone around trim. |
| RC5\_FUNCTION | 0 |  | 0:Disabled 1:RCPassThru 2:Flap 3:Flap\_auto 4:Aileron 6:mount\_pan 7:mount\_tilt 8:mount\_roll 9:mount\_open 10:camera\_trigger 11:release 12:mount2\_pan 13:mount2\_tilt 14:mount2\_roll 15:mount2\_open 16:DifferentialSpoiler1 17:DifferentialSpoiler2 18:AileronWithInput 19:Elevator 20:ElevatorWithInput 21:Rudder 24:Flaperon1 25:Flaperon2 26:GroundSteering 27:Parachute | Setting this to Disabled(0) will setup this output for control by auto missions or MAVLink servo set commands. any other value will enable the corresponding function |
| RC5\_MAX | 1889 | pwm | 800 2200 | RC maximum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC5\_MIN | 1114 | pwm | 800 2200 | RC minimum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC5\_REV | 1 |  | -1:Reversed 1:Normal | Reverse servo operation. Set to 1 for normal (forward) operation. Set to -1 to reverse this channel. |
| RC5\_TRIM | 1118 | pwm | 800 2200 | RC trim (neutral) PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC6\_DZ | 0 | pwm | 0 200 | dead zone around trim. |
| RC6\_FUNCTION | 0 |  | 0:Disabled 1:RCPassThru 2:Flap 3:Flap\_auto 4:Aileron 6:mount\_pan 7:mount\_tilt 8:mount\_roll 9:mount\_open 10:camera\_trigger 11:release 12:mount2\_pan 13:mount2\_tilt 14:mount2\_roll 15:mount2\_open 16:DifferentialSpoiler1 17:DifferentialSpoiler2 18:AileronWithInput 19:Elevator 20:ElevatorWithInput 21:Rudder 24:Flaperon1 25:Flaperon2 26:GroundSteering 27:Parachute | Setting this to Disabled(0) will setup this output for control by auto missions or MAVLink servo set commands. any other value will enable the corresponding function |
| RC6\_MAX | 1522 | pwm | 800 2200 | RC maximum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC6\_MIN | 1514 | pwm | 800 2200 | RC minimum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC6\_REV | 1 |  | -1:Reversed 1:Normal | Reverse servo operation. Set to 1 for normal (forward) operation. Set to -1 to reverse this channel. |
| RC6\_TRIM | 1518 | pwm | 800 2200 | RC trim (neutral) PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC7\_DZ | 0 | pwm | 0 200 | dead zone around trim. |
| RC7\_FUNCTION | 0 |  | 0:Disabled 1:RCPassThru 2:Flap 3:Flap\_auto 4:Aileron 6:mount\_pan 7:mount\_tilt 8:mount\_roll 9:mount\_open 10:camera\_trigger 11:release 12:mount2\_pan 13:mount2\_tilt 14:mount2\_roll 15:mount2\_open 16:DifferentialSpoiler1 17:DifferentialSpoiler2 18:AileronWithInput 19:Elevator 20:ElevatorWithInput 21:Rudder 24:Flaperon1 25:Flaperon2 26:GroundSteering 27:Parachute | Setting this to Disabled(0) will setup this output for control by auto missions or MAVLink servo set commands. any other value will enable the corresponding function |
| RC7\_MAX | 1918 | pwm | 800 2200 | RC maximum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC7\_MIN | 1114 | pwm | 800 2200 | RC minimum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC7\_REV | 1 |  | -1:Reversed 1:Normal | Reverse servo operation. Set to 1 for normal (forward) operation. Set to -1 to reverse this channel. |
| RC7\_TRIM | 1118 | pwm | 800 2200 | RC trim (neutral) PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC8\_DZ | 0 | pwm | 0 200 | dead zone around trim. |
| RC8\_FUNCTION | 0 |  | 0:Disabled 1:RCPassThru 2:Flap 3:Flap\_auto 4:Aileron 6:mount\_pan 7:mount\_tilt 8:mount\_roll 9:mount\_open 10:camera\_trigger 11:release 12:mount2\_pan 13:mount2\_tilt 14:mount2\_roll 15:mount2\_open 16:DifferentialSpoiler1 17:DifferentialSpoiler2 18:AileronWithInput 19:Elevator 20:ElevatorWithInput 21:Rudder 24:Flaperon1 25:Flaperon2 26:GroundSteering 27:Parachute | Setting this to Disabled(0) will setup this output for control by auto missions or MAVLink servo set commands. any other value will enable the corresponding function |
| RC8\_MAX | 1918 | pwm | 800 2200 | RC maximum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC8\_MIN | 1118 | pwm | 800 2200 | RC minimum PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RC8\_REV | 1 |  | -1:Reversed 1:Normal | Reverse servo operation. Set to 1 for normal (forward) operation. Set to -1 to reverse this channel. |
| RC8\_TRIM | 1520 | pwm | 800 2200 | RC trim (neutral) PWM pulse width. Typically 1000 is lower limit, 1500 is neutral and 2000 is upper limit. |
| RCMAP\_PITCH | 2 |  | 1 8 | Pitch channel number. This is useful when you have a RC transmitter that can't change the channel order easily. Pitch is normally on channel 2, but you can move it to any channel with this parameter. |
| RCMAP\_ROLL | 1 |  | 1 8 | Roll channel number. This is useful when you have a RC transmitter that can't change the channel order easily. Roll is normally on channel 1, but you can move it to any channel with this parameter. |
| RCMAP\_THROTTLE | 3 |  | 1 8 | Throttle channel number. This is useful when you have a RC transmitter that can't change the channel order easily. Throttle is normally on channel 3, but you can move it to any channel with this parameter. Warning APM 2.X: Changing the throttle channel could produce unexpected fail-safe results if connection between receiver and on-board PPM Encoder is lost. Disabling on-board PPM Encoder is recommended. |
| RCMAP\_YAW | 4 |  | 1 8 | Yaw channel number. This is useful when you have a RC transmitter that can't change the channel order easily. Yaw (also known as rudder) is normally on channel 4, but you can move it to any channel with this parameter. |
| RELAY\_PIN | 13 |  | -1:Disabled 13:APM2 A9 pin 47:APM1 relay 50:Pixhawk FMU AUX1 51:Pixhawk FMU AUX2 52:Pixhawk FMU AUX3 53:Pixhawk FMU AUX4 54:Pixhawk FMU AUX5 55:Pixhawk FMU AUX6 111:PX4 FMU Relay1 112:PX4 FMU Relay2 113:PX4IO Relay1 114:PX4IO Relay2 115:PX4IO ACC1 116:PX4IO ACC2 | Digital pin number for first relay control. This is the pin used for camera control. |
| RSSI\_PIN | -1 |  | -1:Disabled  0:APM2 A0  1:APM2 A1  2:APM2 A2  13:APM2 A13  103:Pixhawk SBUS | This selects an analog pin for the receiver RSSI voltage. It assumes the voltage is RSSI\_RANGE for max rssi, 0V for minimum |
| RTL\_ALT | 3048 | Centimeters | 0 8000 | The minimum altitude the model will move to before Returning to Launch.  Set to zero to return at current altitude. |
| RTL\_ALT\_FINAL | 0 | Centimeters | -1 1000 | This is the altitude the vehicle will move to as the final stage of Returning to Launch or after completing a mission.  Set to zero to land. |
| RTL\_LOIT\_TIME | 3000 | ms | 0 60000 | Time (in milliseconds) to loiter above home before begining final descent |
| SCHED\_DEBUG | 0 |  | 0:Disabled 2:ShowSlips 3:ShowOverruns | Set to non-zero to enable scheduler debug messages. When set to show "Slips" the scheduler will display a message whenever a scheduled task is delayed due to too much CPU load. When set to ShowOverruns the scheduled will display a message whenever a task takes longer than the limit promised in the task table. |
| SERIAL3\_BAUD | 57 |  |  |  |
| SIMPLE | 1 |  |  | Bitmask which holds which flight modes use simple heading mode (eg bit 0 = 1 means Flight Mode 0 uses simple mode) |
| SONAR\_ENABLE | 0 |  |  |  |
| SONAR\_GAIN | 0.8 |  |  |  |
| SONAR\_TYPE | 0 |  |  |  |
| SR0\_EXT\_STAT | 0 |  |  |  |
| SR0\_EXTRA1 | 0 |  |  |  |
| SR0\_EXTRA2 | 0 |  |  |  |
| SR0\_EXTRA3 | 0 |  |  |  |
| SR0\_PARAMS | 50 |  |  |  |
| SR0\_POSITION | 0 |  |  |  |
| SR0\_RAW\_CTRL | 0 |  |  |  |
| SR0\_RAW\_SENS | 0 |  |  |  |
| SR0\_RC\_CHAN | 0 |  |  |  |
| SR3\_EXT\_STAT | 0 |  |  |  |
| SR3\_EXTRA1 | 0 |  |  |  |
| SR3\_EXTRA2 | 0 |  |  |  |
| SR3\_EXTRA3 | 0 |  |  |  |
| SR3\_PARAMS | 0 |  |  |  |
| SR3\_POSITION | 0 |  |  |  |
| SR3\_RAW\_CTRL | 0 |  |  |  |
| SR3\_RAW\_SENS | 0 |  |  |  |
| SR3\_RC\_CHAN | 0 |  |  |  |
| STB\_PIT\_I | 0 |  |  |  |
| STB\_PIT\_IMAX | 0 |  |  |  |
| STB\_PIT\_P | 9.75 |  | 3.000 12.000 | Pitch axis stabilize (i.e. angle) controller P gain.  Converts the error between the desired pitch angle and actual angle to a desired pitch rate |
| STB\_RLL\_I | 0 |  |  |  |
| STB\_RLL\_IMAX | 0 |  |  |  |
| STB\_RLL\_P | 9.75 |  | 3.000 12.000 | Roll axis stabilize (i.e. angle) controller P gain.  Converts the error between the desired roll angle and actual angle to a desired roll rate |
| STB\_YAW\_I | 0 |  |  |  |
| STB\_YAW\_IMAX | 0 |  |  |  |
| STB\_YAW\_P | 4.5 |  | 3.000 6.000 | Yaw axis stabilize (i.e. angle) controller P gain.  Converts the error between the desired yaw angle and actual angle to a desired yaw rate |
| SUPER\_SIMPLE | 0 |  | 0:Disabled 1:Mode1 2:Mode2 3:Mode1+2 4:Mode3 5:Mode1+3 6:Mode2+3 7:Mode1+2+3 8:Mode4 9:Mode1+4 10:Mode2+4 11:Mode1+2+4 12:Mode3+4 13:Mode1+3+4 14:Mode2+3+4 15:Mode1+2+3+4 16:Mode5 17:Mode1+5 18:Mode2+5 19:Mode1+2+5 20:Mode3+5 21:Mode1+3+5 22:Mode2+3+5 23:Mode1+2+3+5 24:Mode4+5 25:Mode1+4+5 26:Mode2+4+5 27:Mode1+2+4+5 28:Mode3+4+5 29:Mode1+3+4+5 30:Mode2+3+4+5 31:Mode1+2+3+4+5 32:Mode6 33:Mode1+6 34:Mode2+6 35:Mode1+2+6 36:Mode3+6 37:Mode1+3+6 38:Mode2+3+6 39:Mode1+2+3+6 40:Mode4+6 41:Mode1+4+6 42:Mode2+4+6 43:Mode1+2+4+6 44:Mode3+4+6 45:Mode1+3+4+6 46:Mode2+3+4+6 47:Mode1+2+3+4+6 48:Mode5+6 49:Mode1+5+6 50:Mode2+5+6 51:Mode1+2+5+6 52:Mode3+5+6 53:Mode1+3+5+6 54:Mode2+3+5+6 55:Mode1+2+3+5+6 56:Mode4+5+6 57:Mode1+4+5+6 58:Mode2+4+5+6 59:Mode1+2+4+5+6 60:Mode3+4+5+6 61:Mode1+3+4+5+6 62:Mode2+3+4+5+6 63:Mode1+2+3+4+5+6 | Bitmask to enable Super Simple mode for some flight modes. Setting this to Disabled(0) will disable Super Simple Mode |
| SYSID\_MYGCS | 255 |  | 1 255 | Allows restricting radio overrides to only come from my ground station |
| SYSID\_SW\_MREV | 120 |  |  | This value is incremented when changes are made to the eeprom format |
| SYSID\_SW\_TYPE | 10 |  |  | This is used by the ground station to recognise the software type (eg ArduPlane vs ArduCopter) |
| SYSID\_THISMAV | 1 |  | 1 255 | Allows reconising the mavlink version |
| TELEM\_DELAY | 0 | seconds | 0 10 | The amount of time (in seconds) to delay radio telemetry to prevent an Xbee bricking on power up |
| THR\_ACCEL\_D | 0 |  | 0.000 0.400 | Throttle acceleration controller D gain.  Compensates for short-term change in desired vertical acceleration vs actual acceleration |
| THR\_ACCEL\_I | 1.5 |  | 0.000 3.000 | Throttle acceleration controller I gain.  Corrects long-term difference in desired vertical acceleration and actual acceleration |
| THR\_ACCEL\_IMAX | 500 | Percent\*10 | 0 1000 | Throttle acceleration controller I gain maximum.  Constrains the maximum pwm that the I term will generate |
| THR\_ACCEL\_P | 0.75 |  | 0.500 1.500 | Throttle acceleration controller P gain.  Converts the difference between desired vertical acceleration and actual acceleration into a motor output |
| THR\_ALT\_I | 0 |  |  |  |
| THR\_ALT\_IMAX | 300 |  |  |  |
| THR\_ALT\_P | 1 |  | 1.000 3.000 | Altitude controller P gain.  Converts the difference between the desired altitude and actual altitude into a climb or descent rate which is passed to the throttle rate controller |
| THR\_MAX | 1000 | Percent\*10 | 800 1000 | The maximum throttle that will be sent to the motors.  This should normally be left as 1000. |
| THR\_MID | 500 | Percent\*10 | 300 700 | The throttle output (0 ~ 1000) when throttle stick is in mid position.  Used to scale the manual throttle so that the mid throttle stick position is close to the throttle required to hover |
| THR\_MIN | 130 | Percent\*10 | 0 300 | The minimum throttle that will be sent to the motors to keep them spinning |
| THR\_RATE\_D | 0 |  | 0.000 0.400 | Throttle rate controller D gain.  Compensates for short-term change in desired vertical speed vs actual speed |
| THR\_RATE\_I | 0 |  | 0.000 0.100 | Throttle rate controller I gain.  Corrects long-term difference in desired vertical speed and actual speed |
| THR\_RATE\_IMAX | 300 | cm/s/s | 0 500 | Throttle rate controller I gain maximum.  Constrains the desired acceleration that the I gain will generate |
| THR\_RATE\_P | 6 |  | 1.000 8.000 | Throttle rate controller P gain.  Converts the difference between desired vertical speed and actual speed into a desired acceleration that is passed to the throttle acceleration controller |
| TRIM\_THROTTLE | 530 | Percent\*10 | 0 1000 | The autopilot's estimate of the throttle required to maintain a level hover.  Calculated automatically from the pilot's throttle input while in stabilize mode |
| TUNE | 0 |  | 0:None 1:Stab Roll/Pitch kP 4:Rate Roll/Pitch kP 5:Rate Roll/Pitch kI 21:Rate Roll/Pitch kD 3:Stab Yaw kP 6:Rate Yaw kP 26:Rate Yaw kD 14:Altitude Hold kP 7:Throttle Rate kP 34:Throttle Accel kP 35:Throttle Accel kI 36:Throttle Accel kD 42:Loiter Speed 12:Loiter Pos kP 22:Loiter Rate kP 28:Loiter Rate kI 23:Loiter Rate kD 10:WP Speed 25:Acro RollPitch kP 40:Acro Yaw kP 13:Heli Ext Gyro 17:OF Loiter kP 18:OF Loiter kI 19:OF Loiter kD 30:AHRS Yaw kP 31:AHRS kP 38:Declination 39:Circle Rate 41:RangeFinder Gain 46:Rate Pitch kP 47:Rate Pitch kI 48:Rate Pitch kD 49:Rate Roll kP 50:Rate Roll kI 51:Rate Roll kD 52:Rate Pitch FF 53:Rate Roll FF 54:Rate Yaw FF | Controls which parameters (normally PID gains) are being tuned with transmitter's channel 6 knob |
| TUNE\_HIGH | 1000 |  | 0 32767 | The maximum value that will be applied to the parameter currently being tuned with the transmitter's channel 6 knob |
| TUNE\_LOW | 0 |  | 0 32767 | The minimum value that will be applied to the parameter currently being tuned with the transmitter's channel 6 knob |
| WP\_INDEX | 0 |  |  |  |
| WP\_TOTAL | 1 |  |  |  |
| WP\_YAW\_BEHAVIOR | 1 |  | 0:Never change yaw  1:Face next waypoint  2:Face next waypoint except RTL  3:Face along GPS course | Determines how the autopilot controls the yaw during missions and RTL |
| WPNAV\_ACCEL | 100 | cm/s/s | 50 500 | Defines the horizontal acceleration in cm/s/s used during missions |
| WPNAV\_LOIT\_SPEED | 400 | cm/s | 0 2000 | Defines the maximum speed in cm/s which the aircraft will travel horizontally while in loiter mode |
| WPNAV\_RADIUS | 182.88 | cm | 100 1000 | Defines the distance from a waypoint, that when crossed indicates the wp has been hit. |
| WPNAV\_SPEED | 400 | cm/s | 0 2000 | Defines the speed in cm/s which the aircraft will attempt to maintain horizontally during a WP mission |
| WPNAV\_SPEED\_DN | 150 | cm/s | 0 1000 | Defines the speed in cm/s which the aircraft will attempt to maintain while descending during a WP mission |
| WPNAV\_SPEED\_UP | 250 | cm/s | 0 1000 | Defines the speed in cm/s which the aircraft will attempt to maintain while climbing during a WP mission |