



Phantom 4 .CSV column descriptions

Name	Description	Freq (HZ)	Derived	Version
tickNo	Internal bus clock	4500000	No	2.4.1
offSetTime	See User Manual	200	Yes	2.4.1
longitude	degrees. Converted from radians	200	No	2.4.1
latitude	degrees. Converted from radians	200	No	2.4.1
numSats	Number of Satellites	N/A	No	2.4.1
gpsHealth	0 - 5. 5 is best condition.	N/A	No	2.4.1
baroRaw	Meters. Raw data from barometer.	50	No	2.4.6
baroAlt	Meters. Smoothed barometer data	200	No	2.4.1
vpsHeight	Meters. Height from VPS sensor. Blank if VPS height isn't	200	No	2.4.2
absoluteHeight	Meters. Populated if the Home Point Elevation has been set.	200	Yes	2.4.3

accelX	Meters/second. Acceleration along the X, Y and Z axes	200	No	2.4.1
accelY		200	No	2.4.1
accelZ		200	No	2.4.1
accel	Meters/second. $\sqrt{\text{accelX}^2 + \text{accelY}^2 + \text{accelZ}^2}$	200	Yes	2.4.1
gyroX	Degrees/second. Rotation about the X, Y and Z axes	200	No	2.4.1
gyroY		200	No	2.4.1
gyroZ		200	No	2.4.1
gyro	$\sqrt{\text{gyroX}^2 + \text{gyroY}^2 + \text{gyroZ}^2}$	200	Yes	2.4.1
errorX	Precise description unknown. Probably an error term representing the difference between the measured and predicted orientation	200	No	2.4.1
errorY		200	No	2.4.1
errorZ		200	No	2.4.1
error	$\sqrt{\text{errorX}^2 + \text{errorY}^2 + \text{errorZ}^2}$	200	Yes	2.4.1
magX		50	No	2.4.1
magY		50	No	2.4.1
magZ		50	No	2.4.1
magMod	$\sqrt{\text{magX}^2 + \text{magY}^2 + \text{magZ}^2}$	50	Yes	2.4.1

quatW	Quaternion. The orientation of the P3. QuatW is the scalar. (QuatX, QuatY, QuatZ) is the vector part. See https://en.wikipedia.org/wiki/Quaternion	200	No	2.4.1
quatX		200	No	2.4.1
quatY		200	No	2.4.1
quatZ		200	No	2.4.1
Roll	Degrees. Computed from the Quaternion above. Note, the yaw value appears to be corrected for geomagnetic declination; I.e. yaw is true and not magnetic.	200	Yes	2.4.1
Pitch		200	Yes	2.4.1
Yaw		200	Yes	2.4.1
Yaw360	Degrees. Range 0 -360.	200	Yes	2.4.1
totalGyroZ	Degrees. Integration and summation of gyroZ . Can be used	200	Yes	2.4.1
magYaw	Yaw value computed from magnetometers and corrected	200	Yes	2.4.1
thrustAngle	Degrees. Computed from motor speeds. Direction the A/C is	200	Yes	2.4.1

velN	Meters/second. Velocity North, East, Down	200	No	2.4.1
velE		200	No	2.4.1
velD		200	No	2.4.1
vel	Meters/sec. Speed. $\text{Sqrt}(\text{velN}^2 + \text{velE}^2 + \text{velD}^2)$	200	Yes	2.4.1
velH	Meters/sec. Horizontal speed. $\text{Sqrt}(\text{velN}^2 + \text{velE}^2)$	200	Yes	2.4.1
velGPS-velH	Meters/second. Difference between velocity computed from	200	Yes	2.4.1

homePointLongitude	Coordinates of Home Point. Obtained from eventLog. Altitude is set by A/C to be 20 meters higher than the barometric altitude.	N/A	No	2.4.1
homePointLatitude		N/A	No	2.4.1
homePointAltitude		N/A	No	2.4.1
distanceHP	Meters. Distance from Home Point	200	No	2.4.1
distanceTraveled	Meters. Computed from successive latitude/longitude	1	Yes	2.4.1
relativeHeight	Meters. Altitude above Home Point	10	No	2.4.1
flightTime	Milliseconds. Can be used to synch with .txt log files. I.e.,	10	No	2.4.1
directionOfTravel	Degrees. Range = [-180,180]. Computed from successive	1	Yes	2.4.1
directionOfTravelTrue	Degrees. Range = [-180,180]. Computed from successive	1	Yes	2.4.1


Control:Aileron	Range [-10000, 10000] Neutral = 0. Stick left or down = -10000. Stick right or up = 10000.	50	No	2.4.1
Control:Elevator		50	No	2.4.1
Control:Throttle		50	No	2.4.1

Control:Rudder		50	No	2.4.1
Control:ModeSwitch	P, Sport or ATTI	50	No	2.4.1

flyCState	Duplicate of flyCState field in the .txt file. Manual(0), Atti(1),	10	No	2.4.1
flyCState:String	Atti_CL(2), Atti_Hover(3), Hover(4), GPS_Blake(5),			2.4.1
nonGPSCause	Duplicate of nonGPS_Cause field in the .txt file. ALREADY(0),	10	No	2.4.1
nonGPSCause:String	FORBIN(1), GPSNUM_NONENOUGH(2),			2.4.1
flightAction	NONE(0), WARNING_POWER_GOHOME(1),	10	No	2.4.1
connectedToRC	◆ 0 = not connected, 1 = connected ◆	10	No	2.4.1

Current		1	No	2.4.1
Volt1		1	No	2.4.1
Volt2		1	No	2.4.1
Volt3		1	No	2.4.1
totalVolts		1	No	2.4.1
voltSpread	maximum cell voltage - minimum cell voltage	1	Yes	2.4.1
Watts	totalVolts * Current	1	Yes	2.4.1
minCurrent	Minimum Current since Battery On	1	Yes	2.4.1
maxCurrent ◆	Maximum Current since Battery On	1	Yes	2.4.1
avgCurrent	Average Current since Battery On	1	Yes	2.4.1
minVolts	Minimum totalVolts since Battery On	1	Yes	2.4.1
maxVolts	Maximum totalVolts since Battery On	1	Yes	2.4.1
avgVolts	Average totalVolts since Battery On	1	Yes	2.4.1
minWatts	MinimumWatts since Battery On	1	Yes	2.4.1
maxWatts	Maximum Watts since Battery On	1	Yes	2.4.1
avgWatts	Average Watts since Battery On	1	Yes	2.4.1
batteryTemp	Celcius	1	No	2.4.1
lowVoltage	lowVoltage warning; 1 = warning, 0 = normal	1	No	2.4.3

ESC:RF:PWM	Pulse Width Modulation. Can be used to determine commanded motor speed. Range 0 - 100;	50	No	2.4.3
ESC:LF:PWM		50	No	2.4.3
ESC:LB:PWM		50	No	2.4.3

ESC:RB:PWM		50	No	2.4.3
ESC:RF:Speed	Actual Motor Speed. RPM. 	50	No	2.4.1
ESC:LF:Speed		50	No	2.4.1
ESC:LB:Speed		50	No	2.4.1
ESC:RB:Speed		50	No	2.4.1
ESC:RF:PPM		Pulse Position Modulation	50	No
ESC:LF:PPM	50		No	2.4.2
ESC:LB:PPM	50		No	2.4.2
ESC:RB:PPM	50		No	2.4.2
ESC:RF:Volts		50	No	2.4.3
ESC:LF:Volts		50	No	2.4.3
ESC:LB:Volts		50	No	2.4.3
ESC:RB:Volts		50	No	2.4.3

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errorX	Precise description unknown. Probably an error term	200	No	2.4.1

errorY	representing the difference between the measured and predicted orientation	200	No	2.4.1
errorZ		200	No	2.4.1
error	$\sqrt{\text{errorX}^2 + \text{errorY}^2 + \text{errorZ}^2}$	200	Yes	2.4.1
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Control:Rudder		50	No	2.4.1
Control:ModeSwitch	P, Sport or ATTI	50	No	2.4.1

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flyCState:String				2.4.1
nonGPSCause	Duplicate of nonGPS_Cause field in the .txt file. ALREADY(0), FORBIN(1), GPSNUM_NONENOUGH(2),	10	No	2.4.1
nonGPSCause:String				2.4.1
flightAction	NONE(0), WARNING_POWER_GOHOME(1),	10	No	2.4.1
connectedToRC	◆ 0 = not connected, 1 = connected ◆	10	No	2.4.1

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ESC:LB:PWM		50	No	2.4.3
ESC:RB:PWM		50	No	2.4.3
ESC:RF:Speed	Actual Motor Speed. RPM. ⚡	50	No	2.4.1
ESC:LF:Speed		50	No	2.4.1
ESC:LB:Speed		50	No	2.4.1
ESC:RB:Speed		50	No	2.4.1
ESC:RF:PPM	Pulse Position Modulation	50	No	2.4.2
ESC:LF:PPM		50	No	2.4.2
ESC:LB:PPM		50	No	2.4.2
ESC:RB:PPM		50	No	2.4.2
ESC:RF:Volts		50	No	2.4.3
ESC:LF:Volts		50	No	2.4.3
ESC:LB:Volts		50	No	2.4.3
ESC:RB:Volts		50	No	2.4.3