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Telemetry

Telemetry is information sent back to your RC transmitter via the RC data link. For example, telemetry allows for your RC transmitter to read out your main battery voltage or RSSI. For telemetry to work your RC receiver and transmitter must support it. The specific data that Betaflight will send via telemetry depends on the telemetry protocol being used. For example, Smartport will send a certain set of information while Crossfire will send another set.

Crossfire protocol / CRSF

Here is the set of telemetry fields send via the Crossfire protocol.

Datapoint	Description	Data unit	Data Source Id	SubId
1RSS	Uplink - received signal strength antenna 1 (RSSI)	db	LINK ID	0
2RSS	Uplink - received signal strength antenna 2 (RSSI)	db	LINK ID	1
RQLY	Uplink - link quality (valid packets)	%	LINK ID	2
RSNR	Uplink - signal-to-noise ratio	db	LINK ID	3
ANT	Antenna	raw	LINK ID	4
RFMD	Uplink - update rate; 0 = 4Hz; 1 = 50Hz; 2 = 150Hz	raw	LINK ID	5

Datapoint	Description	Data unit	Data Source Id	SubId
TPWR	Uplink – transmitting power	mW	LINK ID	6
TRSS	Downlink – signal strength antenna (radio controller)	db	LINK ID	7
TQLY	Downlink – link quality (valid packets)	%	LINK ID	8
TSNR	Downlink – signal-to-noise ratio	db	LINK ID	9
GPS	GPS Coordinates	lat + lon	GPS_ID	0
GSpd	GPS ground speed	kmh	GPS_ID	2
Hdg	Magnetic orientation / heading	deg	GPS_ID	3
Alt	GPS Altitudes	m	GPS_ID	4
Sats	GPS Satellites acquired	raw	GPS_ID	5
RxBt	Battery voltage	V	BATTERY_ID	0
Curr	Current draw	A	BATTERY_ID	1
Capa	Current consumption	mAh	BATTERY_ID	2
Bat%	Battery remaining	%	BATTERY_ID	3
Ptch	FC pitch angle	radians	ATTITUDE_ID	0
Roll	FC roll angle	radians	ATTITUDE_ID	1
Yaw	FC yaw angle	radians	ATTITUDE_ID	2

Datapoint	Description	Data unit	Data Source Id	SubId
FM	Flight mode	See below	FLIGHT_MODE_ID	0

CRSF flightmode

Flight Mode	Meaning
!FS	Failsafe mode
RTH	Return To Home mode
MANU	Passthru mode
ACRO	ACRO mode
STAB	Angle mode
HOR	Horizon mode
AIR	Air mode
WAIT	Wait for GPS lock
appended *	FC is not ARMED

Smartport protocol

Here is the set of telemetry fields sent via Smartport can be seen here :
https://github.com/betaflight/betaflight/blob/daa6df80248c9a806b7d77c402d41
5a15f4e2667/src/main/telemetry/smartport.c#L89

Other protocols

All telemetry protocols can be inspected here :
https://github.com/betaflight/betaflight/tree/master/src/main/telemetry

Youtube

▶ Joshua Bardwell

▶ Ivan Efimov

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