

yaapu-passthrough-crsf-elrs.md

Protocol details

The CRSF protocol has been added to ArduPilot starting with version 4.1.x

For more info on configuring ArduPilot for CRSF please check the ArduPilot Wiki (<https://ardupilot.org/plane/docs/common-crsf-telemetry.html>)

For Passthrough over **CRSF** please use a recent TBS firmware version, latest firmware tested is 6.19 (10/2022)

For passthrough over **ExpressLRS** ELRS 2.x or later is required. Ardupilot 4.1.x requires a telemetry rate of 50 or higher, whilst Ardupilot 4.2 or newer supports a telemetry rate of 25 or higher. The following tables lists some of the supported rates, higher packet rates work just as well provided the telemetry rate is selected according to the above

ELRS packet rate	ELRS telemetry ratio	supported by ardupilot
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50	1:2	4.2 or newer
100	1:2	4.1 or newer
100	1:4	4.2 or newer
200	1:2	4.1 or newer
200	1:4	4.1 or newer
200	1:8	4.2 or newer

The CRSF/ELRS receiver can be wired to an ArduPilot FC in 2 ways:

- by using RCIN
- by using a serial port with SERIAL_PROTOCOL = 23

****For telemetry support it requires the usage of a serial port.****

CRSF native telemetry is supported by OpenTX/EdgeTX as sensors, so users would normally have to discover and display them on widgets or telemetry pages.

Passthrough over CRSF adds the same sensors as passthrough over S.Port.

****Please note that native CRSF telemetry will be slowed down to save bandwidth for passthrough custom telemetry****

****For CRSF support on Taranis and Horus class radios please use script version 1.9.5 or later****

****For ExpressLRS support on Taranis and Horus class radios please use script version 1.9.6 or later****

Installation

Installation for both Taranis and Horus class radios

- follow the standard setup instructions for your radio
- for Taranis radios enter the script config menu (long press [MENU]) and enable CRSF support
- for Horus radios enter the Widget config menu (long press [SYS] -> Tools -> Yaapu Config) and enable
- enable passthrough over CRSF on ArduPilot by setting RC_OPTIONS = [current value] + 256

RSSI and link Quality

****Note**:** The RSSI value is calculated with the same algo used by ArduPilot so the two should match

On Horus class radios the following values will be reported on the top bar:

- RTP: RQly/TQly/TPWR
- RS: RSSI/RFMD

!image

(<https://user-images.githubusercontent.com/30294218/141123096-f6ac19cc-eee3-4c53-9316-0f6fae24677a.png>)

On Taranis class radios

- R: RSSI/RFMD

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(<https://user-images.githubusercontent.com/30294218/141123871-51ffc1d0-57b7-4cd9-9615-c5f80eb51b5b.png>)

CRSF and Mavlink

please check this post (<https://www.rcgroups.com/forums/showpost.php?p=47897375&postcount=800>) by @athertop