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X8r receiver manual

FrSky telemetry provides access to vehicle telemetry/status information for compatible RC transmitters. Available telemetry is listed here and includes flight mode, battery level, RC signal strength, speed, altitude, etc. Some transmitters can also provide audible and vibration feedback, which is particularly useful for low battery and other fail-safe alerts. PX4 supports both S. ports (new) and D (old) FrSky telemetry ports. Hardware Setup A typical hardware setup for Pixhawk/S.Port telemetry connections is as follows: The following illustration shows only telemetry connections. RC channel receivers must be connected separately. The setup includes FrSky compatible RC transmitters like FrSky Taranis X9D Plus. FrSky telemetry-enabled receivers such as XSR and X8R. A cable for connecting the FrSky receiver smart port to the flight controller UART. With the exception of Pixracer, the Pixhawk Series UART port and receiver telemetry port are incompatible and (typically) must be connected through an adapter. It is usually cheaper and easier to purchase a ready-made cable that includes this adapter and has connectors suitable for autopilot and receiver. Creating DIY cables requires expertise in electronics assemblies. Ready-to-use cable Ready-made cables (including required adapters) are available from crafting and theory. Versions are available for DF-13 compatible picoblade connectors (for FMUv2/3DR Pixhawk, FMUv2/HKPilot32) and JST-GH connectors (for FMUv3/Pixhawk 2 cubes and FMUv4/PixRacer v1). Configure a serial TEL_FRSKY_CONFIG FrSky by using the PX4 configuration command. It is not necessary to set the baud rate of the port configured by the driver. You can use the free UART, but TELE 2 is typically used for FrSky telemetry (except for Pixracer, which is pre-configured to use the FrSky port by default). If the configuration parameters are not available in QGroundControl, you must add the driver to the firmware: Driver/Telemetry/frsky_telemetry No additional configuration is required. FrSky telemetry starts automatically when you connect and detects D or S mode. You need an RC transmitter that can receive compatible RC transmitter telemetry streams (bound to a FrSky receiver). Popular Choices are: FrSky Taranis X9D Plus (Recommended) FrSky Taranis X9E FrSky Taranis X9E FrSky Taranis Q X7 Thanigie 9XR Pro The transmitter above can display telemetry data without any further settings. The following sections describe how to customize telemetry display (for example, to improve UI/UX). Taranis - LuaPilot Setup compatible Taranis receivers running OpenTX 2.1.6 or later (such as X9D Plus) can use LuaPilot scripts to change the telemetry displayed (as shown in the screenshot below). You can find instructions for installing the script here: LuaPilot Taranis Telemetry Script > Taranis Setup OpenTX 2.1.6 or later When you open the LuaPil.lua script, you will see the text. You can edit the configuration. The proposed changes are as follows: Local BattLevelmAh - -1 - Use battery level calculations from the vehicle's local SayFlightMode - 0 - WAV file for PX4 flight mode telemetry message CrySky Telemetry can send most of the more useful status information from PX4. Recipients of S and D ports send different sets of messages, as shown in the next section. The S-port S-port receiver sends the following message (from here) from PX4: AccX, AccY, AccZ: Accelerometer Value. Alt: Barometer-based altitude relative to your home location. Car: Actual current consumption (Amps).Fuel: Variable set and variable smartport_fuel_percent - battery_capacity percentage of battery life if ON, otherwise mAh is drawn. GAlt: GPS altitude, sea level is zero. GPS: GPS coordinates. GSpd: Current horizontal ground speed calculated by GPS. Hdg: Heading (degrees - 0 degrees north). VFAS: Actual battery voltage value (voltage FrSky amperesensor). VSpd: Vertical velocity (cm/s). Tmp1: Flight mode, sent as integer: 18 - Manual, 23 - Advanced, 22 - Position, 27 - Mission, 26 - Hold, 28 - Return, 19 - Acro, 24 0 Offboard, 20 - Stable, 25 - Takeoff, 29 - Land, 30 - Follow me. The number on the far right is the GPS fixed type (0 x none, 2 x 2D, 3 x 3D) The other number is the number of satellites. The following standard S-port messages are not supported on PX4: ASpd, A4. The D-port D-port receiver sends the following message (from here): AccX, AccY, AccZ: Accelerometer value. Alt: Barometer-based altitude, init level is zero. Cell: Average cell voltage value (battery voltage divided by number of cells). Car: Actual current consumption (Amps).Fuel: The percentage of battery life if capacity is set, otherwise mAh is drawn. Date: The time after power-up. GAlt: GPS altitude, sea level is zero. GPS: GPS coordinates. GSpd: The current speed calculated by GPS. Hdg: Heading (degrees - 0 degrees north). RPM: Throttle value for armed, battery capacity otherwise. In Taranis, the blade number must be set to 12. Tmp1: Flight mode (for S port). Tmp2: GPS information (for S ports) VFAS: Actual battery voltage value (voltage FrSky amperesensor). VSpd: Vertical velocity (cm/s). FrSky telemetry receiver Pixhawk/PX4 supports D (old) and S (new) FrSky telemetry. The following table shows all FrSky receivers that support telemetry via D/S.PORT (theoretically all of which should work): Note that the following X-series receivers (XSR, X8R, etc.) are recommended: The R and G series have not been tested or validated by the test team, but they should work. Receiver range composite output Digital telemetry input dimensions D4R-II 1.5km CPPM(8)D.Port 40x22.5x6mm 5.8g D8R-XP 1.5km CPPM (8) D Port 55x25x14mm 12.4g D8R-II Plus 1.5km no D.Port 55x25x14mm 12.4g X4R 1.5km C PPM (8) Smart Port 40x22.5x6mm 5.8g X4R-SB 1.5km S.Bus (16) Smart Port 40x22.5x6mm 5.8g X6R / S6R 1.5km S. Bus (16) Smart Port 47.42x23.84x14.7mm 15.4g 58Smart Port 46.25 x 26.6 x 14.2mm 16.6g XSR / XSR-M 1.5km S.Bus (16) / CPPM (8) Smart Port 26x19.2x5mm 3.8g RX 8R 1.5km S.Bus (16) Smart Port 46.25x26.6x14.2mm 12.1g RX8R PRO 1.5km S.Bus (16) SmartPort 46.25x26.6x 14.2mm 12.1g R-XSR 1.5 Km S.Bus (16) / CPPM (8) Smart Port 16x11x5.4mm 1.5g G-RX8 1.5km S.Bus (16) Smart Port + Integrated Barrio 55.26178mm 5.8g R9 10km S.Bus (1) 6) Smart Port 43.3x26.8x13.9mm 15.8g R9 Slim 10km S.Bus (16) Smart Port 43.3x26.8x13.9mm 15.8g The table above is derived from the documentation for and FrSky products. DIY cable It is possible to create your own cable. Connectors suitable for autopilot (e.g., JST-GH connectors for FMUv3/Pixhawk 2 cubes and FMUv4/PixRacer v1, and DF-13 compatible PicoBlade connectors for older autopilots) are required. Pixracer includes electronic devices for conversion between S.PORT and UART signals, but other boards require an S.PORT adapter from UART. These can be supplied from: FrSky FUL-1: unmannedtech.co.uk SPC: getfpv.com unmannedtechshop.co.uk, detailed information about connecting different boards is shown below. The Pixracer to the S-port receiver connects the Pixracer FrSky TX and RX lines to the S. port pin of the X-Series receiver (the wires are soldered together). GND is done when connecting to S.Bus (normal RC connection), so there is no need to connect. The S-port connection is shown below (using the provided I/O connector): The majority of Pixracer users to D-port receivers now prefer to use S.PORT. Connect the Pixracer FrSky TX line (FS out) to the RX line of the receiver. Connect the Pixracer FrSky RX line (FS in) to the receiver's TX line. This is done when connecting to RC/SBus (for regular RC), so there is no need to connect GND. PIXHawk Pro Pixhawk 3 Pro can connect to TELE 4 (no additional software configuration required). It must be connected from the UART using an S.PORT adapter board or a ready-made cable. Other boards Most other boards connect to the FrSky telemetry receiver via TELE 2 UART. This includes, for example, Pixhawk 1, mRo Pixhawk, and Pixhawk2. It must be connected from the UART using an S.PORT adapter board or a ready-made cable. For more information, see the © the PX4 Development Team. License: CC BY 4.0 Update: 2020-10-28 22:06:45 Result Match The X8R is in a smaller package than the previous 8-channel receiver, but has much more features. The X8 supports eight standard servo outputs and can access all 16 channels using an Sbus line with servos supported by Sbus, or use the FrSky S.BUS decoder for full 16 channels. Alternatively, you can use a combination of two X8R receivers, and the channel syncs 1-8 on the first channel and 9-16 on the second channel. The X8 protocol is also backward compatible! D8 mode works with DHT, DJT, DFT, DHT-U transmitterFrSky DFT/DJT/DHT/DHT-in D_mode FrSky Taranis X9D/XJT D8 Mode FrSky Taranis X9D/XJT D8 Mode D16 Mode FrSky Taranis X9D/XJT Firmware Upgradeable Weight: 12.1g Size: 46.25 x 26.6 x 14.2mm x W x H) Operating Range: Full Range (>1.5km) Operating Voltage Range: 4.0 to 10V Operating Current: [Email Protection] Number of Channels: 16CH (1-8ch from conventional channel output, 1-16ch from SBUS port, or 16 channel receiver combining two X8R) This rx has FrSky NBT firmware installed. Significantly improved RF performance range and stability. This firmware is not compatible with previous EU firmware. We recommend that you upgrade your radios, modules, and receivers from the old EU firmware to the corresponding EU NBT firmware. Use either FrSky Wireless or PC to upgrade. For information on downloading firmware, see the FrSky website download section. Includes: X8R Receiver Jumper Manual Receiver Jumper Manual