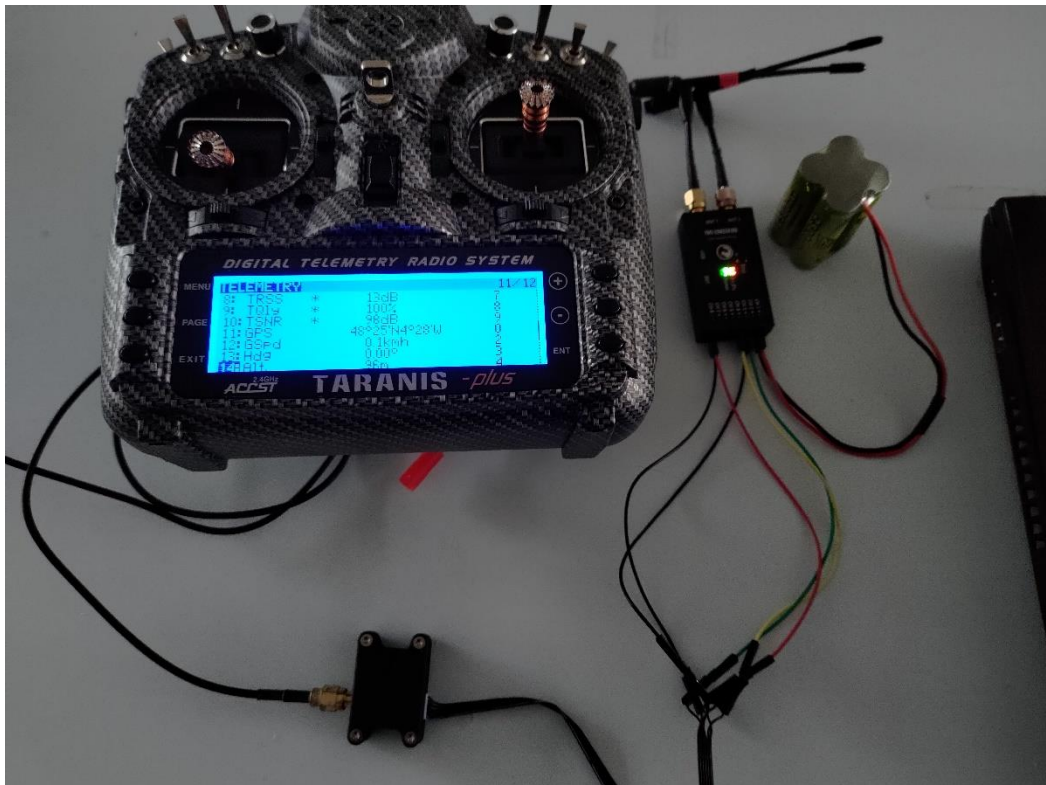


TBS Crossfire GPS input

Drotek Tiny RTK (with ublox M8P) GPS input on TBS Crossfire 8ch Diversity Receiver connected to TBS Crossfire Transmitter (BlueTooth version) with firmware 6.19 (assuming factory reset on both transmitter and receiver then bind have been done):

- TBS receiver CH3 transmits data when configured to "GPS TX"
- TBS receiver CH4 receives data when configured to "GPS RX". Note that "!MAX64" message appears sometimes for TBS Crossfire Diversity Nano Receiver, to check...
- When the TBS receiver is powered, it first sends a specific NMEA message ("SPUBX,41,1,0023,0003,19200,0") to reconfigure the baudrate of the UART1 of the ublox GPS to 19200. Then, it sends other UBX messages to enable "\$GNVTG", "\$GNGGA", "\$GPGSV", "\$GLGSV" NMEA messages. UART1 corresponds to the connector in front of the antenna connector on the Tiny RTK. Note that the OLED screen of the TBS transmitter does not seem to display the GPS data and the emulated MAVLink telemetry data (available through BlueTooth) sent by the TBS transmitter do not seem either to contain the GPS data. However the telemetry screen on OpenTX radios should be able to display GPS data (but by default it shows very few significant digits) if configured correctly (JR link with TBS transmitter should be set to CRSF, see TBS Crossfire manual).
- If there is no GPS connected to the TBS receiver at startup, the telemetry screen of the OpenTX radio displays "---" for all GPS data. It seems the TBS receiver needs to be restarted for the GPS to be taken into account (after a few seconds), and if the GPS does not have the fix, the telemetry screen of the OpenTX radio displays "0" for GPS data except the altitude which displays "-1000m". It seems to keep displaying the last good value if the GPS fix is lost or if it is disconnected.
- An emulated GPS sending only "\$GPGGA" at baudrate 19200 appears to be enough to be taken into account by the TBS receiver.



Mavlink Inspector		
Graph It <input type="checkbox"/> Show GCS Traffic		
Vehicle 1		
Comp 200 MAV_COMP_ID_IMU		
ATTITUDE (1.3 Hz, #30) 17Bps		
pitch	0	System.Single
pitchspeed	0	System.Single
roll	0	System.Single
rollspeed	0	System.Single
time_boot_ms	0	System.UInt32
yaw	0	System.Single
yawspeed	0	System.Single
BATTERY_STATUS (1.3 Hz, #147) 17Bps		
GPS_RAW_INT (1.3 Hz, #24) 53Bps		
alt	0	System.Int32
alt_ellipsoid	0	System.Int32
cog	65535	System.UInt16
eph	0	System.UInt16
epv	0	System.UInt16
fix_type	0	System.Byte
h_acc	0	System.UInt32
hdg_acc	0	System.UInt32
lat	0	System.Int32
lon	0	System.Int32
satellites_visible	0	System.Byte
time_usec	0	System.UInt64
v_acc	0	System.UInt32
vel	65535	System.UInt16
vel_acc	0	System.UInt32
yaw	0	System.UInt16
HEARTBEAT (0.7 Hz, #0) 14Bps		
autopilot	8	System.Byte
base_mode	192	System.Byte
custom_mode	0	System.UInt32
mavlink_version	3	System.Byte
system_status	4	System.Byte
type	0	System.Byte
SYS_STATUS (1.3 Hz, #1) 17Bps		
battery_remaining	0	System.SByte
current_battery	0	System.Int16
drop_rate_comm	0	System.UInt16
errors_comm	0	System.UInt16
errors_count1	0	System.UInt16
errors_count2	0	System.UInt16
errors_count3	0	System.UInt16
errors_count4	0	System.UInt16
load	0	System.UInt16
onboard_control_sensors_enabled	0	System.UInt32
onboard_control_sensors_health	0	System.UInt32
onboard_control_sensors_present	0	System.UInt32
voltage_battery	0	System.UInt16
Vehicle 51		
Comp 68 MAV_COMP_ID_TELEMETRY_RADIO		
RADIO_STATUS (10.0 Hz, #109) 190Bps		
fixed	0	System.UInt16
noise	0	System.Byte
remnoise	0	System.Byte
remssi	203	System.Byte
rsssi	209	System.Byte
rxerrors	0	System.UInt16
txbuf	100	System.Byte