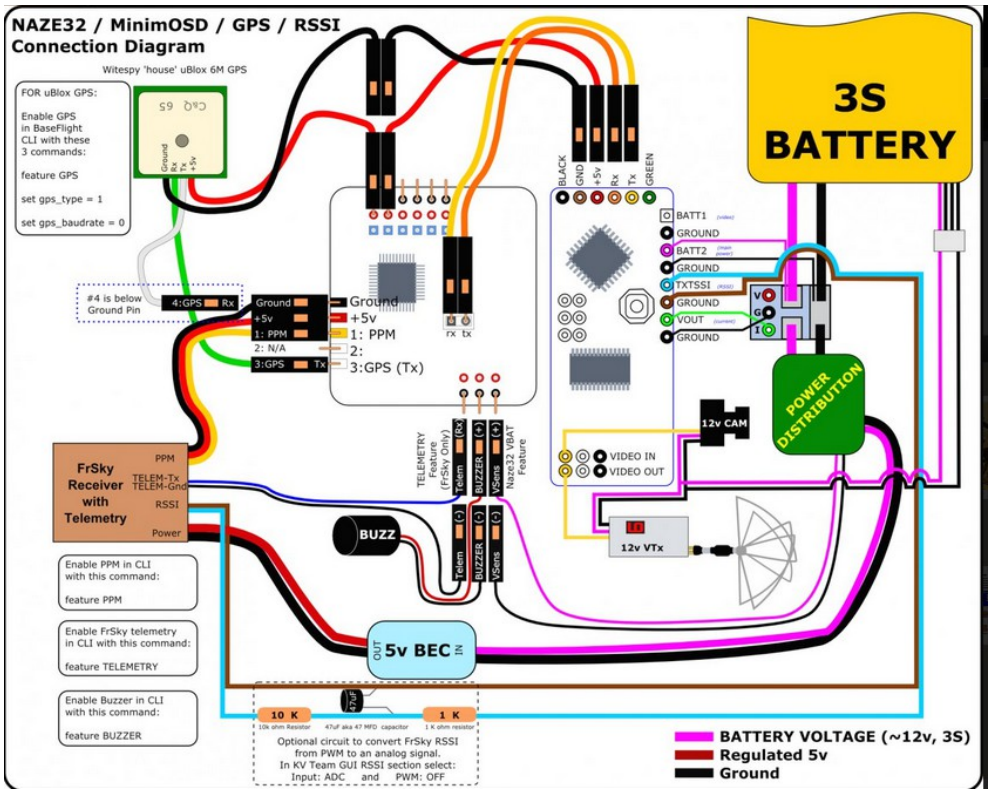
CONFIGURAR CLEANFLIGHT CON NAZE32 CON OSD, GPS y TELEMETRÍA “FrSky D”

En este tutorial, se explican como configurar Cleanflight, el software de control de vuelo para controladoras basadas en NAZE32, para poder envíar la telemetría hacia el receptore FrSKY tipo D, a través de un pin de la controladora configurado como softserial, cuando tenemos los puertos serie UART1 UART2 ocupados por el OSD y el GPS, y conectados según el esquema:



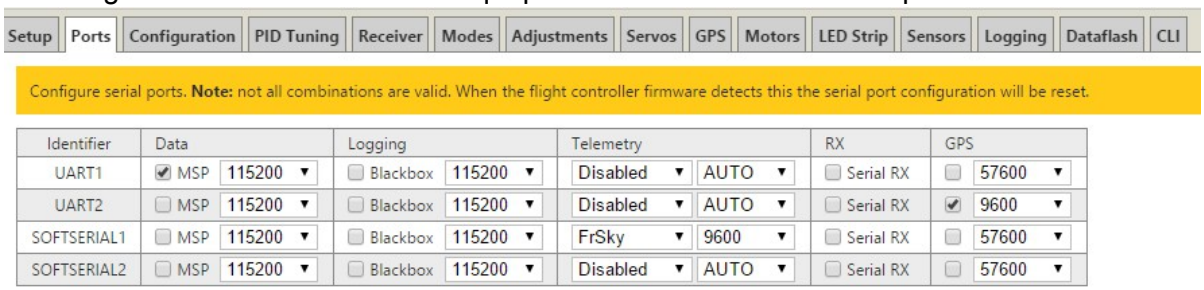
1.- Primero habilitamos **softserial** y **telemetry** en la pestaña Configuration.

Other Features

Enabled	Feature	Description
☐	INFLIGHT_ACC_CAL	In-flight level calibration
☐	SERVO_TILT	Servo gimbal
☑	SOFTSERIAL	Enable CPU based serial ports (configure port scenario first)
☐	SONAR	Sonar
☑	TELEMETRY	Telemetry output
☐	3D	3D mode (for use with reversible ESCs)
☐	LED_STRIP	Addressable RGB LED strip support
☐	DISPLAY	OLED Screen Display
☐	BLACKBOX	Blackbox flight data recorder

2.- Luego configuramos los **puertos** tal cual los ves.

⚠ Imagen externa achicada. Clic aquí para verla en su tamaño completo 888x213.



La **UART1** con el protocolo **MSP** (**Multiwii**) para configuración vía cleanfilght-configuration, OSD, etc..., para todo aquel dispositivo que funcione con el protocolo de Multiwii.

La **UART2** la uso para el **GPS**, que lo tengo conectado a los **pines 3 y 4**, para lo cual debemos usar PPM, si no esos pines quedarían ocupados por los canales de la emisora.

Y **SOFTSERIAL1** para sacar la telemetría hacia el recepor FrsKy (sólo se usan el pin que hace de tx en la controladora, que se conecta al rx del receptor, y la masa). El pin tx del softserial1 es el pin 6, por lo que es necesario tener también habilitado el PPM, de lo contrario ni éste ni los del GPS podríamos usarlos

3.- Y finalmente, el parámetro que consigue hacer magia:

set telemetry_inversion=1

Sin este último y pequeño detalle, te puedes tirar horas y horas intentándolo que nada de nada...

Te voy a pegar por aquí mi configuración, pero ten en cuenta que yo uso NAZE32 y podría algún parámetro ser distinto. Comentar también que no he afinado nada, ni pids, ni data, está casi todo por defecto, y el GPS aún lo tengo a 9600 bauds:

Código:

```
# dump

# version
# Cleanflight/NAZE 1.10.0 Oct  2 2015 / 14:57:31 (9f95334)
# dump master

# mixer
mixer QUADX
mmix reset
smix reset


# feature
feature -RX_PPM
feature -VBAT
feature -INFLIGHT_ACC_CAL
feature -RX_SERIAL
feature -MOTOR_STOP
```

```
feature -SERVO_TILT
feature -SOFTSERIAL
feature -GPS
feature -FAILSAFE
feature -SONAR
feature -TELEMETRY
feature -CURRENT_METER
feature -3D
feature -RX_PARALLEL_PWM
feature -RX_MSP
feature -RSSI_ADC
feature -LED_STRIP
feature -DISPLAY
feature -ONESHOT125
feature -BLACKBOX
feature -CHANNEL_FORWARDING
feature RX_PPM
feature VBAT
feature MOTOR_STOP
feature SOFTSERIAL
feature GPS
feature TELEMETRY


# map
map AETR1234


# serial
serial 0 1 115200 57600 0 115200
serial 1 2 115200 9600 0 115200
serial 30 4 115200 57600 9600 115200
serial 31 0 115200 57600 0 115200


# led
led 0 15,15:ES:IA:0
led 1 15,8:E:WF:0
led 2 15,7:E:WF:0
led 3 15,0:NE:IA:0
led 4 8,0:N:F:0
led 5 7,0:N:F:0
led 6 0,0:NW:IA:0
led 7 0,7:W:WF:0
led 8 0,8:W:WF:0
led 9 0,15:SW:IA:0
led 10 7,15:S:WF:0
led 11 8,15:S:WF:0
led 12 7,7:U:WF:0
led 13 8,7:U:WF:0
led 14 7,8:D:WF:0
led 15 8,8:D:WF:0
led 16 8,9::R:3
led 17 9,10::R:3
led 18 10,11::R:3
led 19 10,12::R:3
```

```
led 20 9,13::R:3
led 21 8,14::R:3
led 22 7,14::R:3
led 23 6,13::R:3
led 24 5,12::R:3
led 25 5,11::R:3
led 26 6,10::R:3
led 27 7,9::R:3
led 28 0,0:::0
led 29 0,0:::0
led 30 0,0:::0
led 31 0,0:::0


# color
color 0 0,0,0
color 1 0,255,255
color 2 0,0,255
color 3 30,0,255
color 4 60,0,255
color 5 90,0,255
color 6 120,0,255
color 7 150,0,255
color 8 180,0,255
color 9 210,0,255
color 10 240,0,255
color 11 270,0,255
color 12 300,0,255
color 13 330,0,255
color 14 0,0,0
color 15 0,0,0

set looptime = 3500
set emf_avoidance = 0
set mid_rc = 1500
set min_check = 1100
set max_check = 1900
set rssi_channel = 0
set rssi_scale = 30
set rssi_ppm_invert = 0
set rc_smoothing = 1
set input_filtering_mode = 0
set min_throttle = 1150
set max_throttle = 1850
set min_command = 1000
set servo_center_pulse = 1500
set 3d_deadband_low = 1406
set 3d_deadband_high = 1514
set 3d_neutral = 1460
set 3d_deadband_throttle = 50
set motor_pwm_rate = 400
set servo_pwm_rate = 50
set retarded_arm = 0
set disarm_kill_switch = 1
set auto_disarm_delay = 5
set small_angle = 25
```

```
set fixedwing_althold_dir = 1
set reboot_character = 82
set gps_provider = 0
set gps_sbas_mode = 0
set gps_auto_config = 1
set gps_auto_baud = 0
set serialrx_provider = 0
set spektrum_sat_bind = 0
set telemetry_switch = 0
set telemetry_inversion = 1
set frsky_default_lattitude =  0.000
set frsky_default_longitude =  0.000
set frsky_coordinates_format = 0
set frsky_unit = 0
set frsky_vfas_precision = 0
set hott_alarm_sound_interval = 5
set battery_capacity = 0
set vbat_scale = 110
set vbat_max_cell_voltage = 43
set vbat_min_cell_voltage = 33
set vbat_warning_cell_voltage = 35
set current_meter_scale = 400
set current_meter_offset = 0
set multiwii_current_meter_output = 0
set current_meter_type = 1
set align_gyro = 0
set align_acc = 0
set align_mag = 0
set align_board_roll = 0
set align_board_pitch = 0
set align_board_yaw = 90
set max_angle_inclination = 500
set gyro_lpf = 42
set moron_threshold = 32
set gyro_cmpf_factor = 600
set gyro_cmpfm_factor = 250
set yaw_control_direction = 1
set pid_at_min_throttle = 1
set yaw_motor_direction = 1
set yaw_jump_prevention_limit = 200
set tri_unarmed_servo = 1
set servo_lowpass_freq = 400
set servo_lowpass_enable = 0
set failsafe_delay = 10
set failsafe_off_delay = 200
set failsafe_throttle = 1000
set failsafe_kill_switch = 0
set failsafe_throttle_low_delay = 100
set rx_min_usec = 885
set rx_max_usec = 2115
set acc_hardware = 0
set baro_hardware = 0
set mag_hardware = 0
set blackbox_rate_num = 1
set blackbox_rate_denom = 1
set blackbox_device = 0
```

```
set magzero_x = 169
set magzero_y = 355
set magzero_z = -292

# rxfail
rxfail 0 a
rxfail 1 a
rxfail 2 a
rxfail 3 a
rxfail 4 h
rxfail 5 h
rxfail 6 h
rxfail 7 h
rxfail 8 h
rxfail 9 h
rxfail 10 h
rxfail 11 h
rxfail 12 h
rxfail 13 h
rxfail 14 h
rxfail 15 h
rxfail 16 h
rxfail 17 h

# dump profile

# profile
profile 0

# aux
aux 0 0 0 900 900
aux 1 0 0 900 900
aux 2 0 0 900 900
aux 3 0 0 900 900
aux 4 0 0 900 900
aux 5 0 0 900 900
aux 6 0 0 900 900
aux 7 0 0 900 900
aux 8 0 0 900 900
aux 9 0 0 900 900
aux 10 0 0 900 900
aux 11 0 0 900 900
aux 12 0 0 900 900
aux 13 0 0 900 900
aux 14 0 0 900 900
aux 15 0 0 900 900
aux 16 0 0 900 900
aux 17 0 0 900 900
aux 18 0 0 900 900
aux 19 0 0 900 900

# adjrange
adjrange 0 0 0 900 900 0 0
adjrange 1 0 0 900 900 0 0
adjrange 2 0 0 900 900 0 0
adjrange 3 0 0 900 900 0 0
```

```
adjrange 4 0 0 900 900 0 0
adjrange 5 0 0 900 900 0 0
adjrange 6 0 0 900 900 0 0
adjrange 7 0 0 900 900 0 0
adjrange 8 0 0 900 900 0 0
adjrange 9 0 0 900 900 0 0
adjrange 10 0 0 900 900 0 0
adjrange 11 0 0 900 900 0 0

# rxrange
rxrange 0 1000 2000
rxrange 1 1000 2000
rxrange 2 1000 2000
rxrange 3 1000 2000

# servo
servo 0 1000 2000 1500 90 90 100 -1
servo 1 1000 2000 1500 90 90 100 -1
servo 2 1000 2000 1500 90 90 100 -1
servo 3 1000 2000 1500 90 90 100 -1
servo 4 1000 2000 1500 90 90 100 -1
servo 5 1000 2000 1500 90 90 100 -1
servo 6 1000 2000 1500 90 90 100 -1
servo 7 1000 2000 1500 90 90 100 -1

set gps_pos_p = 15
set gps_pos_i = 0
set gps_pos_d = 0
set gps_posr_p = 34
set gps_posr_i = 14
set gps_posr_d = 53
set gps_nav_p = 25
set gps_nav_i = 33
set gps_nav_d = 83
set gps_wp_radius = 200
set nav_controls_heading = 1
set nav_speed_min = 100
set nav_speed_max = 300
set nav_slew_rate = 30
set alt_hold_deadband = 40
set alt_hold_fast_change = 1
set deadband = 0
set yaw_deadband = 0
set throttle_correction_value = 0
set throttle_correction_angle = 800
set default_rate_profile = 0
set gimbal_mode = 0
set acc_lpf_factor = 4
set accxy_deadband = 40
set accz_deadband = 40
set accz_lpf_cutoff =  5.000
set acc_unarmedcal = 1
set acc_trim_pitch = 0
set acc_trim_roll = 0
set baro_tab_size = 21
set baro_noise_lpf =  0.600
```

```
set baro_cf_vel =  0.985
set baro_cf_alt =  0.965
set mag_declination = 0
set pid_controller = 0
set p_pitch = 40
set i_pitch = 30
set d_pitch = 23
set p_roll = 40
set i_roll = 30
set d_roll = 23
set p_yaw = 85
set i_yaw = 45
set d_yaw = 0
set p_pitchf =  1.500
set i_pitchf =  0.400
set d_pitchf =  0.030
set p_rollf =  1.500
set i_rollf =  0.400
set d_rollf =  0.030
set p_yawf =  2.500
set i_yawf =  1.000
set d_yawf =  0.000
set level_horizon =  3.000
set level_angle =  5.000
set sensitivity_horizon = 75
set p_alt = 50
set i_alt = 0
set d_alt = 0
set p_level = 90
set i_level = 10
set d_level = 100
set p_vel = 120
set i_vel = 45
set d_vel = 1
set yaw_p_limit = 500
set dterm_cut_hz = 0
set pterm_cut_hz = 0
set gyro_cut_hz = 0

# dump rates

# rateprofile
rateprofile 0

set rc_rate = 90
set rc_expo = 65
set rc_yaw_expo = 0
set thr_mid = 50
set thr_expo = 0
set roll_rate = 0
set pitch_rate = 0
set yaw_rate = 0
set tpa_rate = 0
set tpa_breakpoint = 1500

#
```