



NZ32 Lite 6DOF & 10DOF Flight Controller

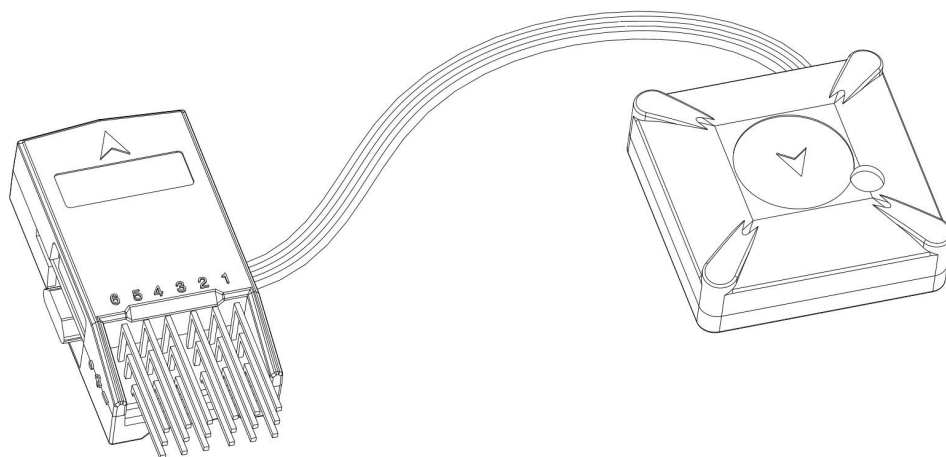
User Manual

Version 1.0-60120E

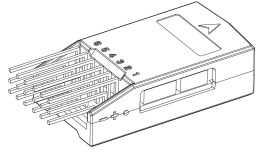
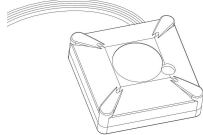
Thanks for purchasing our NZ32 Lite Flight Controller, This FC compatibility with BaseFlight and Cleanflight.
6DOF NZ32 is a very small-scale device with plastic casing make it well suited for small size FPV racing.
10DOF NZ32 is 6DOF FC connecting an external sensor module. We put magnetometer and barometer in the external modules to minimizes the noise level.

<https://github.com/multiwii/baseflight>

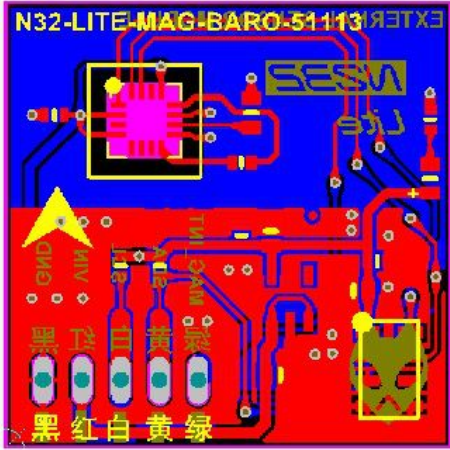
<https://github.com/cleanflight/cleanflight>



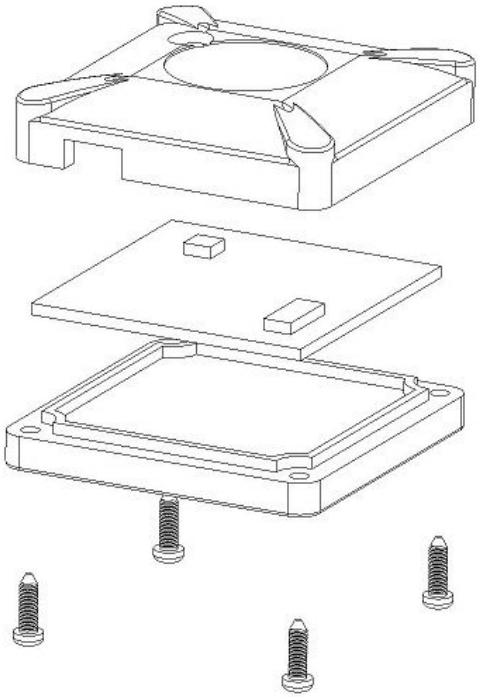
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Hardware Parameters	Acceleration & Gyroscope	Magnetometer	Barometer
 <p>NZ32 Lite Flight Controller (6DOF) STM32F103CB (72Mhz Cortex-M3)</p>	<p>MPU6050 (6DOF)</p>	<p>×</p>	<p>×</p>
 <p>External sensor module (4DOF)</p>	<p>×</p>	<p>HMC5883L (3DOF)</p>	<p>MS5611 (1DOF)</p>
<p>You need power on the FC use BEC first instead of USB if connect the external sensor module to NZ32 FC. (External sensor module is powered by BEC)</p>			

External sensor module

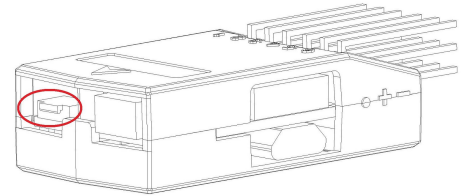
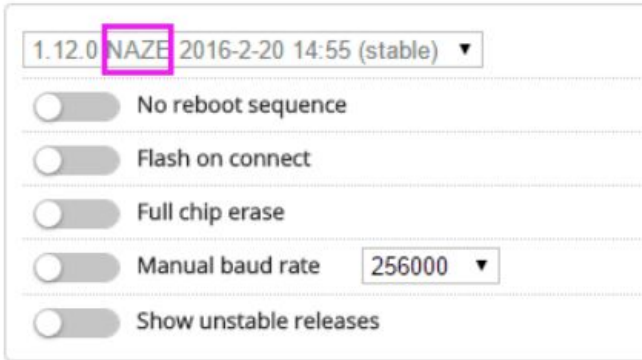


PROFESSIONAL DESIGN OF PCB LAYOUT TO MINIMIZE MAGNETIC NOISE



Flash Firmware to NZ32 Lite

As show there is a button in NZ32 lite flight controller, press this button then power on NZ32 trigger the STM32 MCU into bootloader mode. Actually this button connect to BOOT0 pin in STM32 MCU, press this button connect the BOOT0 pin of STM32 to 3.3V.
The flight controller hardware please select "NAZE" .



NZ32 Lite Hardware Connection Preview

Receiver Type	Receiver Input	Motor Output	OSD or BLUETOOTH	GPS Support	Sonar Support	Battery Monitoring	Softserial 1	Softserial 2	Diagram
PWM	6CH Max	6CH Max	✓ (USART 1)	✗	✗	✗	✗	✗	#A
PPM	8CH	6CH+2CH Max	✓ (USART 1)	✓ (USART 2)	✗	✗	✓	✗	#B
S.BUS (USART 2)	8CH	6CH Max	✓ (USART 1)	✓ (Softserial 1)	✗	✗	✓	✗	#C
DSM Satellite (USART 2)	8CH	6CH Max	✓ (USART 1)	✓ (Softserial 1)	✗	✗	✓	✗	#D

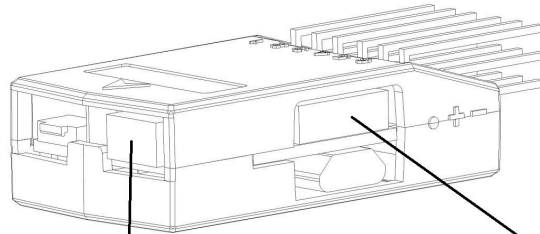
Detail of hardware connection and PC software setting please refer the information below :

<https://github.com/cleanflight/cleanflight/blob/v1.10.0/docs/Board%20-%20Naze32.md>

#A

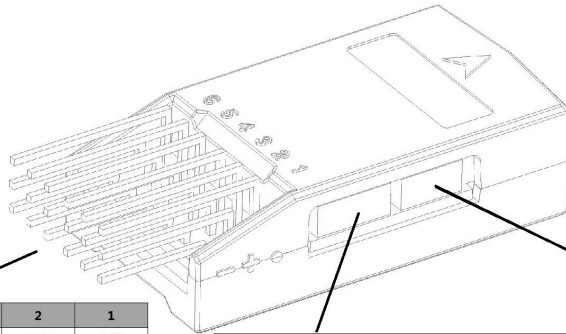
PWM Receiver Hardware Connection Diagram

You need power on the FC use BEC first instead of USB if connect the external sensor module to NZ32 FC.
(External sensor module is powered by BEC)



1.5mm 3P CONNECTOR		
1	2	3
3.3V	GND	FORBID
DO NOT CONNECT		

1.0mm 9P CONNECTOR								
1	2	3	4	5	6	7	8	9
GND	VCC	CH1	CH2	CH3	CH4	CH5	CH6	FORBID
TO PWM RECEIVER								



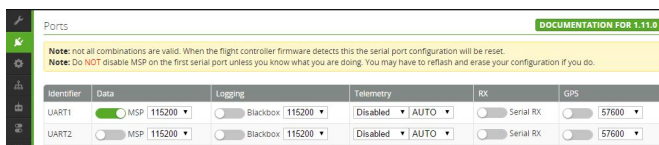
6	5	4	3	2	1
M6	M5	M4	M3	M2	M1
VCC	VCC	VCC	VCC	VCC	VCC
GND	GND	GND	GND	GND	GND

1.0mm 5P CONNECTOR				
1	2	3	4	5
GND	VCC	SCL	SDA	MAG_INT
TO EXTERNAL SENSOR MODULE				
I2C				

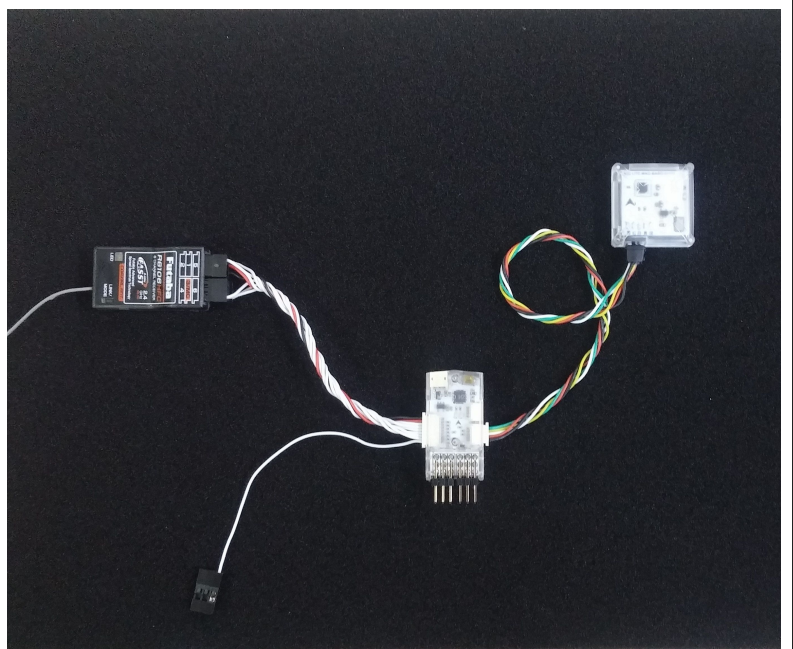
1.0mm 4P CONNECTOR			
1	2	3	4
GND	VCC	TX	RX
TO OSD or BLUETOOTH			
USART1			

1. The setting of UART1 and UART2 below

(DO NOT ENABLE UATR2 in PWM receiver mode)



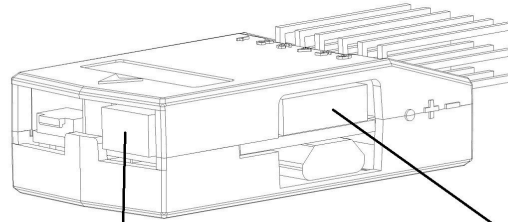
2. Select <RX_PARALLEL_PWM> in Receiver Mode



#B

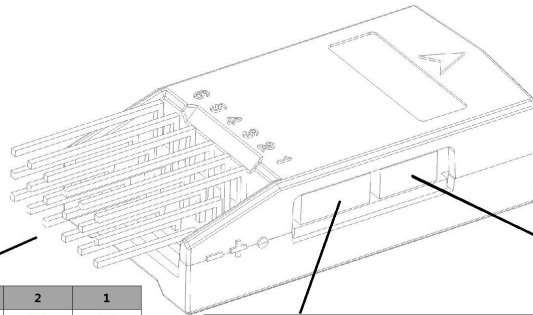
PPM Receiver Hardware Connection Diagram

You need power on the FC use BEC first instead of USB if connect the external sensor module to N232 FC.
(External sensor module is powered by BEC)



1.5mm 3P CONNECTOR		
1	2	3
3.3V	GND	FORBID
DO NOT CONNECT		

1.0mm 9P CONNECTOR								
1	2	3	4	5	6	7	8	9
GND	VCC	PPM	FORBID	TX	RX	M7	M8	FORBID
TO PPM RECEIVER			FORBID	TO GPS USART2		ADDITIONAL OUTPUT		

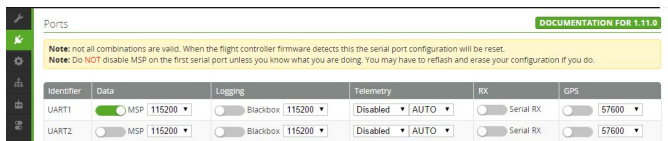


6	5	4	3	2	1
M6	M5	M4	M3	M2	M1
VCC	VCC	VCC	VCC	VCC	VCC
GND	GND	GND	GND	GND	GND

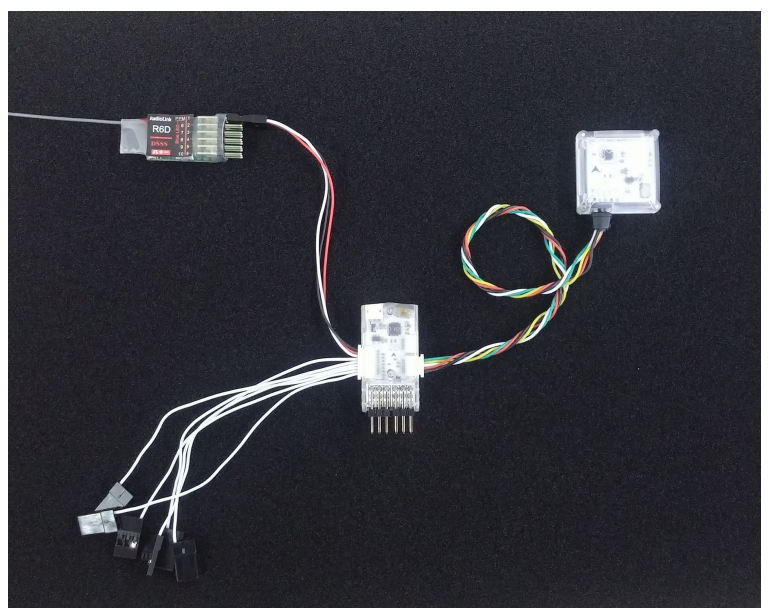
1.0mm 5P CONNECTOR				
1	2	3	4	5
GND	VCC	SCL	SDA	MAG_INT
TO EXTERNAL SENSOR MODULE I2C				

1.0mm 4P CONNECTOR			
1	2	3	4
GND	VCC	TX	RX
TO OSD or BLUETOOTH USART1			

- The setting of UART1 and UART2 below
(If you need connect GPS, please ENABLE UART2 and set right baud rate)



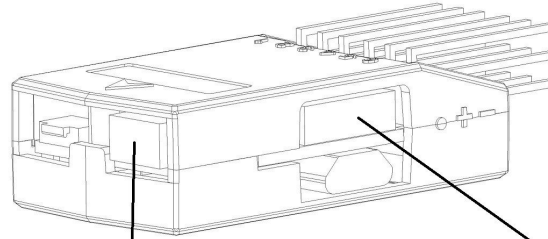
- Select <RX_PPM> in Receiver Mode



#C

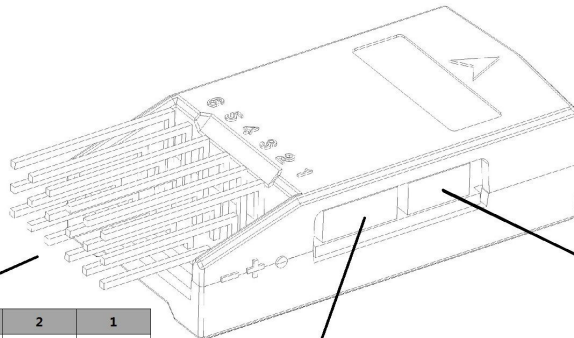
S.BUS Receiver Hardware Connection Diagram

You need power on the FC use BEC first instead of USB if connect the external sensor module to NZ32 FC.
(External sensor module is powered by BEC)



1.5mm 3P CONNECTOR		
1	2	3
3.3V	GND	FORBID
DO NOT CONNECT		

1.0mm 9P CONNECTOR								
1	2	3	4	5	6	7	8	9
GND	VCC				FORBID	RX	TX	S.BUS
TO S.BUS RECEIVER						TO GPS SOFTSERIAL1		TO S.BUS RECEIVER USART2
S.BUS SIGNAL WILL BE REVERSE AUTOMATIC INSIDE NZ32 FLIGHT CONTROLLER								



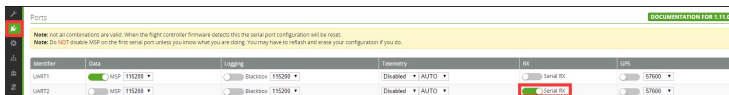
6	5	4	3	2	1
M6	M5	M4	M3	M2	M1
VCC	VCC	VCC	VCC	VCC	VCC
GND	GND	GND	GND	GND	GND

1.0mm 5P CONNECTOR				
1	2	3	4	5
GND	VCC	SCL	SDA	MAG_INT
TO EXTERNAL SENSOR MODULE I2C				

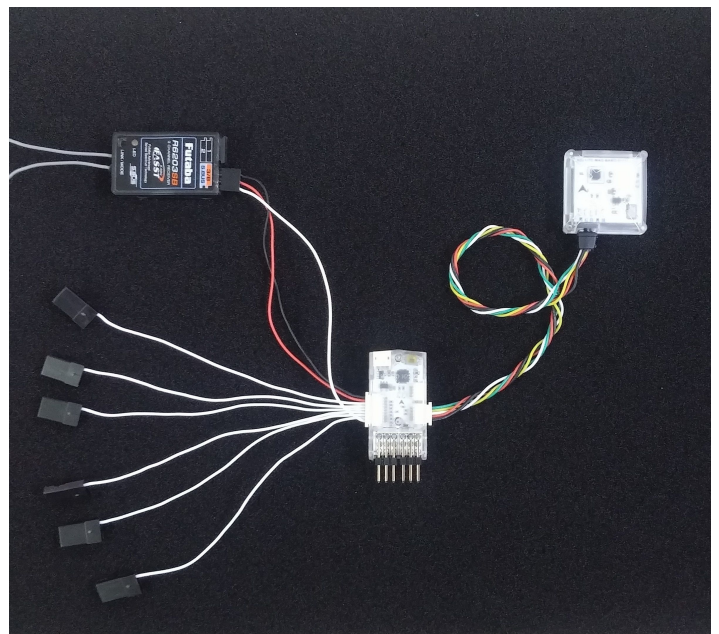
1.0mm 4P CONNECTOR			
1	2	3	4
GND	VCC	TX	RX
TO OSD or BLUETOOTH USART1			

1. ENABLE UART2 <Serial RX>

(If you need connect GPS, please ENABLE SOFTSERIAL first then ENABLE SOFTSERIAL1 and set right baud rate, please notice that baud rate of SOFTSERIAL can't exceed 19200 bps)



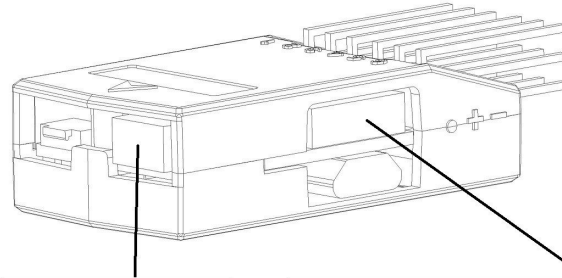
2. Select <RX_SERIAL> in Receiver Mode Select <SBUS> in Serial Receiver Provider



#D

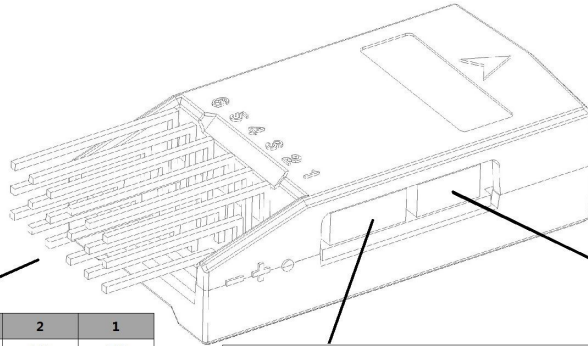
DSM Satellite Hardware Connection Diagram

You need power on the FC use BEC first instead of USB if connect the external sensor module to N232 FC.
(External sensor module is powered by BEC)



1.5mm 3P CONNECTOR		
1	2	3
3.3V	GND	SIGNAL
TO DSM SATELLITE USART2		

1.0mm 9P CONNECTOR								
1	2	3	4	5	6	7	8	9
GND	VCC				FORBID	RX	TX	FORBID
TO GPS						TO GPS SOFTSERIAL1		



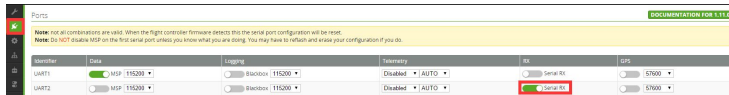
6	5	4	3	2	1
M6	M5	M4	M3	M2	M1
VCC	VCC	VCC	VCC	VCC	VCC
GND	GND	GND	GND	GND	GND

1.0mm 5P CONNECTOR				
1	2	3	4	5
GND	VCC	SCL	SDA	MAG_INT
TO EXTERNAL SENSOR MODULE I2C				

1.0mm 4P CONNECTOR			
1	2	3	4
GND	VCC	TX	RX
TO OSD or BLUETOOTH USART1			

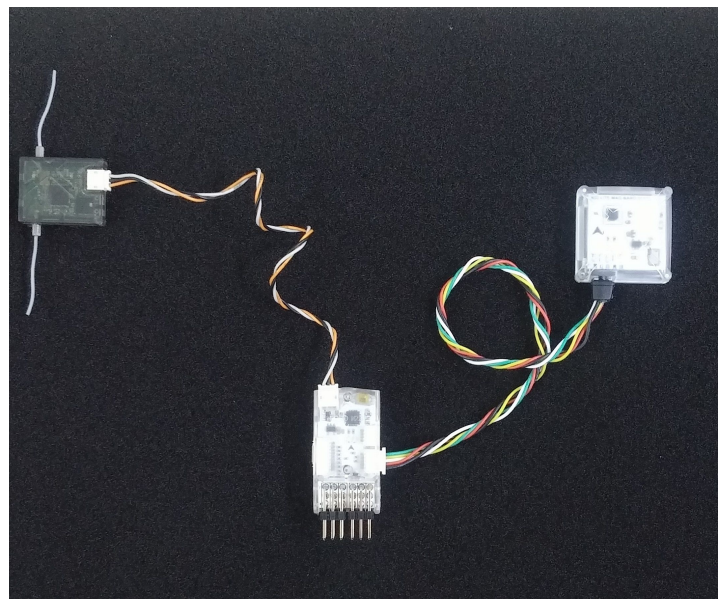
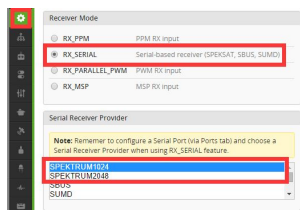
1. ENABLE UART2 <Serial RX>

(If you need connect GPS, please ENABLE SOFTSERIAL first then ENABLE SOFTSERIAL1 and set right baud rate, please notice that baud rate of SOFTSERIAL can't exceed 19200 bps)



2. Select <RX_SERIAL> in Receiver Mode

Select <SPEKTRUM1024> or <SPEKTRUM2048> depend on your satellite



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