

The logo for BEEROTOR features the word "BEEROTOR" in a bold, black, sans-serif font. The letters "E" and "R" are stylized with a propeller-like structure. Above the "E" and "R", there is a small, detailed illustration of a propeller with motion blur, suggesting rotation. The overall aesthetic is industrial and technical.

BEEROTOR

Compact BRF3 Flight Controller
Manual v1.1

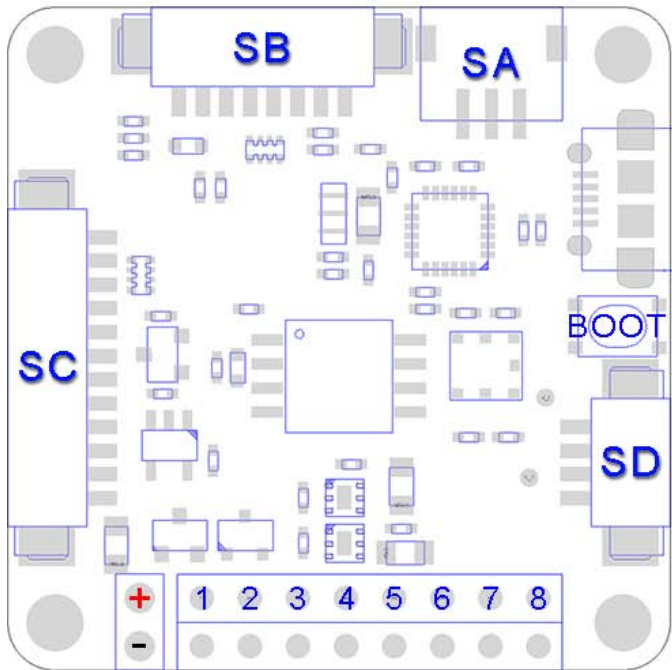
Features

- Optimization for Cleanflight/Betaflight firmware
- ARM Cortex-M4 core STM32F303CC with 32bit/72MHz/256K Flash/40K SRAM and hardware floating point unit
- MPU6050 and BMP180 / BMP280 Sensors
- Build-in 8MB flash for black box log recorder
- On board OSD with absolutely original MAX7456EUI+ and standard FTDI debug port
- Receiver connector with PPM/SBUS/SumD/DSM2/DSMX and RSSI input
- Up to 3 serial ports and 8 PWM outputs
- Multifunction connectors with SWD/UART2~3/Soft-serial/Buzzer/LED trip/Voltage detection
- Multifunction OSD connectors with video_IN/ video_OUT/ICSP/debug port (UART1)
- PDB connector with 5V input/Current and Voltage detection
- Power input reverse polarity protection

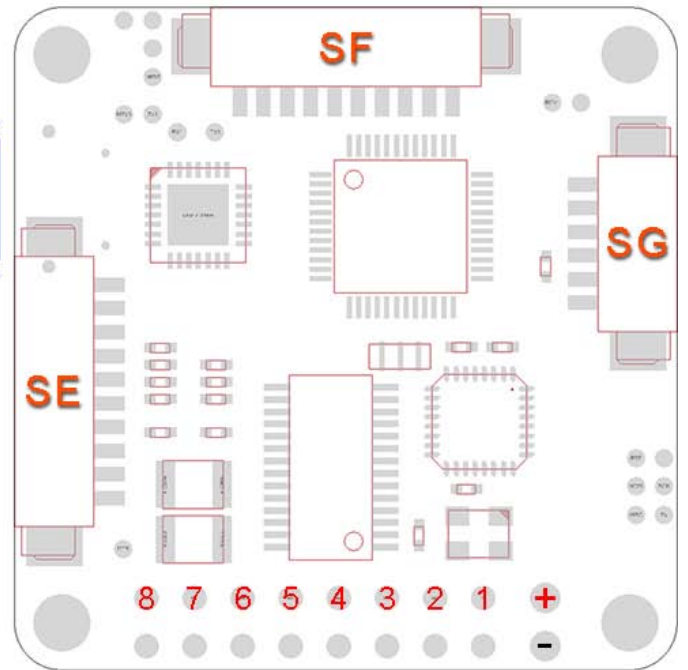
Specification

- Power input: 5.0~5.5V
- Dimension: 35x35x9mm
- Fixing hole spacing: 30mm
- Weight: 7.3g
- PPM/RSSI/SBUS/SumD Receiver Cable
- Camera/video-TX cable
- Buzzer/LED strip/voltage detect cable
- OSD debug port to FTDI adapter cable

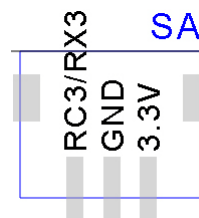
TOP VIEW



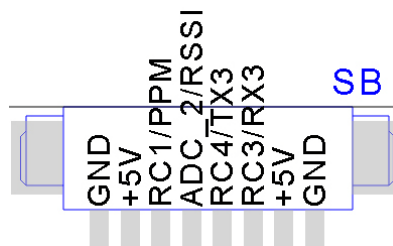
BOTTOM VIEW



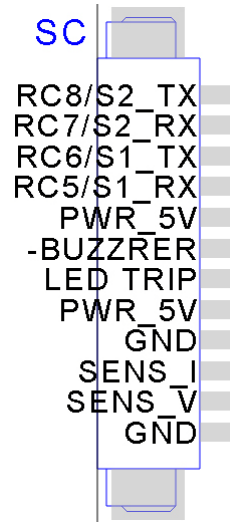
SA DSM2/DSMX	
1	+3.3V
2	GND
3	RC3/RX3



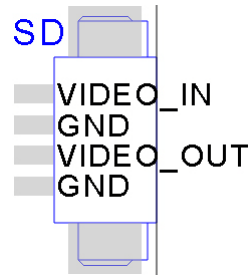
SB S.BUS/RSSI/PPM		
1	GND	S.BUS
2	+5V	
3	RC3/RX3	
4	RC4/TX3	RSSI
5	ADC_2	
6	RC1/PPM	PPM
7	+5V	
8	GND	



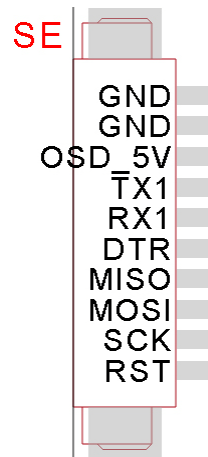
SC SENS VI/LED/BUZZER/RC5~8		
1	RC8	Soft TX2
2	RC7	Soft RX2
3	RC6	Soft TX1
4	RC5	Soft RX1
5	PWR_5V	BUZZER
6	-BUZ	
7	LED	LED TRIP
8	PWR_5V	
9	GND	
10	SENS_I	
11	SENS_V	
12	GND	



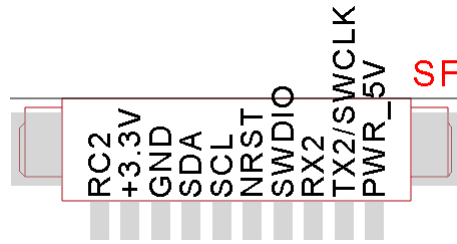
SD VIDEO IN/OUT	
1	GND
2	VIDEO_OUT
3	GND
4	VIDEO_IN



SE OSD DEBUG		
1	GND	FTDI
2	GND	
3	OSD_5V	
4	TX1	ICSP
5	RX1	
6	DTR	
7	MISO	
8	MOSI	
9	SCK	
10	RST	



SF SWD/UART2(GPS)/I2C(MAG)	
1	PWR_5V
2	TX2/SWCLK
3	RX2
4	SWDIO
5	NRST
6	SCL
7	SDA
8	GND
9	+3.3V
10	RC2



SG PDB only	
1	PWR_5V
2	PWR_5V
3	SENSE_I
4	SENSE_V
5	GND
6	GND

WARNING!

Don't connect battery to SG (PDB) port directly to measure voltage because the SENSE_V is no divider resistance!

The SG port only used for BRPDB board!

If you do not have BRPDB and want to use the voltage detect please use the pin 11 of the SC port.

Getting started

First

- Install latest Silicon Labs CP2102 USB to UART bridge VCP Driver.
<http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpdrivers.aspx>
- Install and launch the Cleanflight Configurator tool.
<https://chrome.google.com/webstore/detail/cleanflight-configurator/enacoimjcgeinfnnnpajinjgmkahmfgb>
- Connect flight controller to computer via USB cable.
- Select the correct COM port if it is not automatically detected.
- Click connect, verify that communication is established.

Basic configuration

- Calibrate sensors
- Configure ports.
- Enable features.
- Configure receiver mode.
- Configure voltage monitoring. Voltage Scale must be 110.
- Configure current sensor. If you use BRPDB the Scale must be about 380.
- Configure RSSI if you using a receiver with RSSI output.
- Configure other features.
- Configure receiver, set channel mapping.
- Learn about flight modes and configure channels/switches to activate them as required.
- Learn how to arm/disarm.
- Bench-test failsafe.
- Read safety notes.
- Learn how to download and view your flight logs to help tune your aircraft.
- Erase dataflash contents before first flight (so you have a log).
- Learn how to recognise un-tuned flight characteristics and the effects of a PID controller. (Watch some videos).
- First flight should be in Acro/Rate mode (the default mode when no other modes are active).
- Tune PIDs.
- Backup settings.

Firmware Flash (upgrade)

- Disconnect power, USB cable and click the Firmware Flasher tab.
- Click load Firmware [local] and found that the firmware file.
- Be sure selected No reboot sequence / Full chip erase / Manual baud rate 25600.
- Press and hold the boot button and released after connecting the USB cable.
- Click Flash Firmware and wait for the prompts to complete it.

OSD debug

- Don't connect any power to the quad.
- Install FT232 VCP driver and connect FTDI to SE port via FTDI adapter cable.
- Download MWOSD GUI zip file and open it.
- Select the right COM port and wait for reading OSD configuration parameters.
- Learn how to modify the parameters, font and write back to the mcu of OSD.

Jack and power distribution

- The 328P of OSD connected to F303 via UART1.
- GPS/SWD/I2C jack connected to F303 via UART2.
- SBUS/DSM2 jack connected to F303 via UART3.
- When using PDB or external 5V power supply, OSD circuit keep working and communicate with the F303. If you plug a USB cable, the OSD circuit is cut off powered to ensure that the FC can communicate with computer.
- When debugging OSD, do not connect the battery/USB cable and just plug a FTDI tool via the FTDI adapter cable. At this time only OSD circuit to work independently.