

Contents

Shark Byte Video Transmitter TX5M.1 3

Assembling the two circuit boards..... 3

dis-assembling the two circuit boards..... 3

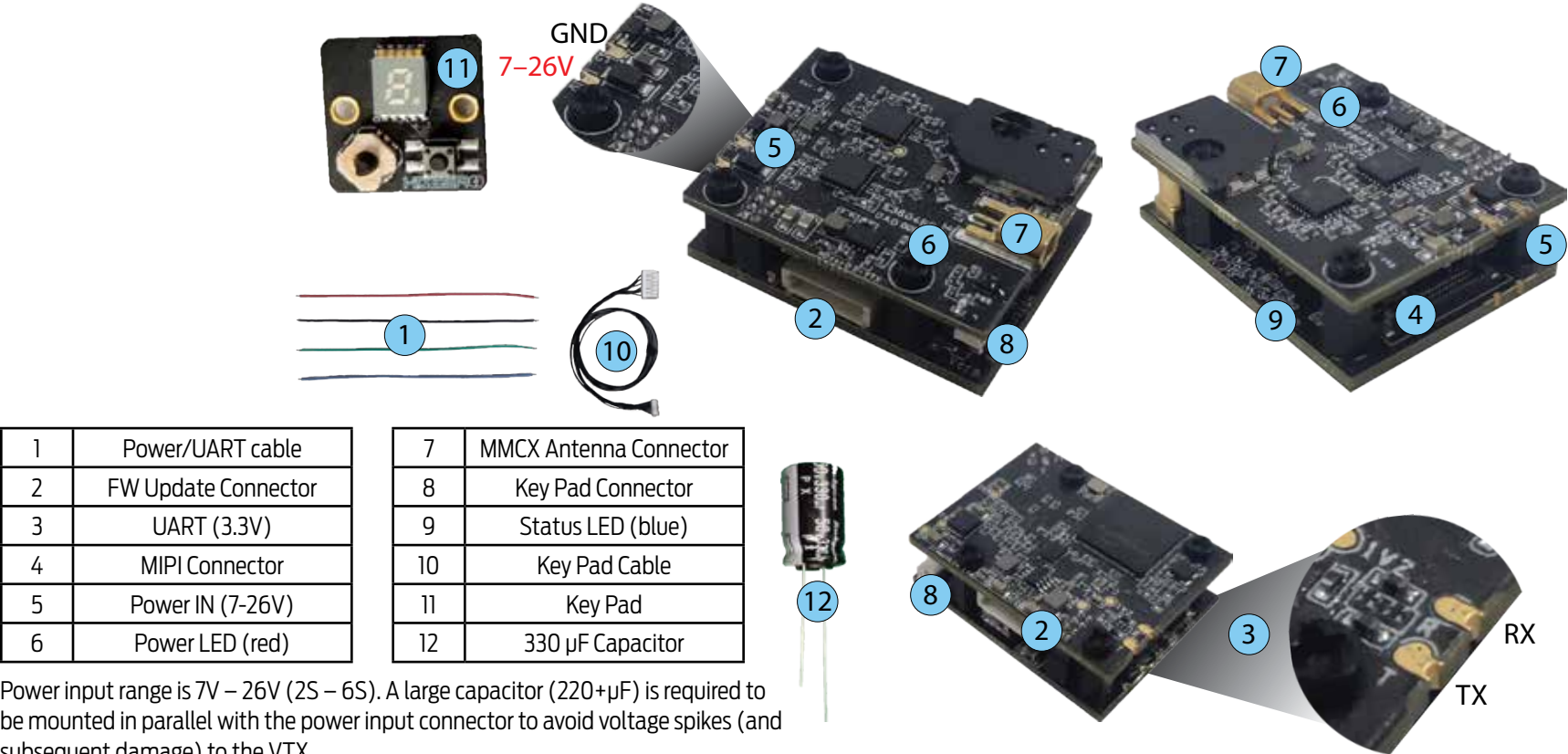
TX5M.1 Connection Diagram 4

Installation 4

Shark Byte Video Transmitter TX5M.1

The Shark Byte TX5M.1 is a digital HD 720p 60fps medium range video transmitter capable of delivering up to 500mw on 5.8GHz. The TX5M.1 works with the Shark Byte RX5.1 goggle module to transmit video, and a remote controller to control the parameters for transmitter and camera wirelessly.

The Shark Byte TX5M.1 consists of a Runcam Nano HD camera and a video transmitter (VTX) made up of two PCBs.



1	Power/UART cable
2	FW Update Connector
3	UART (3.3V)
4	MIPI Connector
5	Power IN (7-26V)
6	Power LED (red)

7	MMCX Antenna Connector
8	Key Pad Connector
9	Status LED (blue)
10	Key Pad Cable
11	Key Pad
12	330 µF Capacitor

Power input range is 7V – 26V (2S – 6S). A large capacitor (220+µF) is required to be mounted in parallel with the power input connector to avoid voltage spikes (and subsequent damage) to the VTX.

DO NOT power the VTX without a capacitor on the power input.

1	MIPI Camera
2	MIPI cable

Runcam Nano HD



Always press and pull on the actual connectors during assembly or disassembly, never pull on the wires to remove a connector.

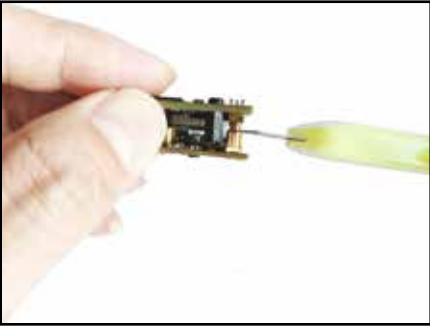
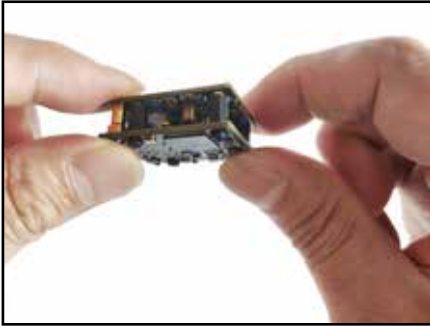
Solder all of your connections to the boards before assembly.

ASSEMBLING THE TWO CIRCUIT BOARDS

- Align the 8 pin connector between the two boards and begin to make the connection, but only insert the pins far enough to establish alignment, don't press them together yet.
- Align the coaxial connector between the two boards, and press the boards together with a thumb and fore-finger directly above and below the coaxial connector. The coaxial connector will snap together when it connects. At the same time, use your other hand to press the 8 pin connector together.

DIS-ASSEMBLING THE TWO CIRCUIT BOARDS

- Hold the assembly on it's side to present the coaxial connector between the two boards to the side. Hold the boards from above.
- WARNING:** Use extreme caution when separating the boards with a knife.
- Align a knife blade at the separation between the top and bottom of the connector.
 - Press down with the knife, away from your hand holding the boards, and twist the knife blade to separate the top of the connector from the bottom. The connector will pop apart when it releases.
 - Once the connector pops apart, gently separate the 8 pin connector between the boards,



WARNING: DO NOT apply power to the RF board until the boards are fully assembled and ready to operate. If you apply power to the RF board without the BB board attached it may result in permanent damage.

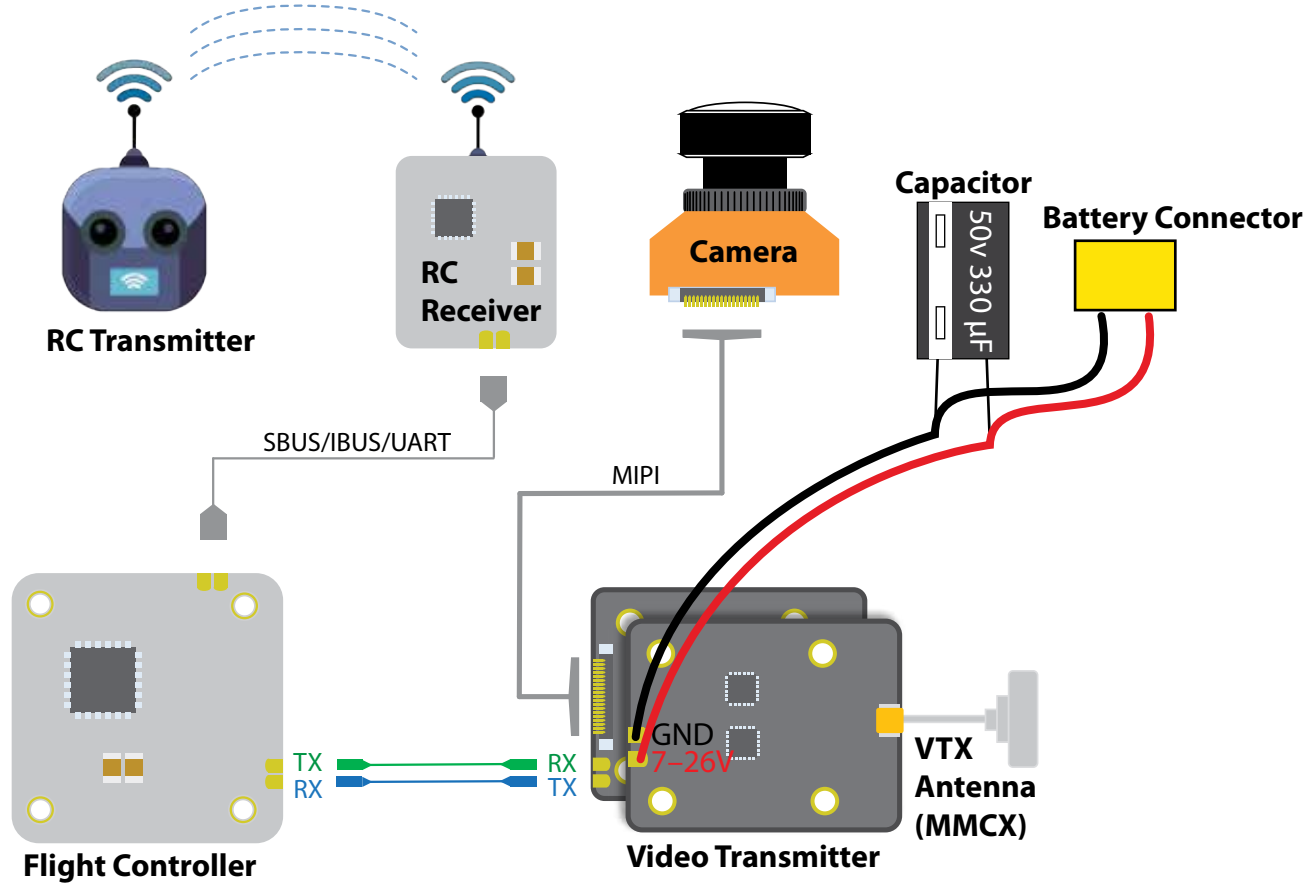
DO NOT power ON the VTX without an appropriate 5.8GHz antenna connected to the MMCX connector. If you power ON the VTX without an antenna connected, it may result in permanent damage.

DO NOT touch the video transmitter during or immediately after operation, wait for it to cool down. It is normal for the VTX to become hot during or after operation.

DO NOT use the VTX for an extended period when the temperature is high or if there is poor ventilation. If the VTX does not get adequate airflow for cooling during operation, it may overheat and enter overheat protection mode, which will reduce range performance.

TX5M.1 CONNECTION DIAGRAM

Refer to the diagram below to mount and connect the air unit to your chosen airframe.



INSTALLATION

The VTX consists of two boards:

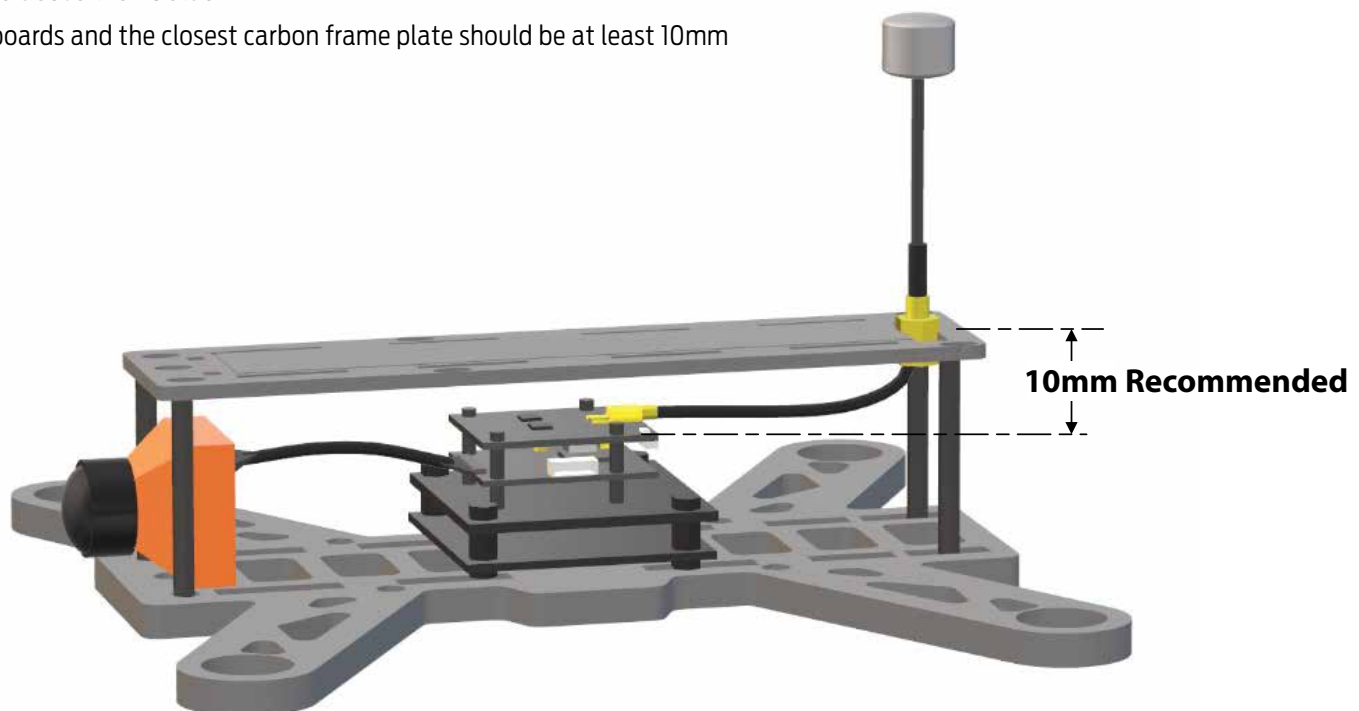
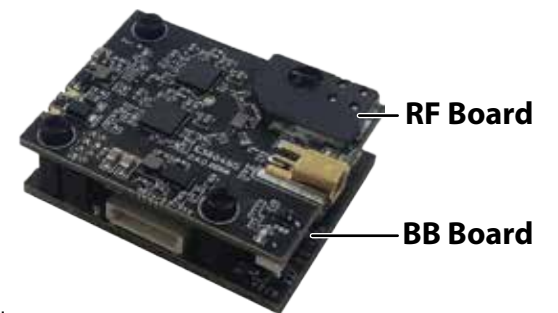
- RF board, which has the MMCX socket and power input pads
- BB board, which has the MIPI interface and UART pads

The Shark Byte video transmitter boards generate a considerable amount of heat that must be managed for proper operation. Most of the heat comes from the RF board (where the RF power amplifier is located). Where a heat sink is commonly utilized for stationary devices, this VTX is designed for use in racing drones and does not use a heat sink in an effort to maintain minimal weight and form factor. It is expected proper cooling airflow will be provided to the VTX board during operation.

NOTE: Any time the VTX is powered ON in a stationary application or for bench testing, we recommend the use of a small fan to force air over the VTX.

We recommend the VTX be installed as suggested below in your drone for proper ventilation and heat dissipation:

- Orientation of VTX boards; BB board on bottom, and RF board on top
- The VTX should be installed above the FC stack
- The distance between RF boards and the closest carbon frame plate should be at least 10mm



Note: We recommend the RF board (the board with the MMCX antenna connector) is installed in a way that maintains at least 10mm separation from carbon frame plates or other parts of the aircraft. Adequate airflow is required for proper operation of the Shark Byte VTX.

TX5M.1 SPECIFICATIONS

Weight:

15.4g including camera and cable (without antenna), 10.0g for VTX only

Dimensions:

Camera: 14 x 14mm with 19 x 19mm adaptor

VTX: 25 x 32 x 12 mm

Coaxial cable: 85mm

Mounting Pattern:

VTX: 20 x 20mm, M2

Operating Frequencies:

CH	FCC (MHz)	CE (MHz)
1	5660	5735
2	5695	5770
3	5735	5805
4	5770	5839
5	5805	NA
6	5839	NA
7	5878	NA
8	5914	NA

Transmitting Power/ Power Consumption:

25mW: 5.7W

200mW: 8.2W

500mW: 10.4W

IO Interface:

MMCX

UART: 3.3V

Update Port: 7-pin SH 1.0

Supported Flight Control System:

BetaFlight: 4.1 or above (MultiWii API version 1.41), iNav 2.3 or above

Input Power:

7-26V

Operating temperature:

32°-104°F (0°-40°C)

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The distance between user and device should be no less than 20cm.