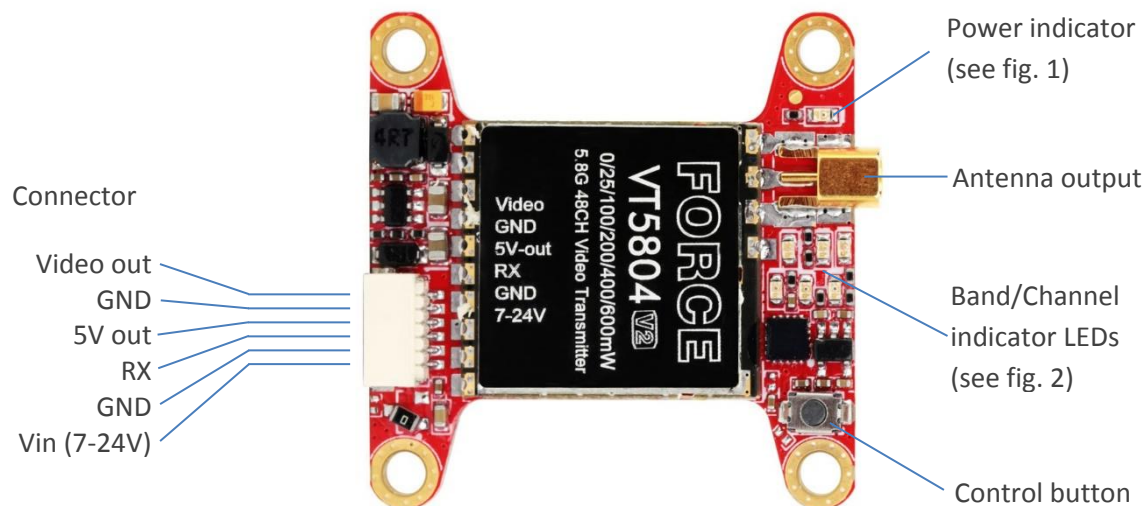# Force V2 48-Channel Video Transmitter

The Force V2 is a 48-channel 5.8GHz video transmitter (VTX) for use with FPV drones. The V2 is supplied as standard with later versions of the Tyrant-S racing drone used in the Airgineers competition.

PCB Layout

Specification

Frequency	5.3GHz – 5.95GHz
Operating voltage	7V – 24V
Output voltage	5V
Supply current	Up to 300mA
RF output power	0/25/200/600mW *1
Weight	6g (excluding antenna adaptor cable)
Dimensions (mm)	36 x 36 x 5mm

*1 Important – 200mW and 600mW transmissions are not permitted in the UK or in the Airgineers competition. When using in the UK, please ensure 25mW mode is selected.

Switching Bands, Channels, and Power Output

All of the functions on the Force V2 VTX are controlled via a single push button. A series of coloured LEDs on the board are used to indicate band, channel and power output. Please refer to fig. 1 and fig. 2 for explanation.

Switching channel
A short press of the button changes the frequency. The channel number is displayed using the three green LEDs (see fig. 2)

Switching band
Press and hold the button for around 2 seconds until the blue LEDs start flashing, then release. A short press whilst in this mode will change band. The band is displayed using the three blue LEDs (see fig. 2) which will continue to flash throughout the process. Once the correct band has been selected, wait 5 seconds and the blue LEDs will stay on solidly to indicate the process is complete.

Switching Power Output
Press and hold the button until the red power indicator LED is on solidly then release. A short press whilst in this mode will move to the next power output. The current power output is indicated by a combination of the green and blue LEDs (see fig. 3). Once the correct power mode has been selected, wait 5 seconds. The red LED will now flash to indicate the power mode (see fig. 1)

Please note: Only the 25mW mode is permissible in the UK and in the Airgineers competition. 100mw, 200mW, 400mW and 600mW modes should not be used in the competition.

fig. 1 – Power output indication
Power output mode during normal use is displayed via a single red LED using a flashing sequence as below:
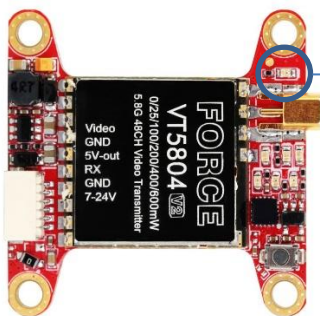
Flash sequence	Mode
1 flash, off for 3 seconds	25mw
2 flashes, off for 3 seconds	100mw
3 flashes, off for 3 seconds	200mw
4 flashes, off for 3 seconds	400mw
5 flashes, off for 3 seconds	600mw
Permanently on	Fault

<u>fig. 2</u> – channel and band indication

Blue LEDs – indicate band

Green LEDs – indicate channel
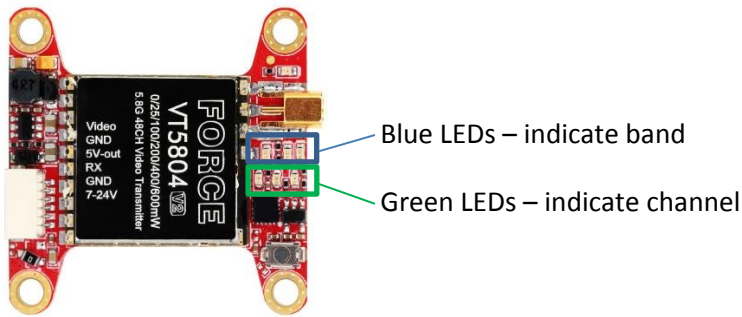
Operating Frequency Table (GHz)

The table below shows the channels, bands and the frequency in GHz. ● or ● denotes an LED that is on, ○ or ○ denotes an LED that is off.

CHANNEL	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
BAND	○○○	○○●	○●○	○●●	○●●	○●○	●●○	●●●
A ○○●	5.865	5.845	5.825	5.805	5.785	5.765	5.745	5.725
B ○●○	5.733	5.752	5.771	5.790	5.809	5.828	5.847	5.866
C ○●●	5.705	5.685	5.665	5.645	5.885	5.905	5.925	5.945
D ●○○	5.740	5.760	5.780	5.800	5.820	5.840	5.860	5.880
RaceBand ●●○	5.658	5.695	5.732	5.769	5.806	5.843	5.880	5.917
F ●●○	5.362	5.399	5.436	5.473	5.510	5.547	5.584	5.621

At Airgineers competitions, one of the RaceBand channels highlighted in green will be used.

<u>fig. 3</u> – power output selection

During power output selection, the band and channel LEDs are used to show the power output being selected as follows:

	25mW	100mW	200mW	400mW	600mW
Band LEDs	○○●	○●○	●○○	○●●	●●●
Channel LEDs	○○●	○●○	●○○	○●●	●●●

Once the selection has been completed, the power output is then displayed by the red LED as per fig. 1

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