

AvengeAngel AI SUPERMAN



V1.0

Specifications

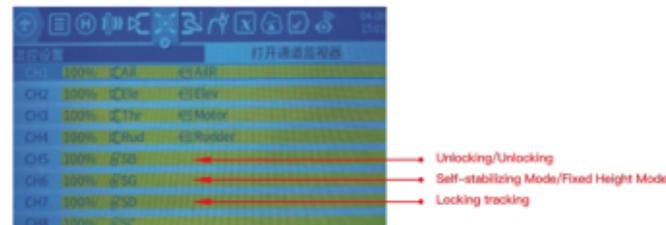
Model	AvengeAngel AI-10
Image sensor	1/1.8 Inch Sensor
LENS	6mm
FOV	36.86° (H)*29.14° (V)
Video Output	PAL
Control Output	Mavlink
Frame Rate	50Hz
Track Target	People, Vehicles, etc.
Tracking Lock Distance	6mm lens Person: Max 150m; Vehicle: Max 300m
Minimum Tracking	16*16~128*128 pixels
Accuracy	3m
Lock/On	Support
Supply Voltage	9V~24V

Model	AVengeAngel F405
Processor	STM32F405
Tourbillon	ICM42688
BEC	5V/3A ; 10V/2.5A
Memory	16MB
Firmware	CADX-CADDXF4
Uart Serial Ports	5
LED Display Light	4
Input Voltage	2S-6S
Mounting Hole	30.5*30.5mm φ4mm

Model	AVengeAngel BLHeli_S 55A
Protocols	BLHeliSuite16
Continuous Current	55A/70A
Maximum Current	60A/80A ((Maximum 10s)
Input Voltage	2S-6S
Current Ratio	160
Tuning Software	BLHeliSuite16.7.14.9.0.3
Driver Signal Support	PWM, Oneshot125, Oneshot42, Multishot, Dshot150, Dshot300, Dshot600
Fixed Hole	20/30.5mm-20/30.5mm φ4mm

Controller Settings

*In addition to the default 4 joystick channels (Yaw, Throttle, Pitch, Roll), there are 3 additional mapping channels to be set up, namely: Unlock/Off Lock (CH5); Self-stabilizing Mode/Fixed Height Mode (CH6); and Locked Tracking (CH7), the additional mapping channels require a 3-pass toggle, and the user can also define the other channels by himself/herself. As shown below:



Mode Function Introduction

*Unlock/Lock: Controlling the Aircraft's Propellers
*Stabilize Mode:

1. The user controls the aircraft's tilt angle using pitch and roll. When released, the aircraft will automatically level itself. In windy conditions, continuous adjustments to pitch and roll are needed to keep the aircraft stationary.
2. Yaw controls the rate of the aircraft's rotation. Adjusting the yaw changes the aircraft's direction, and when the yaw stick is centered, the aircraft will maintain its current direction.
3. Throttle controls the average speed of the motors. The throttle input is proportional to the aircraft's speed and altitude.

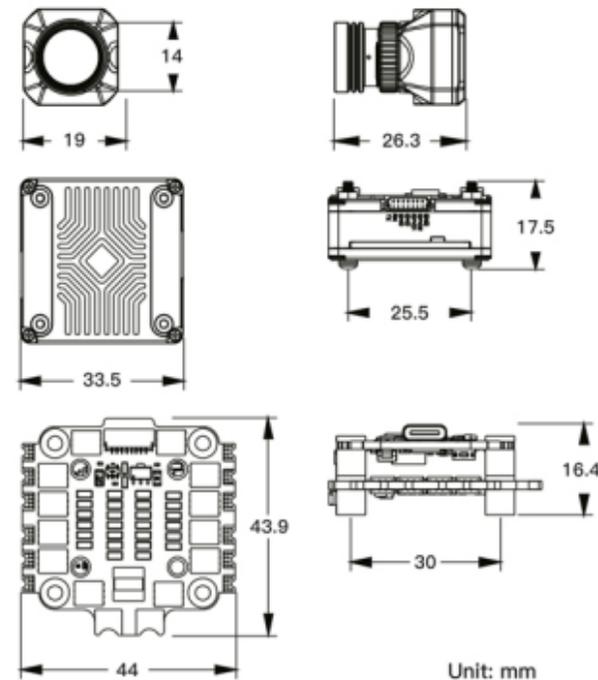
*Altitude Hold Mode:

1. When the throttle stick is centered, the aircraft will maintain its current altitude, but its position may drift due to wind direction and speed. The user can adjust the tilt angle using pitch and roll, and change the direction using yaw. (If the aircraft continuously adjusts its direction due to wind, increasing the yaw and roll input in the opposite direction will help.)
2. The throttle stick controls the aircraft's ascent and descent, with maximum rates of 5m/s. The ascent and descent rates are determined by the parameters MPC_Z_VEL_MAX_UP and MPC_Z_VEL_MAX_DN.
3. When switching from Stabilize Mode to Altitude Hold Mode, ensure that the throttle, yaw, pitch, and roll sticks are centered. If there is input on any axis other than throttle at the moment of switching, the aircraft may flip. Wait for the OSD information to show ANGL switching to ATK before continuing to operate.
4. During descent, you need to switch from Altitude Hold Mode to Stabilize Mode to lock the aircraft. When switching from Altitude Hold Mode to Stabilize Mode, the throttle input should be in the low position. If the throttle is in the mid to high position, the aircraft may shoot up when switching to Stabilize Mode.
5. The flight controller uses a barometric altimeter as the reference for altitude. The aircraft's flight altitude may be inaccurate due to changes in air pressure, and the altitude displayed on the OSD should be used for reference only.

*Lock-On Tracking:

1. To use the lock-on tracking feature, first enter Altitude Hold Mode and wait for ANGL to switch to ATK.
2. When the tracking stick is at maximum input, the system will automatically identify the target in the center of the crosshair. The aircraft will then automatically fly to the target's position. If the target moves, the tracking frame will also follow. During tracking, the user cannot control the aircraft with the sticks but can observe the target's movements through the video feed. If the tracked target and the locked target are in the same direction but at different positions, set the tracking stick to the middle position. At this point, pitch and roll can control the crosshair position. When the crosshair is on the desired target, set the tracking stick to maximum input to switch the target. If the tracked target and the desired target are not in the same direction, exit the lock-on state by setting the tracking stick to minimum input, manually adjust the direction, and then set the tracking stick to maximum input to re-lock the target.
3. When the tracking stick is at the middle position, you can change the locked target by moving the crosshair. The range of crosshair movement should not exceed 1/2 of the video feed's width, i.e., within 1/4 of the screen's left or right side. If the orientation angle between the locked target and the desired target is too large, it is recommended to exit tracking, manually adjust the direction, and then re-lock the target with fine adjustments to the crosshair.
4. In lock-on tracking mode, the ratio of the target's distance to the aircraft's altitude is approximately 10:3. For example, to track a target at a distance of about 100 meters, the aircraft should be at an altitude of 30 meters.

Dimension



Unit: mm