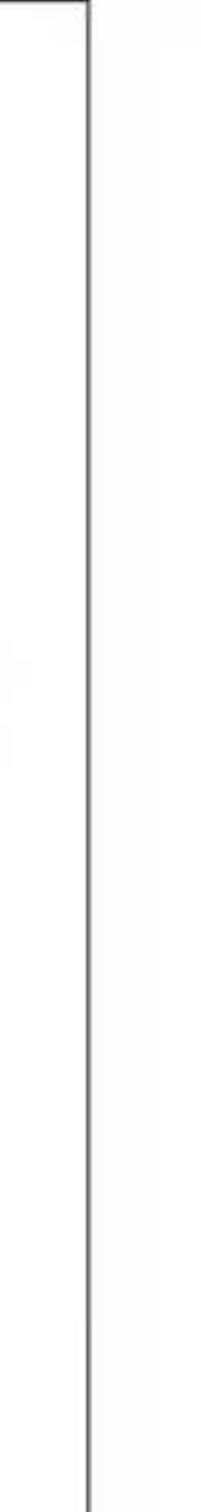
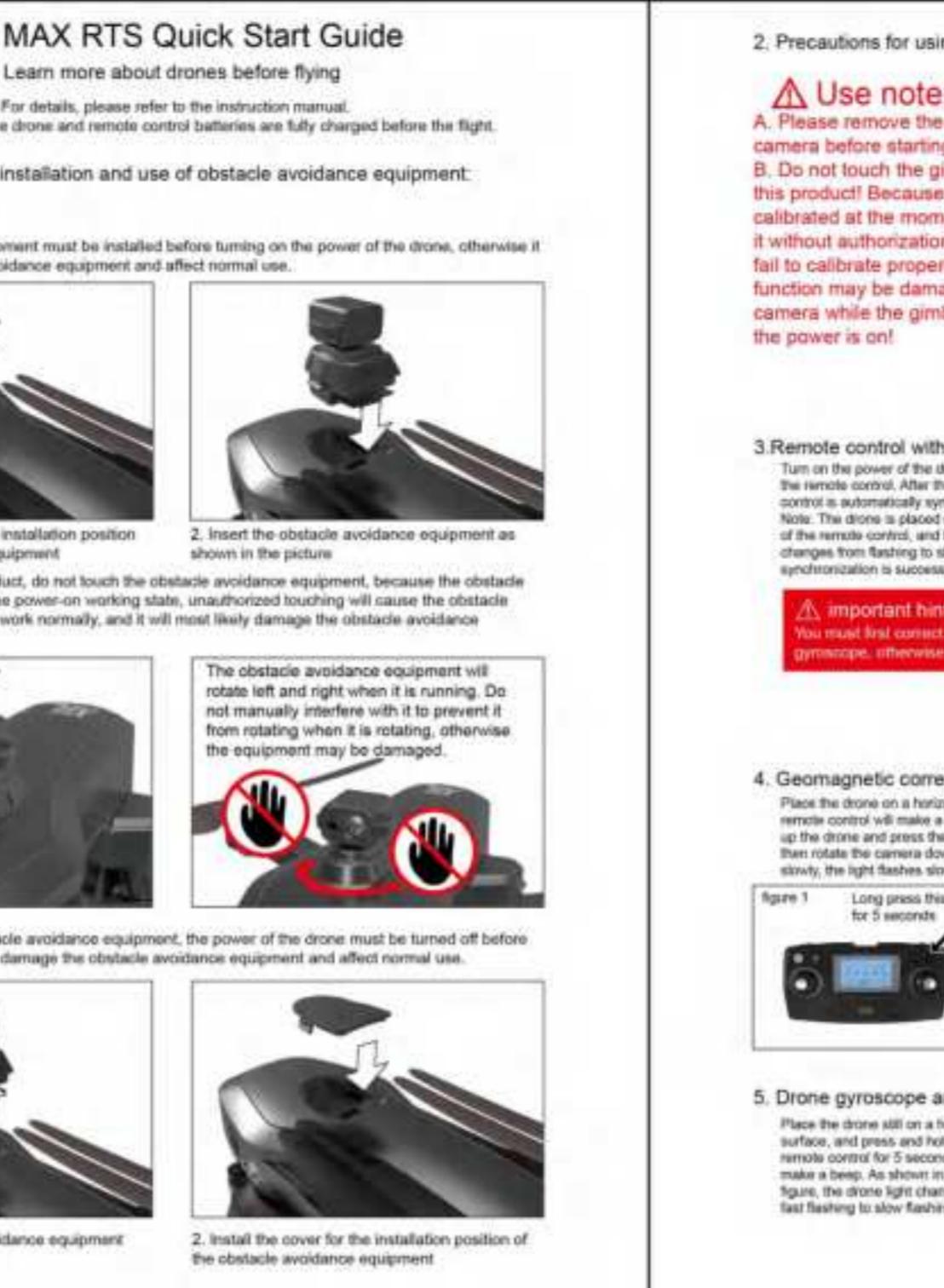


XIL 193  
GPS Smart Drone

\* Please read the manual carefully before flight and keep it for future reference.

table of Contents

Quick Start Guide	1
1. Precautions for the installation and use of obstacle avoidance equipment	1
2. Precautions for the use of global and camera	1
3. GPS module	1
4. Magnetometer correction	1
5. Gyroscope and gimbal level correction	1
6. Airplane calibration	1
7. Go away	1
8. Return home	1
9. Obstacle avoidance function and remote control battery	1
10. Know your remote control APP	1
11. Other	1
Flight mode	1
Remote Control	1
Drone	1
Obstacle avoidance function and working principle detailed introduction	1
Flight mode introduction	1
User Manual	1
1. Description	1
2. Safety and regulations	1
3. Product configuration	1
4. UHD camera	1
5. PTZ camera control	1
6. Remote control component name	1
7. LCD display	1
8. Charging the battery of the remote control	1
9. UAV	1
10. Know your remote control APP	1
11. Other	1



## obstacle avoidance function and working principle

### A. Obstacle avoider working conditions

The product is powered on by default in LOW mode. The drone has 360° obstacle avoidance function, such as switching to HIGH/high-speed mode. Due to the high speed of the drone, the system has not received the instruction to stop the flight, the drone may have hit an obstacle. The UAV's obstacle avoidance function is automatically disabled.



### B. Working principle of obstacle avoider

A pulse signal is sent from the transmitting port, and the pulse signal is turned back after encountering an obstacle in the scanning range, and the receiving port receives the turning back pulse signal through a series of calculations. After the distance is calculated, the system will send a stop forward instruction to the UAV, so as to achieve the effect of obstacle avoidance.



figure 1

### C. Use and effect of obstacle avoidance function

1 When the drone is flying, as shown in Figure 3, 20 meters in front of the drone is the effective scanning range of the obstacle avoider, and the scanning path is about 30 degrees on both sides of the flying direction.



figure 3

2 When the drone flies on the set path, as shown in Figure 4, 20 meters on the left side of the drone is the effective scanning range of the obstacle avoider, and the scanning path is about 90° between the two arms for the side for scanning. The same applies to the scanning range of the shock absorber flying backwards or right.



figure 4

3 When the drone flies on the set path, as shown in Figure 5, 20 meters on the left side of the drone is the effective scanning range of the obstacle avoider, and the scanning path is about 90° between the two arms for the side for scanning. The same applies to the scanning range of the shock absorber flying backwards or right.

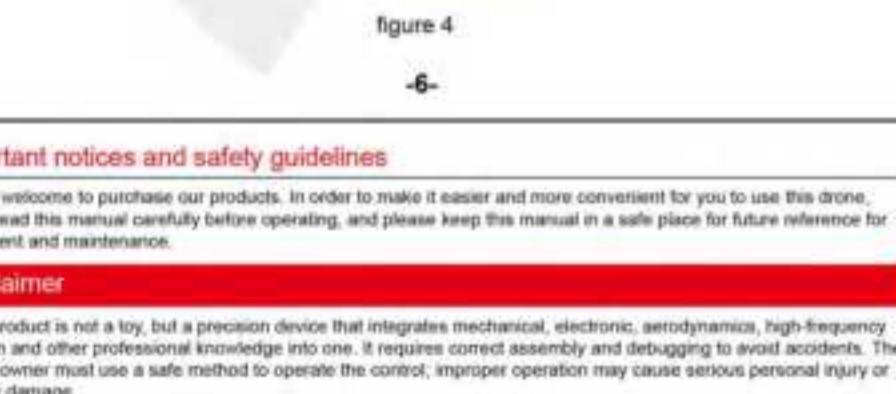


figure 5

### D. Effect of obstacle avoidance function

1. The position where the UAV starts flying is determined by the flight speed, when the UAV is flying at a full speed in low gear. After the drone scans the obstacle at 20 meters, it starts to calculate and issue a stop flight command. The stop position of the drone is about 10 meters behind the obstacle, and the opposite flight. The closer the distance between the drone and the obstacle, and the opposite flight. The slower the speed, the farther the distance between the drone and the obstacle.

2. When the UAV encounters obstacles and hover in the scanning range of 20 meters in the flying direction, the UAV cannot continue to fly in that direction, and can continue to fly by avoiding the obstacles or other obstacles within 20 meters in the direction of flight.

3. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

4. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

5. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

6. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

7. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

8. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

9. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

10. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

11. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

12. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

13. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

14. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

15. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

16. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

17. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

18. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

19. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

20. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

21. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

22. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

23. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

24. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

25. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

26. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

27. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

28. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

29. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

30. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

31. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

32. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

33. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

34. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

35. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

36. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

37. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

38. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

39. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

40. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

41. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

42. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

43. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

44. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

45. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

46. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

47. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

48. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

49. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

50. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

51. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

52. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

53. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

54. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

55. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

56. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

57. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

58. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

59. When the drone takes off, there are obstacles within 20 meters of the forward direction. The drone cannot fly in this direction. It can continue to fly by avoiding the obstacles or fly to other directions with no obstacles within 20 meters.

60. When the drone lands, there are obstacles within 20 meters of the landing direction. The obstacle avoidance device will rise to a safe height (10m) after scanning the obstacle before returning.

61. When the drone takes off, there are obstacles