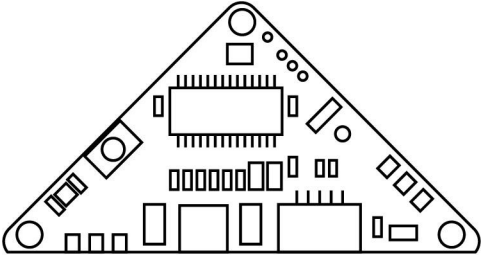
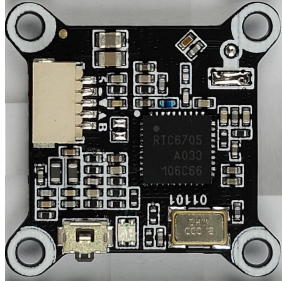
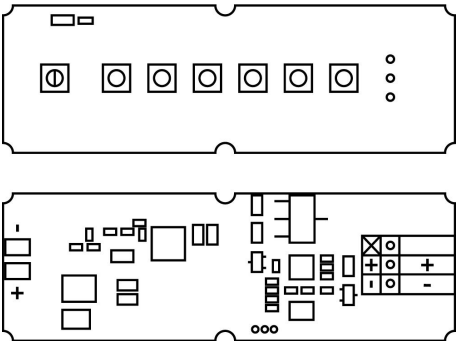
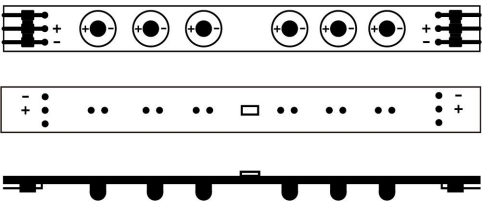


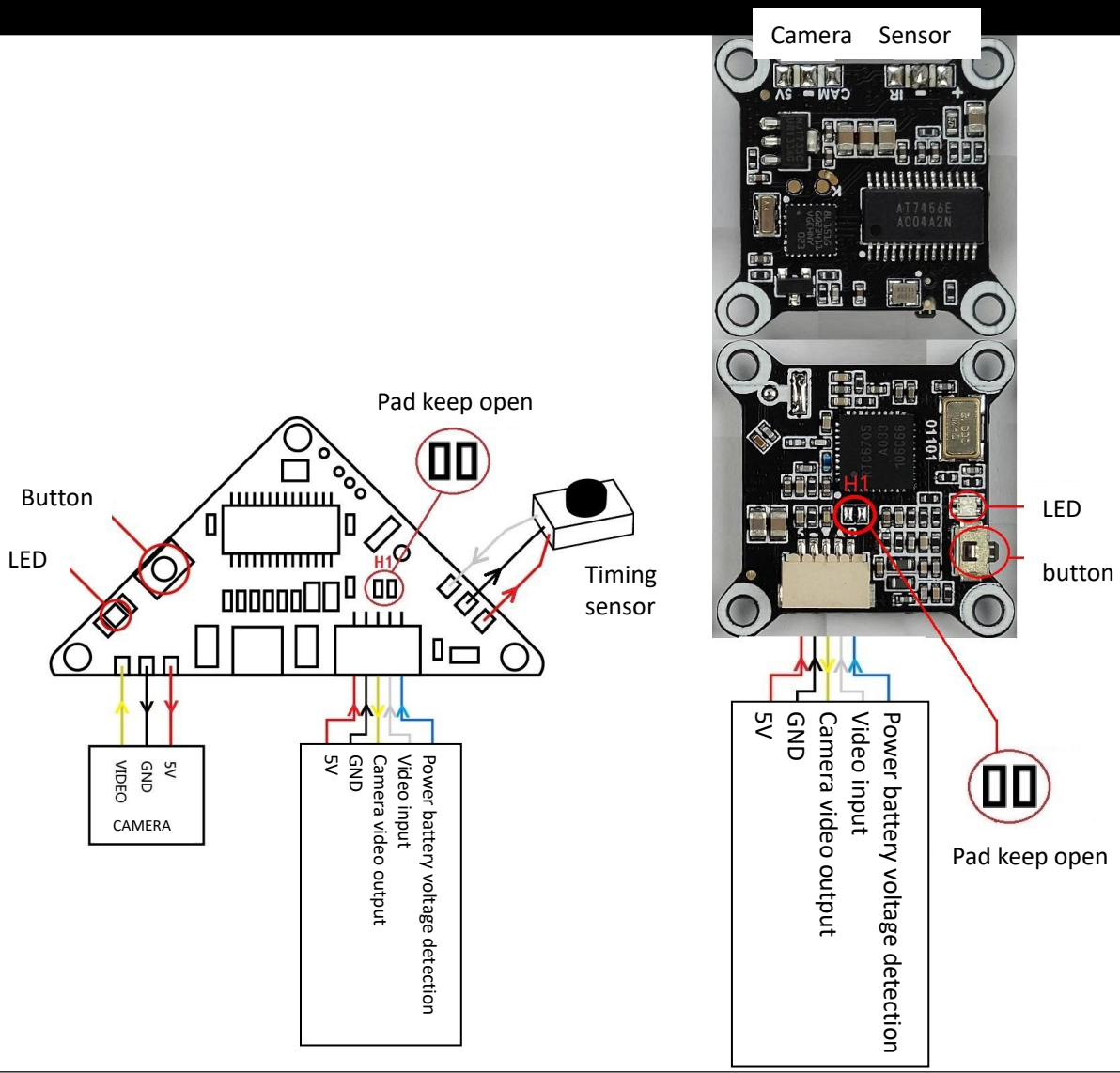
Q25TM/Q25TMQ Lap Timing VTX/LT1000 Lap Timer

User manual

Ver.: 10402C

<p>Q25TM Lap timing VTX</p>	<ol style="list-style-type: none"> 1. With special timing gate, it can achieve the lap timing function, and support statistical the data of the fastest lap/average lap/cumulative time etc. 2. 5.8Ghz / 25mW / 32CH 3. Support superimposed display with BetaFlight FC native OSD at the same time . 4. Input voltage: 4.5~5.5V, Current: 200mA (Exclude camera) 5. Support battery voltage display and low battery alarm, power battery voltage detection range 6-18V 6. All OSD display content supports independent switch 	
<p>Q25TMQ Lap timing VTX</p>	<p>Same as above, only difference in shape</p>	
<p>LT1000 Lap Timer</p>	<ol style="list-style-type: none"> 1. 3S~4S Power (10V~18V). 2. Supports six-level power adjustment, which is convenient to adapt to outdoor and indoor scenes. 	
<p>LT1000 Lap Timer RF board</p>	<ol style="list-style-type: none"> 1. Single RF board length 30 cm. 2. Support up to 6 pcs of RF board in series connection (the longest gantry width is 180~200 cm) 	

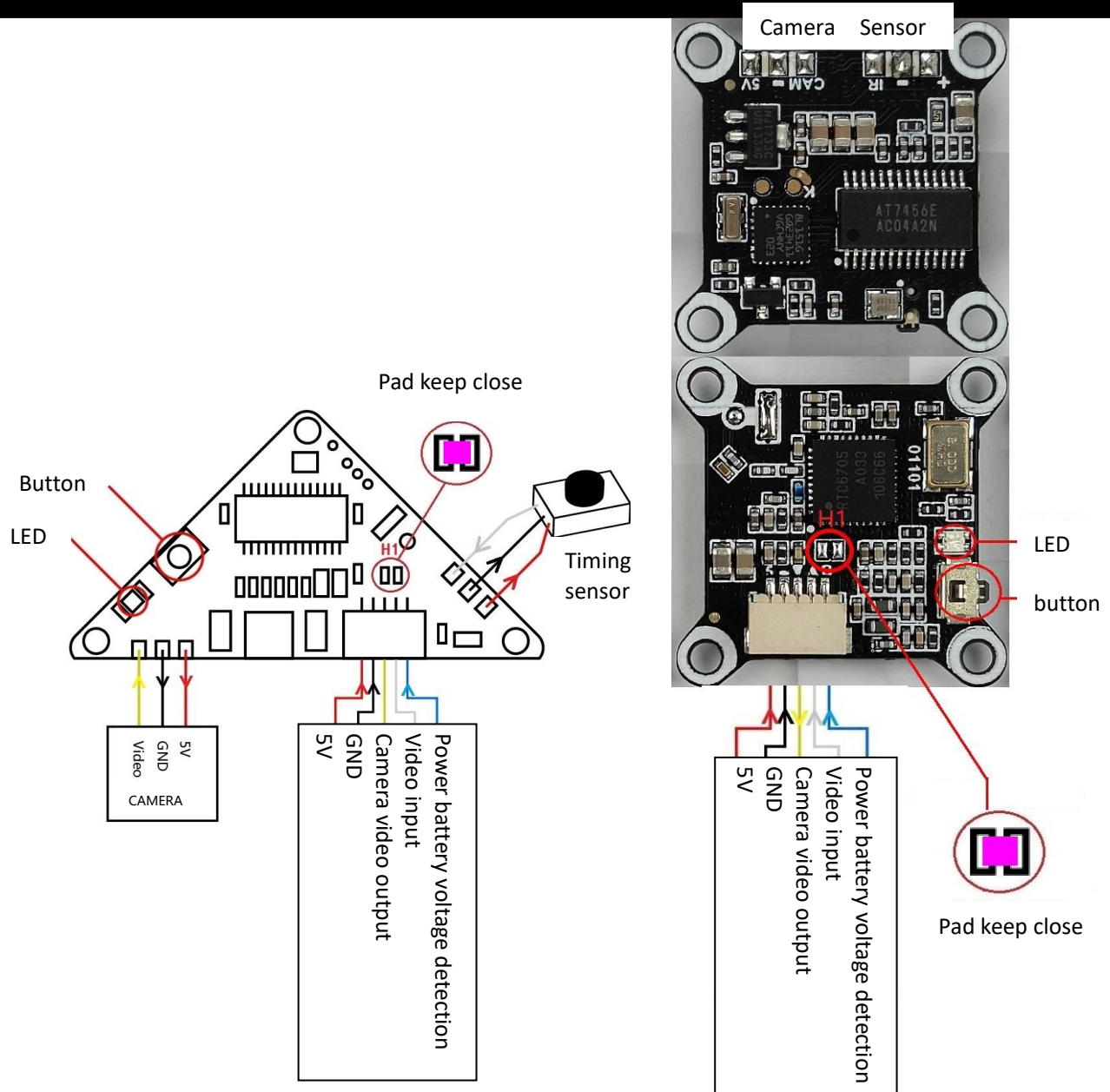
Q25TM and Q25TMQ Lap timing VTX
Connection diagram
(superimposed display with BetaFlight FC native OSD)



Remark:

1. The video signal of the camera is output to the BetaFlight FC board through the yellow signal wire of the 1.0mm-5P socket, and the video signal after superimposing the BF native OSD characters is returned to the Q25TM lap timing VTX through the white wire, and the lap time results are superimposed again. The OSD characters are sent out via VTX.
2. If the BF native OSD character conflicts with the Q25TM lap time score character position, the user needs to adjust the character position of the BF native OSD. The display content of the Q25TM can be turned on or off, and character movement is not supported.
3. When the user uses BetaFlight to detect the power battery voltage, the blue signal wire of the 1.0mm-5P socket can be left unconnected (Q25TM will not be able to detect the power battery voltage).

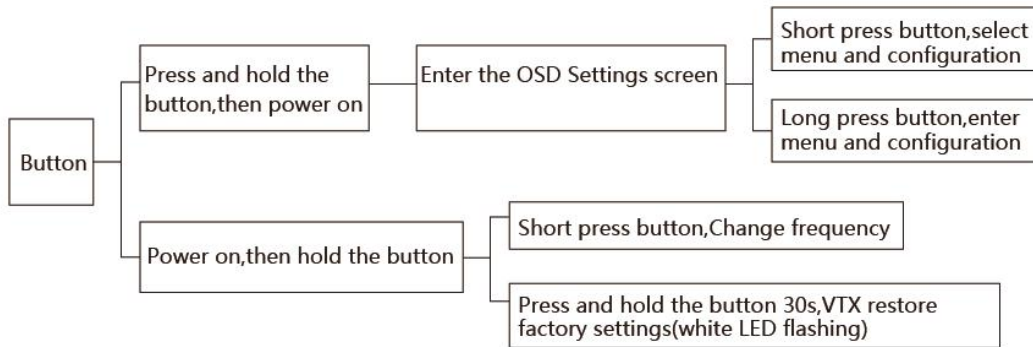
Q25TM and Q25TMQ Lap timing VTX
Connection diagram
(unconnected with BetaFlight FC native OSD)



Remark:

1. The position of yellow and white signal wire of the 1.0mm-5P socket are left unconnected, and the two pins of the pad H1 in the above picture are connected together with solder. At this time, the video signal of the camera will directly superimpose OSD characters such as lap time results. Then send it out via VTX.

Q25TM Lap timing VTX Setting process and frequency table

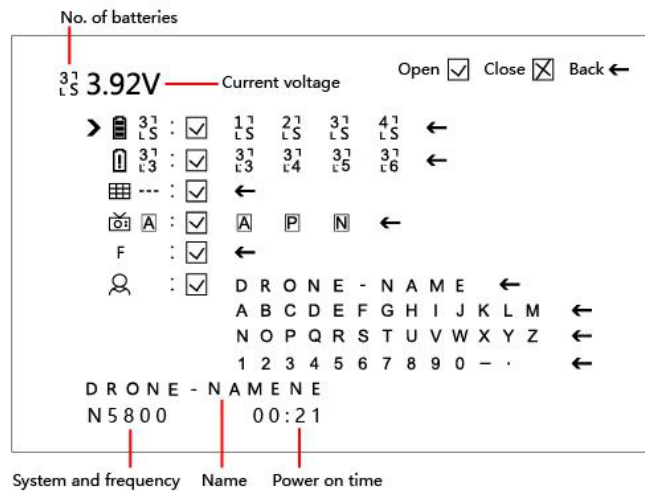


Operation method: After Q25TM is powered on normally, click the button to switch the frequency points in the order as shown in the figure below

■■■ 5800Mhz	■■■ 5806Mhz	■■■ 5847Mhz	■□■ 5790Mhz
■■■ 5828Mhz	■■■ 5843Mhz	■■■ 5740Mhz	■□■ 5820Mhz
■■■ 5732Mhz	■■■ 5866Mhz	■■■ 5760Mhz	■□■ 5860Mhz
■■□ 5769Mhz	■■□ 5745Mhz	■■□ 5780Mhz	■■□ 5752Mhz
■■■ <u>5362Mhz</u>	■■■ <u>5510Mhz</u>	■■■ <u>5695Mhz</u>	■□■ <u>5905Mhz</u>
■■■ <u>5400Mhz</u>	■■■ <u>5547Mhz</u>	■■■ <u>5705Mhz</u>	■□■ <u>5917Mhz</u>
■■■ <u>5436Mhz</u>	■■■ <u>5584Mhz</u>	■■■ 5840Mhz	■□■ 5925Mhz
■■□ <u>5473Mhz</u>	■■□ <u>5658Mhz</u>	■■□ 5880Mhz	■■□ 5945Mhz

- ① The frequency with the marked of " _____ ", need to be authorized to be used in some countries and regions. Please use them legally in accordance with the requirements of the local radio management committee.
- ② Due to hardware design issues of some video glasses/through display/analog transmission receivers, users may not be able to use or search the frequency with the marked of " _____ ", Users can try to manually set the frequency .

Q25TM Lap timing VTX OSD setting instructions for alarm



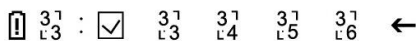
Operation method: press and hold the Q25TM button, then power on to enter the OSD setting menu, click the button to select the function, long press to confirm the option

1. Selection of the number of batteries



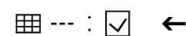
Please select the current number of batteries correctly. Q25TM will measure the blue signal wire of the 1.0mm-5P socket to obtain the total voltage of the power battery, and divide it by the number of batteries to calculate the voltage value of the single cell, which will be displayed on the screen and used Low voltage alarm.

2. Alarm voltage



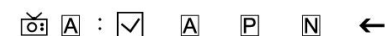
Q25TM divides the total voltage of the power by the number of batteries to calculate the voltage value of a single cell. When the single battery voltage is lower than the alarm voltage, a warning sign will flash on the screen

3. Auxiliary line switch



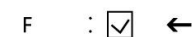
Turn on or turn off the screen horizontal line

4. Camera format



video signal system selection, [AAuto][P System][N System], it is recommended to set to [AAuto]

5. Frequency value display



Turn on or turn off the frequency value display on the screen

6. Username setting



Custom username

Q25TM Lap timing VTX
OSD setting instructions for Timing system

3.92V Open Close Back ←

> ⏰ : ←
⚡ : ←
⌘ : ←
Σ : ←
☰ : 03 0 1 2 3 4 5 6 ← -- LDARC --
⌚ : 03 0 1 2 3 4 5 ← Time of the fastest lap and which lap it appears
6 7 8 9 ←
Time results of the fastest lap — 00 ⚡ 000 . 00
Average time per laps — ⌘ 000 . 00
Cumulative time — Σ 000 . 00
on all laps

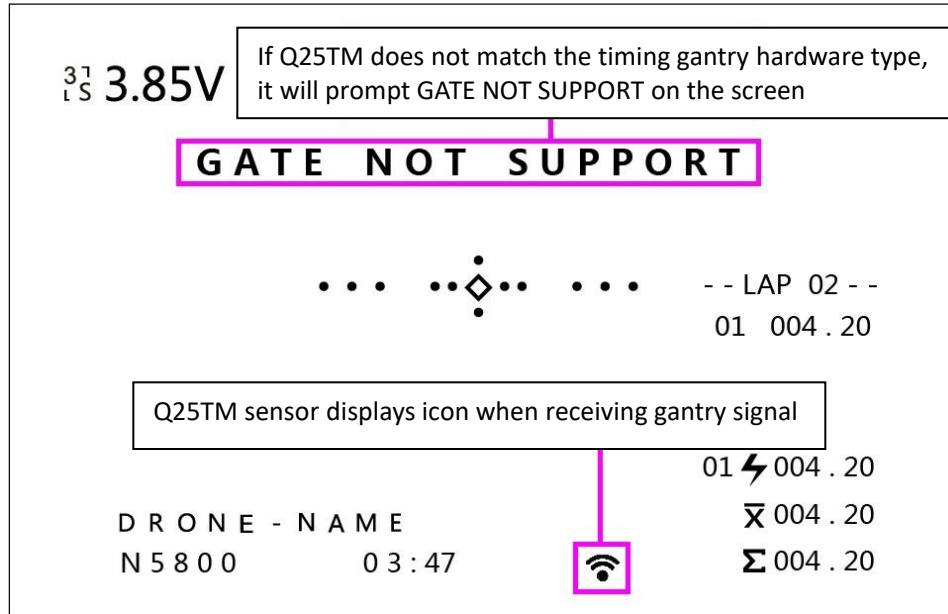
D R O N E - N A M E N 5 8 0 0 0 0 : 2 1

Operation method: press and hold the Q25TM button, then power on to enter the OSD setting menu, click the button to select the function, long press to confirm the option


6. Power on time ⏰ : <input checked="" type="checkbox"/> ←	Display the time since the battery was powered on.
7. Fastest lap ⚡ : <input checked="" type="checkbox"/> ←	Count the fastest results of all laps after power-on, and display them on the bottom right of the screen.
8. Average lap speed ⌘ : <input checked="" type="checkbox"/> ←	The average score of all lap results after power-on is counted and displayed in the lower right corner of the screen.
9. Cumulative value of all laps Σ : <input checked="" type="checkbox"/> ←	Count the cumulative value of all lap results after power-on and display it in the lower right corner of the screen.
10. The number of rows displayed for the recent lap results ☰ : 03 0 1 2 3 4 5 6 ←	Set groups number of recent lap results are displayed on the screen, support up to 6 lines of results, if you select 0, the function will be turned off.
<b style="color: red;">11. Cooling time (in seconds) ⌚ : 03 0 1 2 3 4 5 6 7 8 9 ←	After the results are generated through the timing gate, no new results will be generated during the cooling time. This function is used to avoid the beginner from passing the gate, the aircraft may go backwards or pass the gate again by mistake, resulting in invalid results.

Q25TM Lap timing VTX

FAQ



Q①:Why is there no new lap time result on the screen after the aircraft passes the timing gate?

A: When the aircraft passes through the timing gate, it will not produce lap times if it passes through the timing gate again within the [cooling time] (the factory default set is 3 seconds). Users can try to hold the airplane through the timing gate with their hands. Under normal circumstances, when the Q25TM receives a valid signal from timing gate, even if it is within the [cooling time], the timing gate signal icon will be displayed the marked of  in the lower right corner of the screen. If the signal icon of timing gate is not displayed on the screen, please check whether the hardware connection of the timing gate or Q25TM sensor is damaged. If the timing gate signal icon is displayed on the screen but no lap time result is generated, it means that it is currently in the [cooling time], and the user can manually reduce the [cooling time] setting value to solve the problem.

Q②:What should I do if there are too many OSD characters on the screen that affect my vision?

A: The user can set it independently through the setting interface (on) Or (off) to Set Q25TM OSD character display.

Q③:How to restore the factory fault settings of Q25TM?

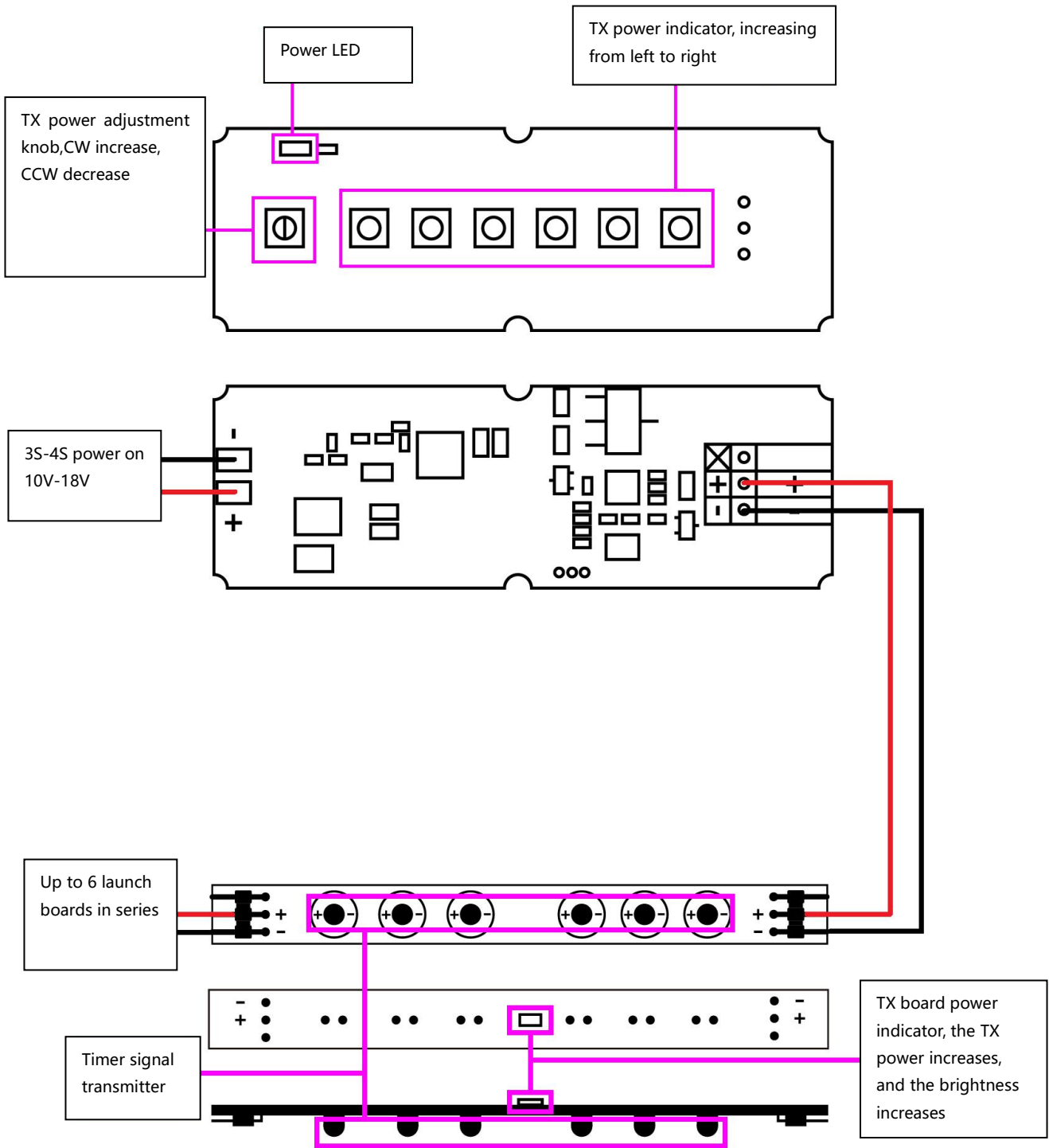
A: After the Q25TM is powered on, press and hold the button for 30 seconds. The white indicator light flashes to indicate that the factory settings are restored. During this process, you can release the button but do not power off. The white indicator light will no longer flash after the restoration is complete. Automatic restart.

Q④:Why did the OSD characters of Q25TM disappear completely after replacing the camera?

A: It is possible that the user has previously set the video [P format] or [N format], and did not use the default [AAuto] format recognition. If the new camera does not match the previous settings, it may cause the OSD characters to disappear completely. To solve this problem, please follow FAQ ③ to re-initialize Q25TM.

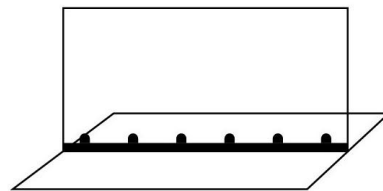
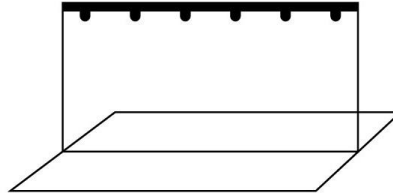
LT1000 Lap timing RC gate

Connection diagram of controller and RF board

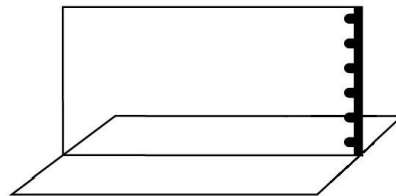
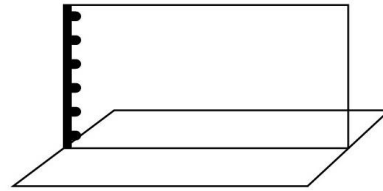


RF board have to be installed towards the ground

Correct installtion method:
RF board towards down



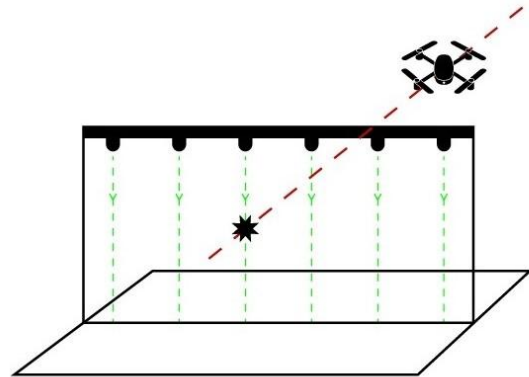
Incorrect installtion method:



Indoor Precautions

As shown in the picture on the right:

when the timing gate is working, the aircraft with the receiving sensor on the top passes under the RF board of timing gate to produce lap times.

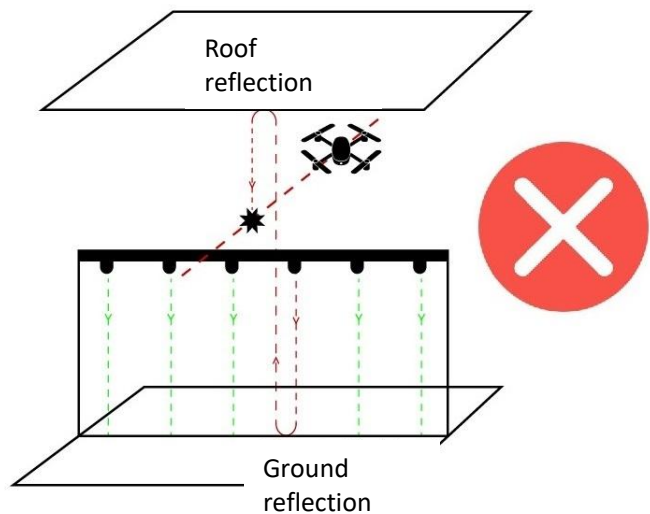


As shown in the picture on the right:

the transmit power cannot be set over high when used indoors, otherwise the signal will be reflected twice on the ground and the roof, which may cause the aircraft flying over the timing gate to produce incorrect lap speed results.

Before indoor use, please hold the aircraft through the space above the timing gate to check whether there is a roof reflection problem.

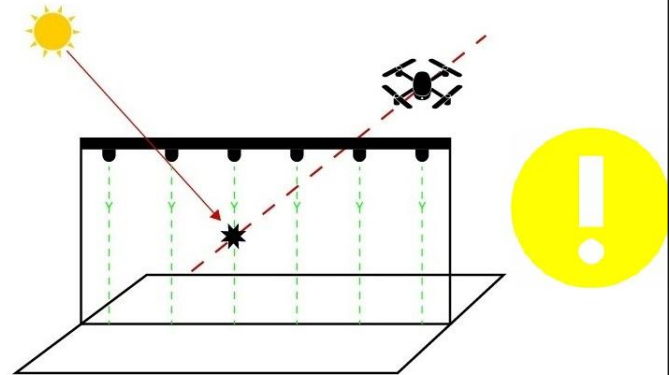
Only roof reflections will cause false lap speed results, because the receiving sensor is installed on the top of the aircraft, and the signal reflected on the ground will be blocked by the aircraft fuselage.



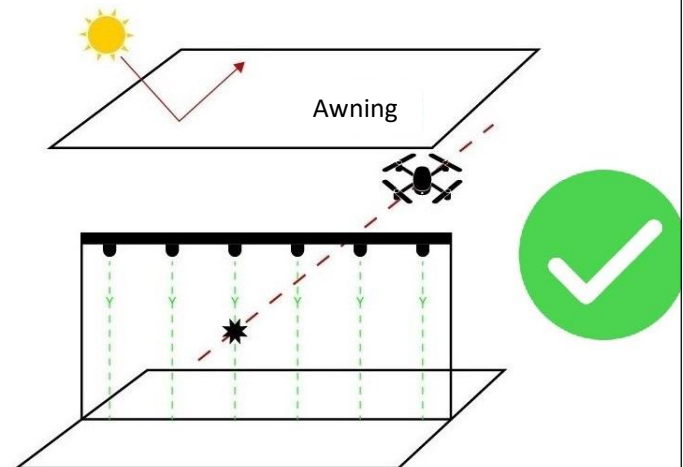
Precautions for outdoor use

For outdoor use, it is recommended to increase the transmission power of the timing gate as the light intensity increases.

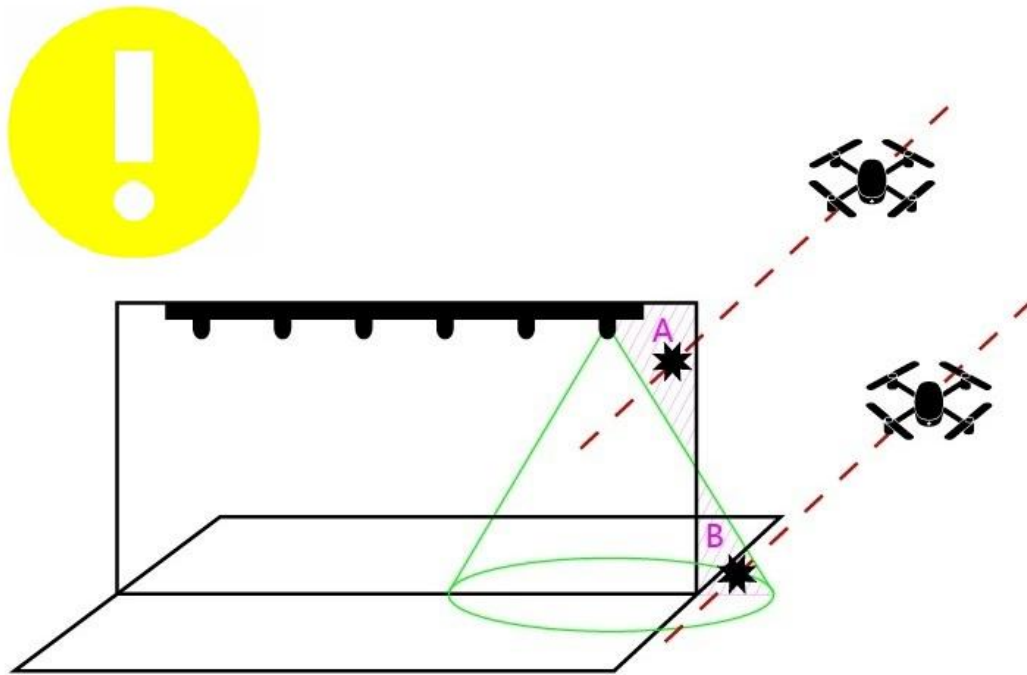
When the receiving sensor on the aircraft is irradiated by particularly strong sunlight, there may be a small chance that the receiving sensor on the plane will fail at a certain angle, causing the lap time score to be missed. This phenomenon is similar to when the eyes are looking directly at the hot sun. Will cause the surrounding environment to be unable to see clearly.



To solve the problem of missing the small chance lap speed score when the sun is particularly strong, you can place the chronograph gantry in the shade of a tree or build an awning for it. At this time, you also need to consider the reflection of the indoor roof.



Other Precautions



The projection of the signal from each transmitter on the gantry transmitter board on the three-dimensional space is conical, as shown in the green part of the above figure. This leads to two issues that require special attention:

1. The RF board will produce the [Blind Zone A] in the above figure. If the edge of the RF board is far from the side of the Timing gate, the area of [Blind Zone A] may be so large that the plane can pass through, resulting in missed lap times. It is recommended that the user align the side of the RF board of timing gate with the side of the timing gate to minimize the blind area.
2. The RF board will produce the [Mistaken Trigger Zone B] in the above figure. It is recommended that users place physical barriers on both sides of the Timing gate to prevent false triggers when the aircraft flies against the bottom of the timing gate.

It is recommended that users hold the airplane to test the area of [Blind Zone A] and [Mistaken Trigger Zone B] before using the timing gate to evaluate whether it will affect the lap timing.