



Wanney Corporation

Jul 28, 2018

Current version: V1.1, Any question mail to market@wanney.com.

Revision history

V1.1	Released on Jul 28, 2018	Create Gyroscope function and measure Target Angle automatically, and the trajectory calculation speed is optimized to less than 1 second.	By Seven
V1.0	Released on Jul 21, 2018	Original version	By Seven

This instruction just for **WANNEY** E50/D20 night vision rifle scope (“Device” as following for short name)

1 Actual trajectory menu schematic diagram

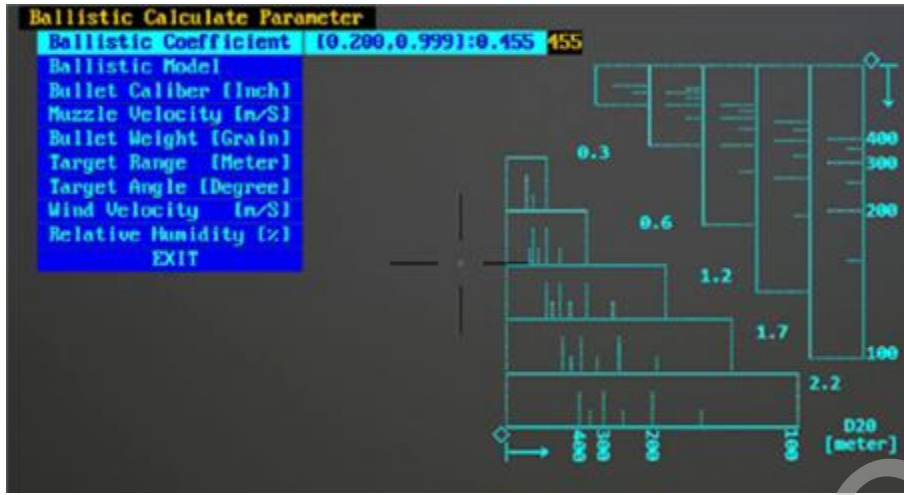


Figure 1.1 Metric system menu

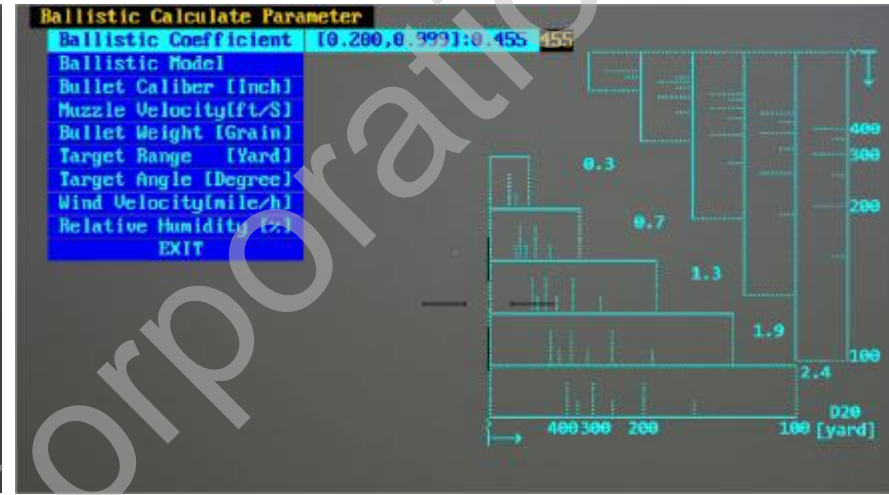


Figure 1.2 British system menu



Figure 1.3 Ballistic beginning



Figure 1.4 Ballistic finished

2 All parameters required for trajectory calculation:

	Parameter Name	Input Mode	British Units	British Range	Metric Units	Metric Range	Comment
1	Ballistic Coefficient	Manually		[0.200,0.999]		[0.200,0.999]	
2	Ballistic Model	Manually		[G1,G8]		[G1,G8]	
3	Bullet Caliber	Manually	inch	[.200,.500]	inch	[.200,.500]	International common used units
4	Muzzle Velocity	Manually	ft/S	[0900,5000]	meter/S	[0300,1500]	
5	Bullet Weight	Manually	Grain	[020,800]	Grain	[020,800]	International common used units
6	Target Range	Manually	yard	[100,999]	meter	[100,900]	Measured in real time by gyroscope
7	Target Angle	Manually	degree	[Dn-90,Up+90]	degree	[Dn-90,Up+90]	Target lower < 0, Higher > 0
8	Wind Velocity	Manually	mile/h	[L-35,R+35]	m/S	[L-15,R+15]	Left to Right < 0, Right to Left > 0
9	Relative Humidity	Manually	%	[000,100]	%	[000,100]	
10	Altitude	Automatically	yard		meter		Must turn on GPS function
11	Temperature	Automatically	°F		°C		

Bullet Parameter, Ballistic Coefficient/Ballistic Model/Bullet Caliber/Muzzle Velocity/Bullet Weight, The supplier of guns and bullets will provide directly.

Target Range: Use optical range finder, Chapter 4 will describe it in detail.

Target Angle: Refer to figure 2.1, target is above the horizontal plane >0, and below <0. Device is integrated with a gyroscope, Target Angle can be measured in real time, as is shown in figure 2.2, [-2] means the angle between zero point and horizontal plane is -2 degree, Aim the zero point at the target and input the value. The description of zero point is given in chapter 3.

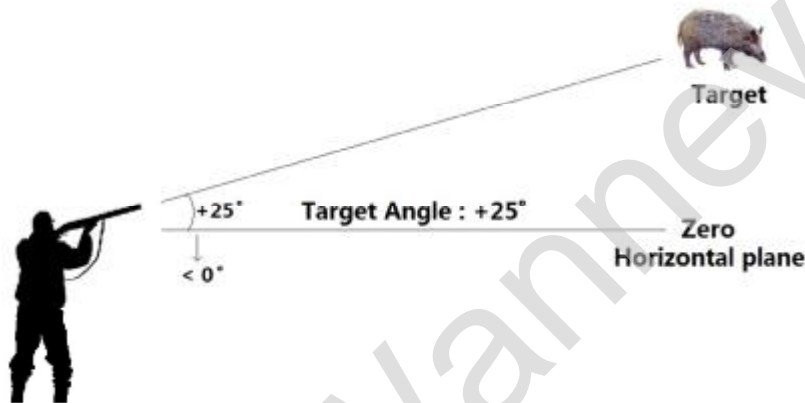


Figure 2.1: Target Angle (Degree)

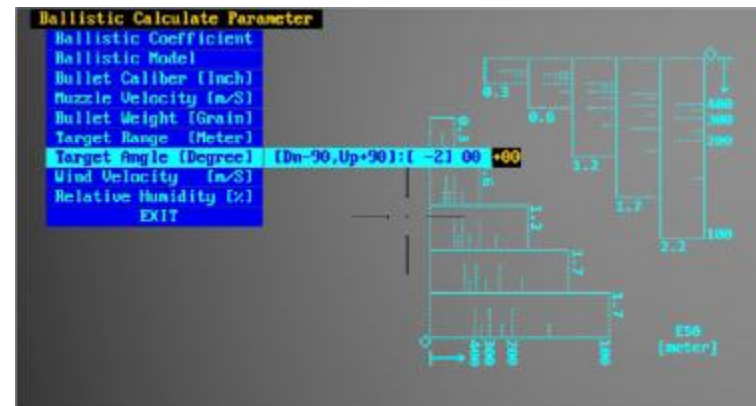


Figure 2.2: Target Angle input method

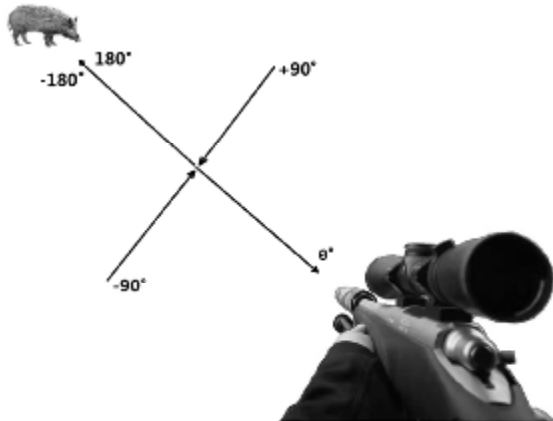


Figure 2.3 Wind Direction

Wind Velocity: Wind direction refer to figure 2.3, Wind velocity calculating as follow, it can be judge by experience:

Half speed wind: Wind Velocity = Actual wind velocity / 2, Wind direction from -30 to -60 degree, from -120 to -150 degree, from +30 to +60 degree, from +120 to +150 degree.

Full speed wind: Actual wind velocity, from -60 to -120 degree, from +60 to +120 degree.

Other angle: Ignore.

Notice: Wind direction clockwise from 0 to -180 degree, Wind Velocity < 0 and anticlockwise from 0 to 180 degree, Wind Velocity > 0.

Relative Humidity: It can be judge by experience.

Altitude: It can be obtained automatically when GPS turn on.

Temperature: It can be obtained automatically every moment.

Notice: As long as all the above values are modified, no key click action for a few seconds, trajectory would calculated automatically and exit the ballistic calculate parameter setting menu.

3 Aim point zeroing

Aim point zeroing is a necessary step for calibrating device and gun bore.

The zero point is the reference point of the bullet drop after trajectory calculation.



Figure 3.1 Zero point and Aiming point

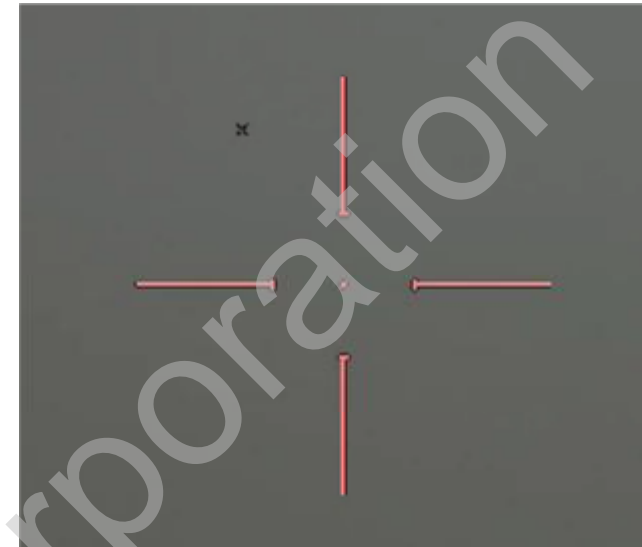
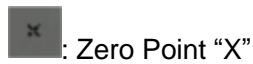


Figure 3.2 Zero point and Aiming point



Zeroing step:

- (1) Set the Device "CursorX" and "CursorY" to (0, 0), Use the button "Shift + Up" / "Shift + Down" / "Shift + Left" / "Shift + Right" or smart phone "SETTING".
- (2) Install the Device on the gun and fix it on a stable platform.
- (3) Place a plate or target 50 meters (Metric system) or 50 Yard (British system) away from the platform.
- (4) One shot at the target.
- (5) Move Zero Point "X" to the bullet hit point.
- (6) The setting would be recorded when no key press a few seconds.
- (7) Zeroing finished.

4 Optical range finder

Select the following reference substance refer to figure 4.1.

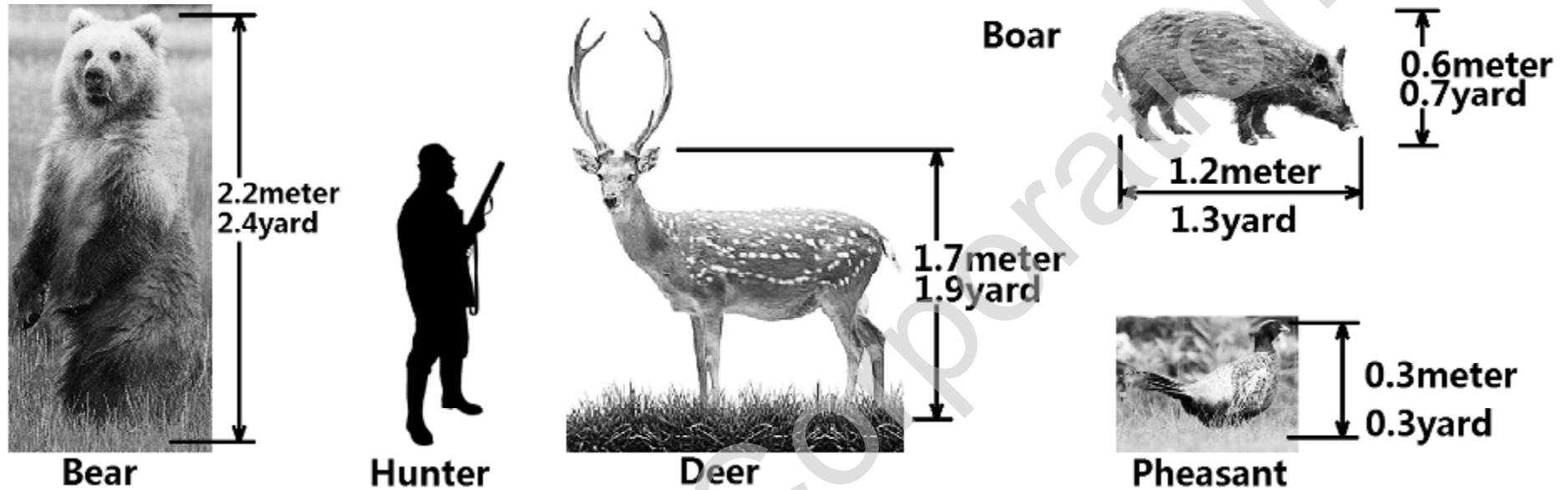


Figure 4.1 Reference Substance

Optical scale refers to figure 4.2 and figure 4.3.



Figure 4.2 Metric System Optical Scale

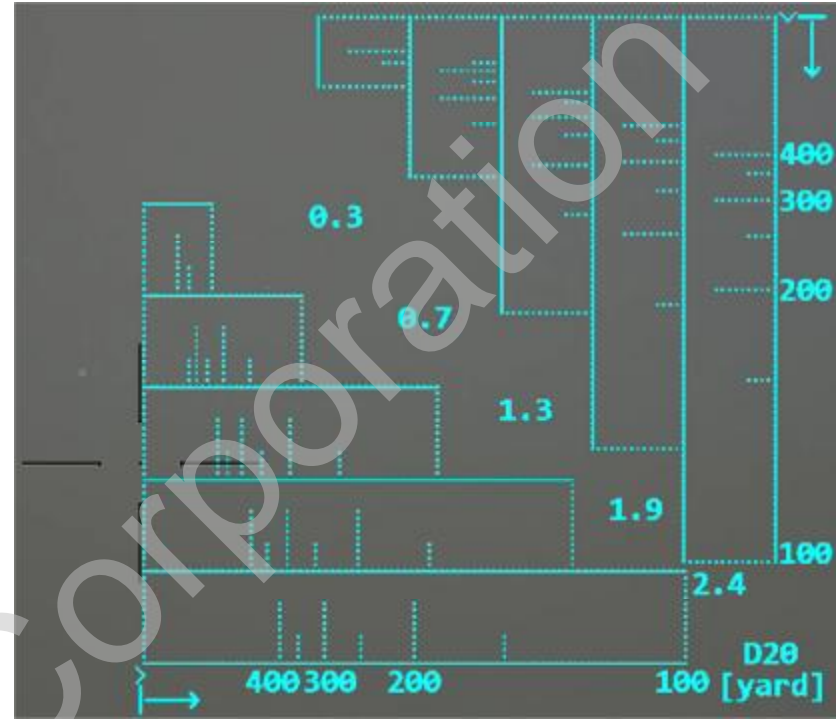


Figure 4.3 British System Optical Scale



: Horizontal optical scale, the diamond on the left is reference starting point.



: Vertical optical scale, the top diamond is reference starting point.



: Optical scale line, long line means X00, short line X50. For example, short line between 200 and 300 means 250.



Description of trajectory calculation about **WANNEY** E50/D20 night vision rifle scope

Range finder step, taking an example of Reference Substance Bear, Use British System:

- (1) Vertical optical ranging, aim the top end of the bear's head at Vertical optical reference starting point.
- (2) Observe the position of the bear's feet at the Vertical optical scale.
- (3) If the bear's feet is at the 250 mark, then means the bear is 250 yards away.
- (4) If between 350 and 400 yards, means the bear is 375 yards away.
- (5) And so on, horizontal optical ranging is the same, Left head right tail or Left tail right head.

5 Ballistic calculating

(1) The 5 parameters of the bullet, just like Ballistic Coefficient/Ballistic Model/Bullet Caliber/Muzzle Velocity/Bullet Weight, Device will save automatically.

- (2) Target Range, Use above optical range finder, input the range, note the British System and the Metric System, Device will save automatically.
- (3) Target Angle, input the target angle, and refer to the results of gyroscope angle measurement.
- (4) Wind Velocity, input the wind velocity, note wind direction and half speed wind or full speed wind.
- (5) Relative Humidity, input the relative humidity, it can be estimated roughly according to body sensation.
- (6) Altitude, above 500 meters or 500 yards, it's needed to turn GPS on.
- (7) Temperature, it is be measured automatically.

(1) to (5) terms, any parameter changes, "Exit" or no buttons are pressed for a few seconds, "Ballistic Calculate Parameter" menu will disappear, and the trajectory will be recalculated. No change, no recalculation. Ballistic calculating needs about 1 second, "Ballistic beginning" to "Ballistic finished".

When "Ballistic finished", Aiming point "+" will updated.

Enjoy shooting and hunting.