
NISI DEUM, NE QUI DQUAM TIMUERIS

User Manual

1. **Battery**

2 pieces of 18350 1000mAh,3.7V rechargeable battery. It can find the range more than 1000 times in the temperature of 25±5℃ . The battery indicator will show the battery power.

Fig 2 Battery

Two pcs of the 18350 batteries are put into for powering. The positive polarity should be facing inside.

When the battery is low, use the special charger to charge them. Red light shows it is charging, 2-3 hours changing time. The green light shows the battery is full, the battery can be taken out of the charger.

2. Construction and principle

The LRF is composed of control power, optical system, zoom circuit, control logic calculation, sampling, display.

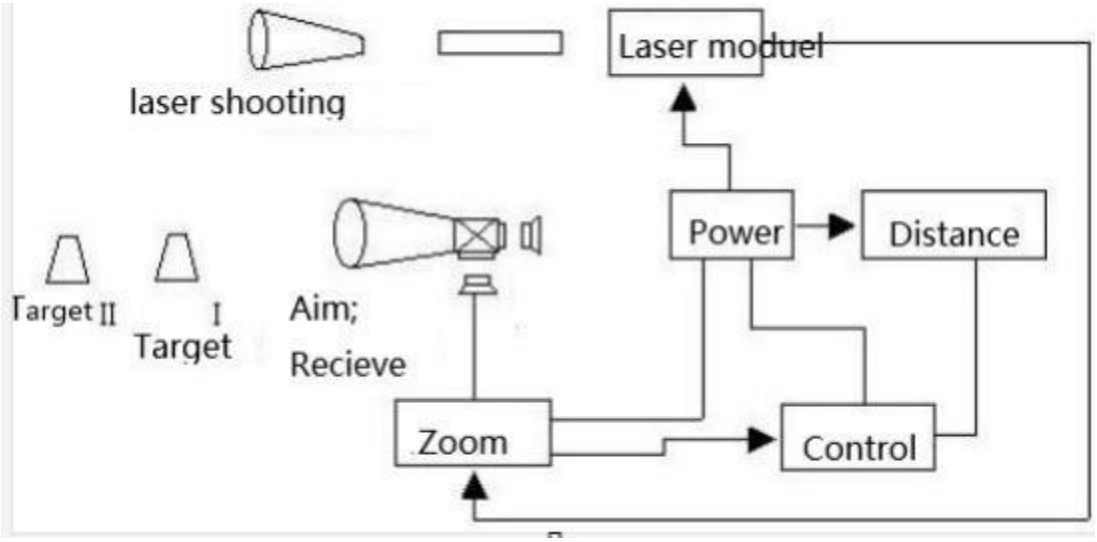


Fig 3 Principle

3. Structure and buttons

Objective: For aiming the target, and receive the laser wave.

Emitting: Shooting the pulse laser.

Interface : It is an interface for power, inputting ranging and outputting data signal (RS232).

Battery compartment : put the two 18350 batteries in it. The positive polarities are facing inside.

Eyepieces : Display the data and modes in the eyepiece.

Power: Power off (it will automatically cut itself in 2 minutes if there is no any operations in 3 minutes.).

“Ranging”： Start the ranging

“Gate”： Control the distance of the 2VKC to be found

Fig 4

On the left eyepiece, the gate and mode information is displayed, which can be adjusted. The reticle and the distance information is displayed in the right eyepiece. Rotating the right eyepiece can adjust the dioptre.

A . Aim of point

B. Ranging indicator

C. Power indicator

D. Multi-target indicator

E. Voltage indicator

F. Distance

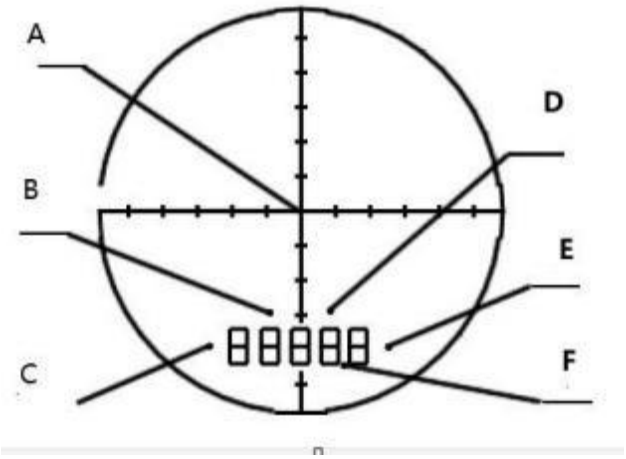


Fig 5

A . Aim of point： The center cross point of the two lines are aim of point, for aiming the target.

B .Ranging indicator: after pressing , it is illuminated, means the laser is emitted. After finding the range, its light out.

C. Power on/off: after powering on, it is illuminated.

D The second target indicator: after it illuminates, shows the targets outside the " gate" is measured. If not illuminated, shows only one target is measured.

E. Battery indicator： When it is illuminated, shows the voltage is low, needs to replace a new battery.

F. Distance： The unit of the distance is meter, the biggest number is 9999.5.

4. Operation

In this user manual, “short press the button” mean to press it in 0.5 seconds. “Press and hold” mean to press it for longer time, more than 2 seconds.

4. 1 In normal conditions

4.2 After the battery is put in the battery compartment, power it on, the number of the “ gate” is 30. If at night or illumination is low, press “ power” button again to start the background illumination(red), for more accurate aiming of the target.

4.3 Hold the 2VK-C in the way of binocular, it can be mounted on the tripod for more stable status, by observing, adjust the dioptre to get clear images.

4.4 When the target is aimed, press the button of laser range finder, the LRF point is illuminated. After one second, the LRF finishes the ranging. One of the following images will be shown.

Fig 6：Measured one target outside the “gate”, display the distance to the target.

Fig 7： Multi-target, means outside the “ gate”, two targets are measured, the distance to first target is measured. In 5 seconds, press the power button to show the distance of the second target.

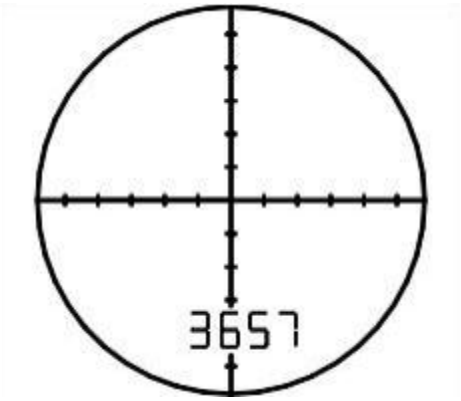


Fig 6： Single target

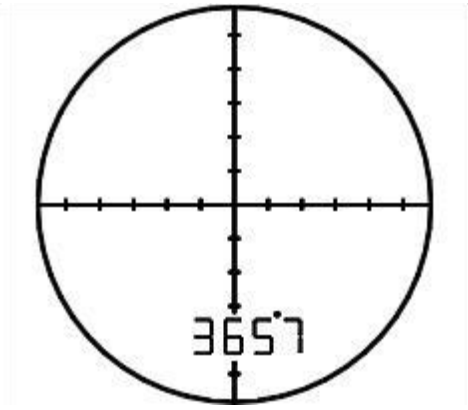


Fig 7： two targets

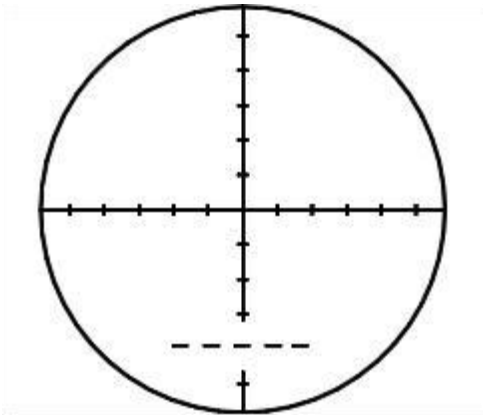


Fig8： Out of the gate

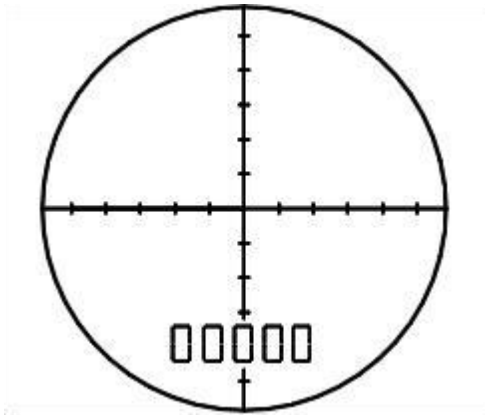


Fig 9： Error

Fig 8： Means the target out of the Gate is measured or the target is out of the max measured distance.

Fig 9： 000， Means Error or no laser output.

5. The “ concept” of the “Gate”

The target in the distance of the “ gate” will be not measured the distance. The targets outside the gate will be measured. If more than targets are shown on the laser, the “ gate “ are used for selecting the targets.

5. 1 First, measure the first target in more than one target. Set the “ gate” distance to be bigger than the distance of the first target.

5. 2 Enter “gate” to set the gate number. Set it to increase every 10 meters. Continuous press to set it to increase every 100 meters. Press “power (illumination) to decrease every 100 meters.

5. 3 Press the “LRF” button to get the distance of the second target.

In low temperature condition, the external power should be selected.

Press the “LRF” to find the range, taking about 1 second. Press and hold the “LRF” to capture the target and release it after the range is found.

6. Reticle illumination

In the low light or dark condition (night), user cannot see clearly the reticle in the right eyepiece. Press “ power” button to start the illumination(first level), press again to get to second level illumination. Press it again to power off the illumination.

7. Data(distance) storage and review

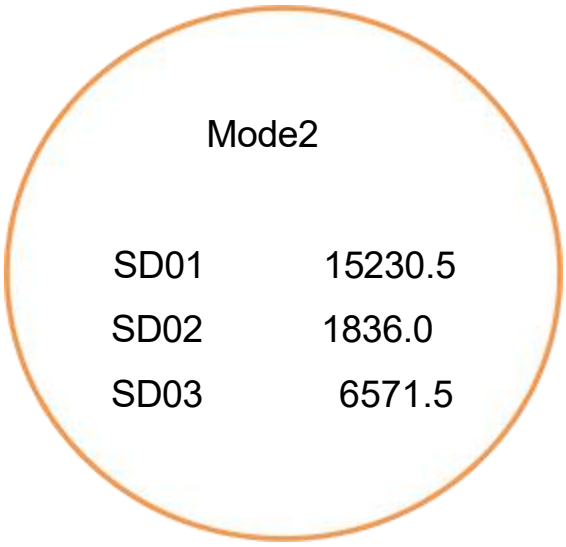
When the distance is displayed, it will automatically be stored. 81pcs of distance can be stored. The data will be covered after the distance will be more than 81 pieces. In stand-by, enter " Mode" to review the distance data, the latest distance will be shown at front. Press " +，- "to check other distances. When the 2VK-C is shut off, press and hold "Gate" , then press the " Power" button to switch it on, a number will be shown, it is the working times of the laser. In 3 minutes, there is no any operations, the 2VK-C will be shut off automatically.

Mode 1:

"Gate" to show the gate number. SD2 is the distance of the second target.
" A" is angle (degree) between the horizontal line and line from measure point to the target.
"H" is the horizontal distance,the line from the measure point to the target is reflected on the ground.
"V" height. The height difference between measure point and target. When the angle is minus, the height will be considered to be minus.

Mode 2:

"S01, S02, S03..." to display the stored 81 distances.



8. Two cables :

There are two five-pin cables: one is ended with RS232 for transferring the data of distance.

The second cables is ended with external button for ranging, which is totally the same as the button on the 2VKC. Using the cable LRF button will avoid the error caused by the shaking of the 2VKC.

The definition of 5 pins：

1: Empty； 2：Ground； 3：Ranging；4：RS232 receiving；5：RS232, emitting；

9. Dovetail Plate

On the back of 2VK-C, there is M3 screw hole, distance is 40X33mm.

The Dovetail Plate can be fixed on it, so that other device (theodolite) can be connected. There is a 1/4 screw on the dovetail plate for mounting it on tripod.

10. Laser Security Instruction

2VKC uses the Nd:YAG invisible 1.064 um laser. It is military standard laser. It is not safe for human eyes, so it is not allowed to watch the laser emitting or receiving window.

It is not allowed to aim people (in 500 meters) or the glass to find the range.

It is not allowed to watch the laser by way of optical lens (like eyepiece or binocular), which will cause permanent damage on the eyes.

It is not allowed to aim the surface like mirror or metal), which will reflect the laser, that will cause the permanent damage on the eyes.

11. Maintenance

Laser rangefinders are precision optical instruments with electronics that must be carefully maintained.

The rangefinder should be stored in a clean and dry environment protected from light, and the appearance of the laser rangefinder should be checked frequently, and the outer surface should not have dust, dirt, grease, moisture, mildew and rust spots. Optical lenses should be cared for as you are for your eyes, and do not touch them with your fingers to avoid damaging the anti-reflection film of the lens. If there is dust on the surface of the lens, dust off with a brush and gently wipe the surface of the optical lens with a flannel cloth or paper that wipes the camera lens to avoid scratches on the surface of the lens.

The battery has to be taken out of the devices for long time no use. They battery has to be charged for at least once in one year.

12. Trouble shooting

When trouble shooting, the technician are only allowed to replace the battery, not allowed to open the housing of the LRF, in which there is high- voltage, which can hurt. The high-power laser module will also hurt the eyes.

13. **Whole set**

2VKC LRF，1 pc

Rechargeable battery，4 pcs

Recharging，1 pc

RS232cable， 1pc

Cable， 1pc

User manual，1 pc