Automatic Seed Counter (Type of Weighing)

SLY-E Plus

User Manual

Please read this manual carefully before use

Catalogue

1. Instrument overview

Crop breeding is of great significance for agricultural production, mainly to improve crop yield and agricultural production efficiency through variety breeding. In crop breeding, counting seeds is a simple but very important work. For example, the thous seed weight is one of the important indicators used to test the quality of seeds. However, for a long time, the determination methods rely on manual counting, which is time-consuming and labor-intensive. Especially for the seeds with small particles, the error rate is high, and they are vulnerable to external interference, which cannot ensure accurate counting. Therefore, Top has developed a automatic seed counter for weighing, which can weigh several particles at the same time, greatly improving the work efficiency. It is widely used in agricultural science academies, agricultural universities, seed companies, seed stations and regional experiments in seed counting, thous seed weight measurement, seed sorting and packaging, etc.
Applicable seed types: seeds of rice, wheat, corn, rape, sesame, flowers and other crops.

2. Main functional features

1) Large touch screen design: 7-inch color touch screen, intelligent dynamic screen, enhance user's human-computer interaction experience.
2) Seed weighing: after the current number of seeds is completed, the seed weight will be automatically weighed and the thousand seed weight will be converted.
3) Adjustable speed: It has the function of stepless speed regulation, and the speed of several grains can be adjusted.
4) Built in decelerating program: decelerate and refine when the number of grains is close to the set number to prevent the inertia overshoot of materials and affect the precision.
5) Weighing calibration: the weighing module shall be calibrated before being used for a long time or for the first time to eliminate errors and improve measurement accuracy.
6) Sensitivity adjustment function: Only the particles of the selected magnitude are counted to avoid the interference of impurities and make the counting more accurate.
7) Peeling function: when weighing, remove the weight of the container (receiving cup) for weighing the seeds, so as to accurately weigh the actual weight of the seeds.

3. Technical parameters

1) Seed length: 1-23 mm (the size of small particle sample is not within this range, and there will be errors)
2) Counting error: ± 2 ‰ (the gear speed and the scurf falling off in the seed vibration will affect the counting accuracy)
3) Counting speed: ≥ 1000 grains/3 minutes (take sesame as an example)
4) Vibration noise: ≤ 80 dB
5) Counting capacity: 1~9999 grains
6) Weighing range: 0~1000 g
7) Weighing accuracy: ± 0.2 g
8) Overall dimensions: 525 * 372 * 351 mm
9) Size of receiving cup: 15 * 11.5 * 10.5 cm
10) Instrument weight: 27.5 kg
11) External power supply: 220VAC/50Hz and 110 VAC/60Hz compatible
12) Power: 220V/AC 20W, 110V/AC 14W
13) Working environment: ambient temperature: - 10 ℃~50 ℃; Relative humidity: ＜ 85%

4. Appearance and Structure

Fig.1 Host Page

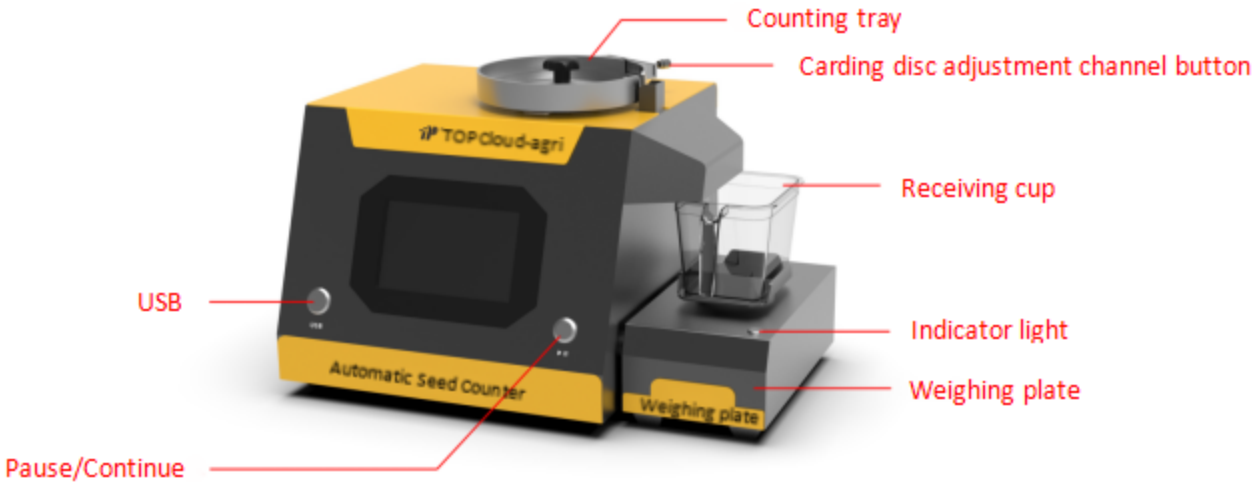

Fig. 2 Complete Machine Page

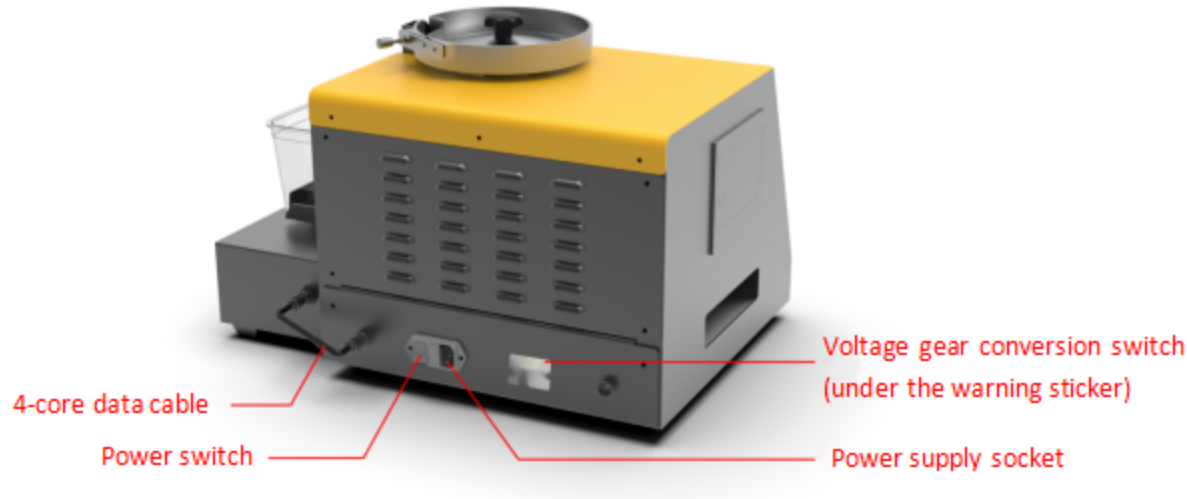

Fig. 3 Side of the complete machine

5. Instrument installation

1) Before the first use of this machine, remove the anti falling pressure plate and fixing screws (Fig. 1). When installing the vibrating disc, the outlet shall be aligned with the blanking port, and shall not contact with the shell. The anti falling pressure plate shall be kept separately, so that protective equipment can be installed during turnover transportation.

2) The weighing plate and the host are firmly combined to avoid affecting the seed falling. It can be combined according to Fig. 4 below.

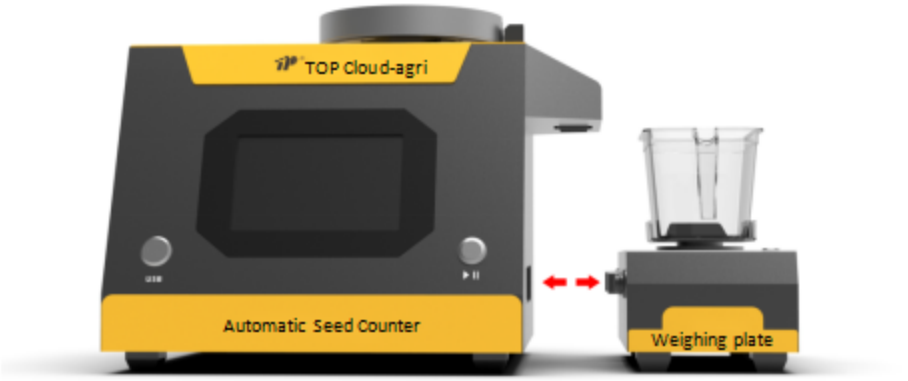

Fig. 4 Combination of host and weighing plate

3) The host and the weighing plate are connected by a 4-core data cable (Fig. 3). The receiving cup is placed on the weighing plate and the power cable is plugged in.

6. Instrumentation

1) Turn on the power switch, start up the machine, and it appears the welcome page "automatic seed counter(type of weighing)", stay for 3 s, and enter the working mode.
2) On the home page, you can preset the number of seeds. The name of this page is explained as follows:

[Reset]: In the suspended state, the user can click the "Reset" button to reset the number of seed, seed weight, thous seed weight and running time.

[Name]: the user can add the desired variety name and edit it.

[Sensitivity]: Only particles of the selected magnitude can be counted through sensitivity adjustment to avoid interference from impurities and improve the counting accuracy.

[Speed]: The speed can be adjusted. Long press the button of plus or minus to continuously adjust the speed.

[Peeling]: In the suspended state, the user can click the "Peeling" button to reset the seed weight and thous seed weight.

Notice: The sensitivity and speed in the home page can be adjusted slightly, and the sensitivity and parameters in the setting remain unchanged. When the machine is switched on, it will automatically return to the value of the set parameters.

Fig. 5 Home Page

3) Click to enter the name setting page.

4) Click on the home page to enter the data list page. The data of the current day is displayed by default. The user can also enter the start and end time to search, query and print the data (the basic fund does not support the printing function, and the printing fund can be customized). In addition, data can also be exported to USB flash disk. [Format]: Click to delete all data.

Notice: up to 100000 pieces of data can be stored. When the storage capacity is full, the data will be automatically formatted; 100000 pieces of data can be exported to the USB flash disk within 10 minutes, and the old USB flash disk may take longer to export data.

5) Click Calibrate on the home page to enter the weighing calibration page. The weighing calibration steps are:

i. Please place 500g standard weight on the weighing plate;

ii. Confirm the stable state for more than 3 s, click the confirmation button to complete the calibration operation (when the weighing calibration value is outside the range of 500 g±0.01 g, recalibrate once).

Notice: please confirm that the weighing plate is in a horizontal state during calibration; please confirm that the surrounding environment is stable and free of air flow and vibration.

Fig. 6 Weighing Calibration Page

6) Click Setting on the home page to enter the setting page.

[Name Setting]: the user can enter and edit the variety name. After selecting the seed type size, select the variety name to add to the name on the home page (the home page displays and counts this variety).

[Parameter setting]: 6 types of seeds are embedded, including large long seeds (10-23mm in length), large round seeds (10-23mm in length), medium long seeds (4-10mm in length), medium round seeds (4-10mm in length), small long seeds (1-4mm in length), and small round seeds (1-4mm in length). The user can select the corresponding seed type according to the size of the seed type, and set the corresponding sensitivity, speed and deceleration number.

Sensitivity debugging method: 5-30 for large seeds, 30-60 for medium seeds, and 60-99 for small seeds. Take the debugging of large seeds as an example: when there are 5 sesame seeds mixed in 20 corn seeds, the sensitivity should be adjusted to 30 (default) before counting, and then slowly adjusted to 20. If the corn seeds count is 20 and the sesame seeds do not count, the detection accuracy is qualified; If the counting is too many, the sensitivity will slowly decrease by one gear to 19, and so on until it is qualified; If the counting is less, the sensitivity will be increased to 30, and then slowly reduced to 25, and so on, until it is qualified.

Notice: If the impurity length is ≥ 1/2 of the seed length, all impurities cannot be screened out through sensitivity debugging.

[Parameter recovery]: When the sensitivity, speed and deceleration grain number are set incorrectly, click to restore the factory reset.

Notice: After the sensitivity of this kind of seed is set, click after [Name] on the home page, select the corresponding seed type size, and the corresponding sensitivity, speed and number of decelerated seeds of this kind of seed will be changed accordingly.

i. [Other Settings]:

[Time Setting]: You can set the date and time.

ii. [USB upgrade]: Online upgrade via USB.

iii. [About]: Display company name, product name and model, address, telephone, website, fax, QR code and other information.

7. Precautions

1) It is strictly forbidden to toggle the voltage shift switch.

2) External power supply must be reliably grounded.

3) Avoid using near windows to prevent counting errors caused by changes in light intensity.

4) During installation, the discharge port of the vibrating disc shall not contact the shell, otherwise the noise will be increased.

5) The purity of several samples should be better. If the seeds contain impurities and other seeds, they will also form projections and count. Therefore, the seeds should be cleaned before counting.

6) Unsuitable samples: samples with fluff and easy adhesion, samples with flat vibration and easy overlap, and samples with seed length exceeding 1~23 mm.

7) The width of the track surface of the vibrating disk should be adjusted to a suitable size (just enough to allow a single row of seeds to pass), because the correct number of seeds requires that the seeds (or other particles) be arranged in a line and fall in turn, and each seed will produce a projection, and one seed will be counted. If the track width of the vibrating disk is large, when two or more seeds fall in parallel, only one projection is formed, and the error count is 1, resulting in inaccurate number of seeds.

8) If there are too many grains, the sensitivity can be appropriately reduced; If the number of grains is too small, the sensitivity can be appropriately improved.

9) The weighing plate shall be calibrated before it is not used for a long time or used for the first time to eliminate errors and improve measurement accuracy.

10) The weight of the seed weighed by the seed counter shall not exceed the maximum range of the weighing plate, otherwise it is easy to damage the key components of the weighing assembly.

11) The sound of the machine is very loud, and the feeding cannot be carried out. Adjust the fastening knob of the vibrating disk to see if the screw is too tight or loose.

12) As the product is fed in a spiral structure, a small number of round and large seeds

cannot be fed when counting, which requires manual assistance.

13) If the machine crashes and the keys are not working properly, restart after power failure.

14) If there is static electricity in the cup, some impurities or small seeds will be stuck on the cup, which can be sprayed in the cup with an anti-static spray, and can be used after drying. It can also be cleaned with a brush.