



Description

With the help of many cutting-edge technologies such as artificial intelligence, handwriting recognition, machine learning, and big data, it maintain students' existing writing habits and achieve real-time collection of handwriting. The smart pen box set consists of a dot matrix pen, a smart pen box and supporting consumables. The dot matrix pen does not change existing writing habits, but provides a professional digital "paper-screen interaction" solution, supporting the electronicization of original handwriting and automatic recognition of handwritten text.

Feature

Features:

1. Hardware parameters

- *Support 4G full network wireless transmission mode and support real-time/offline transmission modes.
- *The smart pen box and dot matrix pen adopt a fully automatic pairing mode, eliminating the need for manual pairing.
- *The smart pen box uses a lithium-ion polymer battery, which supports continuous use for ≥ 15 hours when fully charged.
- *The smart pen box is in line with students' usage habits. The size of the pen dimension is 180mm*52mm*22mm and the weight is 130g.
- *The dot matrix pen uses a polymer lithium battery, which supports continuous use for ≥ 4 hours when fully charged.
- *The dot matrix pen is in line with the student's pen habits, pen dimensions of 142 mm long, 9 mm wide (excluding the pen cap) within the weight of 13g (excluding the pen cap).
- *The dot matrix pen supports lens recognition speed of 200FPS and pressure sensitivity of 4096 levels.
- *The refill of the dot matrix pen adopts a 108mm long refill magnetic levitation structure.
- *The dot matrix pen can be used for full-angle writing, and supports 360-degree rotating lens orientation, which can accurately collect writing data.

2. Platform parameters

(1) Assign homework

- *Support synchronized teaching aids, test papers and homework assignments by subject and class, and support real-time and timed assignments and test papers by class or by group or by individual, so as to realize graded teaching.
- *When teachers assign homework, it supports picking questions to assign or assigning the whole page, and it also supports the preview of homework assignment. Teachers can set up homework content at once and release it to students at the end of class or at regular intervals every day.
- *If the starting time of the assignment is not yet started after the assignment is set up successfully, the teacher can adjust the content of the assignment, the starting time and the deadline of the assignment at any time. For the assignments that have already been started, it supports adding assignment topics, modifying the deadline, and turning on/off the objective questions, as well as auto-correcting and deleting the assignments.



- *Teachers can set the deadline for each assignment according to requirements, and at the same time, they can modify the deadline according to the actual situation, and the system will also send a message to notify the students when the deadline arrives.
 - *Teachers can set the expected completion time for the assignment submission according to their own expectations. The system will calculate the actual completion time of each student according to the assignment start time and the assignment submission time, and finally present the report to show whether the completion time of the students' assignments meets the teachers' expectations.
- (2) Correcting homework
- *Supports automatic correction of objective questions with set answers after homework submission; supports online correction of subjective questions by teachers, and provides functions such as homework return, re-scoring, annotation, and marking and correction of assigned papers.
 - *Support teachers to use dot-matrix pens to correct students' assignments offline, the system automatically collects the teacher's correction data and forms a statistical report, and can also annotate students' assignments with pen strokes. No need to connect to the cell phone applet to complete the homework correction.
 - *Supports real-time recording and transmission of students' writing process, so that teachers can grasp the students' learning situation through problem playback during the correction process.
 - *Teachers can adjust the problematic correction results by re-correcting the corrected assignments, and the system will re-generate the corresponding assignment reports according to the re-criticism results.
 - *Teachers can download the results of homework correction with one click after correcting the homework. The system will generate a report of homework questions + answering handwriting + correction results according to each student for teachers to download and print.
- (3) Wrong question book
- *Support the automatic collection of students' wrong questions in the class, the wrong questions can be sorted according to the number of wrong answers or question numbers, and the wrong questions can be categorized according to the date, knowledge points or chapters, display the number of wrong answers, the number of revisions statistics, and support the display of students' handwriting content.
 - *Support the system to recommend the corresponding practice questions and knowledge point explanation for each question according to students' mistakes.
 - *Teachers can choose the time according to the class to generate students' wrong books in the system, and after generating, they can download the wrong question books of the whole class with one click, and support to view the revised records submitted by the students.
- (4) Personalized situation report
- *Support the system to automatically generate a single learning report and support report update. Support the analysis of the class students' homework time, homework process and students' performance.
 - *Support the statistics of the answer situation of each question, the accuracy rate of a single question, the distribution of the time spent on homework, as well as the analysis of knowledge points, skills and ability indicators, and give corresponding teaching suggestions.
 - *Support the generation of a single report by default when assigning homework, and the system will push a single homework report after each homework correction is completed.
 - *Supporting the system to release unit reports regularly after the end of a unit of study, with statistics of the whole unit's homework data and learning situation data.
- (5) Smart pen classroom
- *Without changing students' study habits, without using tablets, and retaining the original writing method, students' learning data can be collected online in real time.
 - *Supports four modes of classroom initiation: homework explanation, teaching assistant lecture and test, test paper explanation and test, and quick creation. Students in these four modes use smart pen boxes to participate in answering questions on smart study books, smart homework books or dot matrix answer sheets, realizing real-time collection of handwriting when writing and answering. Teachers can also call up questions at any time to explain.
 - *Support teachers to view the answer results of multiple students at the same time for comparison. They can view the replay of each student's question-taking process. The system can automatically identify the objective question accuracy and generate answer statistics.
 - *Supports providing real-time classroom data statistics for teachers and students. The system will calculate the proportion of students' choices for each option in real time. Teachers can set the correct answer after students answer, and the system will automatically calculate the accuracy of answering questions.
 - *Support teachers to watch the live broadcast of students' answers. After the answer is completed, the teacher can compare the answer results of at least 4 students on the same screen, and the teacher's correction results will be displayed in real time. When explaining the details of students' answers to questions, it supports retrieving answers and displaying them on the same screen, making it easier for teachers to explain wrong questions.
 - *Support the system to dynamically display students' answering progress in real time, automatically identify the accuracy of objective questions and generate answering statistics.
 - *Support teachers to initiate interactive methods such as voting, answering questions, random roll calls, and timers in class, update student participation rankings in real time based on class performance, and participate in interactions through "teaching aids, test papers, matrix books, and answer sheets."



- *Support teachers to use the brush tool in class to annotate and highlight key points. The annotated content can be saved with one click. Teachers can download the blackboard writing after class and share it with students to enhance their impressions. The eraser function can erase the blackboard content that the teacher does not want at any time or clear the screen with one click. The mobile terminal can be used to operate the brush on the same screen to achieve walking teaching.
 - *Supports the generation of classroom learning reports. After the class is over, the system will generate a learning report for the current class, allowing teachers to understand the statistics and interaction of students in this class, and also download student response data.
- (6) Class files
- *Support teachers to check the learning files of the classes they teach, which can compare the data of multiple classes and check the knowledge, abilities and skill learning status of each class and students.
 - *Support the display of data comparisons between knowledge points, skills and abilities learned by classes of the same grade.
- (7) Paper Formation Center
- *Supports teachers to select diversified questions according to chapters, knowledge points, degree of difficulty, etc., generates test papers quickly and conveniently, and realises the automatic dot-matrixing of test papers, which implements multi-scenarios of teaching and meets the needs of teachers for assigning homework and classroom tests.
 - *Support topic selection and test preparation, and provide an online question bank. Teachers can select questions based on chapters or knowledge points to compose papers, and can support dot matrix paper answers, answer book answers, and assigned answer sheet answers.
 - *Support teachers to independently upload test papers, automatically switch questions, lay out dot matrix codes and correction areas, and support dot matrix paper answers, answer book answers, and scored answer sheet answers.
 - *Support teachers to choose matching answer sheets to create questions independently. The system provides editing functions for commonly used question types in daily tests.
 - *Support the combination of examination and practice, teachers can set up their own papers and upload them or select questions from the question bank to create scoring papers, which can be used together with the matching dot matrix answer cards to assign corresponding scores to the correct answers, and teachers can carry out offline marking and corrections in the correcting and marking areas of the answer cards.
 - *Support teachers to share test papers to the school-based paper library and copy the resources of the school-based paper library for use.
 - *Supports automatic collection of questions that students got wrong in the center of the examination and included them in the class's wrong questions.
- (8) AI composition
- *Supports essay critique for Chinese and English classes. While getting personalised essay critique, and quick statistics to help teaching and learning analysis. Provide students and teachers with automatic essay review and correction services.
 - *Support selecting essay topics in the synchronous question bank for assigning homework, or teachers can customize topics for assigning homework.
 - *Supports automatic uploading by students through dot-matrix pen writing; supports teachers to release assignments through photo uploading.
 - *Support students to submit multiple English and language compositions at the same time, the system can automatically score and comment on the composition, intelligent identification of speech defects, typos, and annotated tips, and according to the teacher's commenting habits, to give AI simulation comment, automatic identification of good words and phrases in the composition.
 - *The system supports retaining students' original handwriting, and supports viewing electronic notes at any time, which is convenient for the teacher's review. Support teachers to adjust students' composition scores, support teachers' comments.
 - *Support to view the overall class situation (average score, submission, whole class composition scores, time spent and other information), support to view the details of individual assignments by clicking on the individual.
 - *Support adding excellent compositions to model essays by uploading model essay pictures. Support teachers to download and print students' individual composition reports by one click.
- (9) Cloud Notes
- *Supports viewing students' cloud notes of each teaching aid, dot matrix blank book, answer book, and test paper by page number and date.
- (10) Academic quality monitoring platform
- *Provide multi-dimensional data statistics and horizontal comparative data analyses on homework assignment, homework time, homework accuracy, classroom usage, composition usage, reading usage, and mastery of knowledge points, skills, and abilities of provinces, cities, districts, counties, schools, and classes to provide data support for teaching management and educational decision-making in schools.



Specification

Dot matrix pen	
RAM	16MB
Bluetooth version	BLE4.2
Transmission mode	Real-time transmission/offline transmission
Charging method	Magnetic
Handwriting collection	CMOS Sensor
Lens recognition speed	200FPS
Pressure sensing	Level 4096
Battery	100mAh polymer lithium cobalt oxide battery
Charging time	≤1.5 hours
Working hours	≥4 hours
Power input	DC 5.0V 0.30A
Standby time	≥300 days (with SIM card)
Usage environment	Temperature 0-50°C/humidity ≤95%RH (no condensation)
Refill	108mm long pen core magnetic levitation structure
Freely for hand-writing	When holding the pen to write, you can write at all angles, support 360-degree rotating lens orientation and accurately collect writing data.
Writing angle	Based on the vertical line on the paper, positive writing is ≥40 degrees and negative writing is ≤30 degrees.
Power on	The pen tip has a pressure sensor and automatically turns on (it automatically turns on when the stationery box is pulled out)
Dimension	L: 142mm, W: 9mm (excluding pen cap)
Product material	Engineering plastics + aluminum alloy
Weight	About 0.013kg (excluding pen cap)
smart pen box	
Bluetooth version	BLE4.2
Wireless transmission	4G full network communication
Transmission mode	Real-time transmission/offline transmission
Card slot	Cannot boot without card, security protection
Pairing mode	Fully automatic (no manual pairing required)
Input interface	Type-C
Output Interface	2pins standard magnetic suction head
Battery capacity	1500mAh, lithium-ion polymer
Charging time	≤2.5 hours
Continuous working hours	≥15 hours
Power input	DC 5.0V 2.0A
Power Output	DC 5.0V 0.30A
Standby time	300 days
Usage environment	0-50°C/humidity ≤95%RH (no condensation)
Dimension (L*W*H)	180mm*52mm*22mm
Product material	Engineering plastics, UL94-V0 fire protection grade material
Weight	0.13kg