

Shenzhen Dwason Technology Co.,Ltd

Specification

Customer Name: WIRELESS KEYBOARD

Product Name: KB220

Product Number:

FORMAN COMPANY Company signature:		
approval	examine and verify	fabrication
		Alan

CUSTOMER APPROVAL The customer acknowledges:	
approval	examine and verify

Catalogue

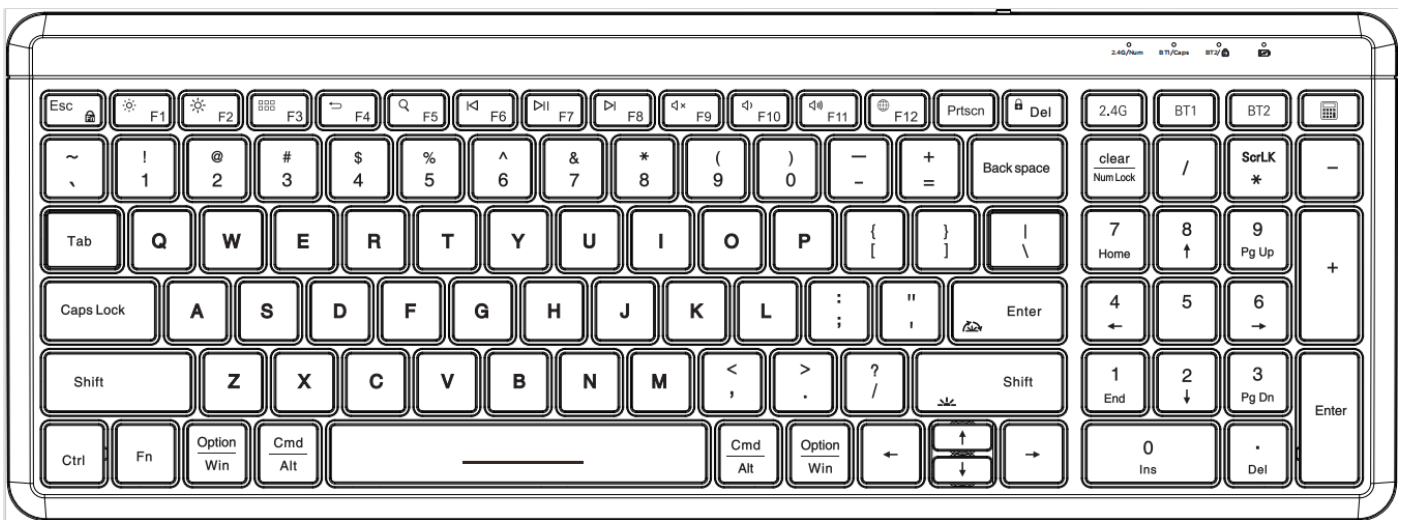
1, Overview	
2, Appearance outline	
2.1 Keyboard Dimensions	
3, keyboard function parameter description	
3.1 Keyboard screen version function map	
3.2 Keyboard Electrical Specifications	
4. Standard description of appearance	
4.1 Keyboard distortion	
4.2 Specific Keyboard appearance standards	
5, key mechanism parameters	
5.1 Keyboard Operation Travel Description	
5.2 Keyboard Cap Pressure	
5.3 Keystroke Spacing and Arrangement	
6, Reliability test	
6.1.1 Keyboard Electrical Function Test	
6.1.2 Keyboard Drop Test	
6.1.3 Verifying Keyboard Keycap Printing	
7. Finished product test	
7.1.1 Keyboard Environment Requirements (Non-operational)...	
8. Certification requirements	

1. Overview

This product specification defines this product as a device using 2.4G connected communication that can be used as an input device for Win and Mac devices.

2. Appearance outline

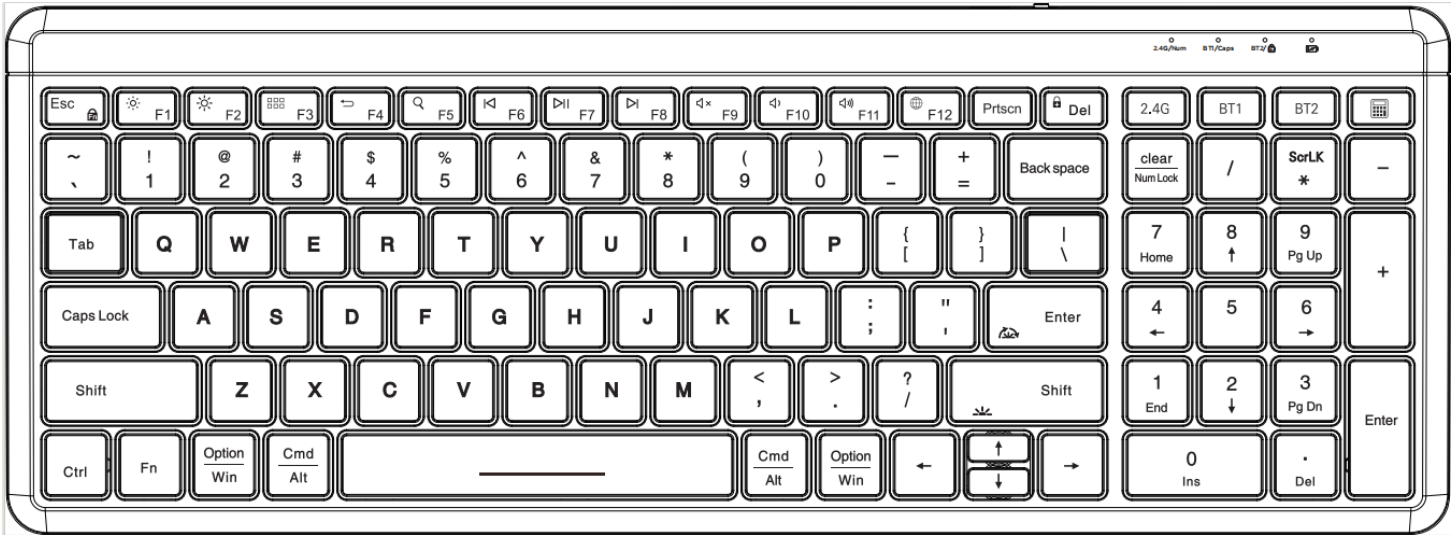
2.1 Keyboard size: 365.0*135.0*24.5*17.0mm (including pad key cap)



2.4G Keyboard function parameter description

3.1 Keyboard radium engraving version function diagram (US layout)

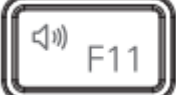
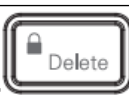
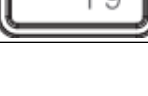
US Layout



UK Dual System

DE Dual System

Functional description:

Function	WIN System	MacOS System	Function	WIN System	MacOS System
	FN Lock (Fn+Esc)	FN Lock (Fn+Esc)		Volume-	Volume-
	Brightness-	Brightness -		Volume+	Volume+
	Brightness+	Brightness +		Page-Enter	Page-Enter
	Multi-screen display	Multi-screen display		Screenshot	Shift+Command+3
	Cancel	Cancel		Lock Screen	Lock Screen
	Search	Search			
	Previous	Previous			
	Pause/Play	Pause/Play			
	Next	Next			
	Mute	Mute			

3.2 2.4G keyboard Electrical Specifications

3.2.1 Version 2.4G :BK3635

3.2.2 Standard Type-C Interface, Supports CTC Cable Charging

3.2.3 Effective operation is possible within a range of 10 meters

3.2.4 Working voltage: 3.3-4.2V

3.2.5 Working current: < 4.0mA

3.2.6 Standby current: 1mA

3.2.7 Sleep current: < 0.01mA

3.2.8 Charging current: $\leq 400\text{mA}$

3.2.9 Standby time: ≥ 500 hours

3.2.10 Charging duration: approximately 4.5 hours

3.2.11 Working current of the brightest backlight: $\leq 105\text{mA}$

Medium brightness backlight working current $\leq 71.0\text{mA}$

Low brightness backlight working current $\leq 36.0\text{mA}$

3.2.12 Continuous working time of the brightest backlight on: 20H

3.2.13 Back light sleep time: 2 minutes

3.2.14 Keyboard deep sleep time: 30 minutes

3.2.15 Lithium battery capacity: 1500 mA (552887)

3.2.16 Sustainable working hours (backlight off): 460H

3.2.17 Lithium battery cycle life: 300 times

3.2.18 Lithium battery specifications: 88*28*5.5mm

3.2.19 Description of 2.4G keyboard code matching and status indicator lights,etc

3.2.19.1 2.4G keyboard codes and status Indicators.

3.2.19.1 **Power on indicator**

When the switch is turned ON, the green light is steady for 1S and then it is turned OFF. When the switch is turned off, the keyboard stops working

3.2.19.2 **2.4G code connection mode:** (the factory is paired, the customer does not need to pair)

At the same time, press ESC + (+/=) key for 3 seconds, and the keyboard will enter the code mode (the low-voltage indicator is and on).

When the receiver is inserted into the 20S, the light goes out immediately.

When the code alignment fails, the keyboard exits the code alignment mode after 20 seconds, and the backlight goes out immediately

3.2.19.3 NUM Indicator:

On/off, green indicator light on/off

3.2.19.4 CapsLock Indicator:

Big/lowercase On/off, green indicator light stays on/off

3.2.19.5 Charging indicator light:

During T/C charging, the blue charging indicator light stays on and goes out directly after being fully charged

3.2.19.5 Keyboard backlight indicator light;

FN+Enter to switch the seven color backlight (red, blue, green, pink, yellow, green, white) (default blue light)

FN+Shift brightness adjustment; Low Brightness Medium Brightness High Brightness (default medium brightness)

3.2.19.6 Keyboard enters sleep mode:

The keyboard is not used for 30 minutes, enter deep sleep mode, press any key to immediately wake up the keyboard.

When the keyboard is turned on for 20 seconds without pairing, the keyboard stops pairing and the backlight is turned off.

After pairing and normal use, the keyboard remains inactive for 2 minutes, the backlight goes out, and the keyboard enters sleep mode State.

3.2.19.7 Battery Protection

Overpass charging protection, NTC battery protection, temperature 48 degrees/resistance 10K

Reminder

Adopting a polymer rechargeable battery with long-lasting power, it can be used normally for several weeks (no memory effect, can be charged at any time).

When not in use for a long time, we recommend turning off the power switch to prevent some electrical energy from being lost and extend the battery life.

4. Appearance standard description

4.1 Keyboard deformation degree

As shown in the above figure, the keyboard undergoes deformation in the length direction $MAX \leq 1.0mm$; Deformation in keyboard width direction: $MAX \leq 1.0mm$;

4.2 Specific appearance standards for keyboard products

Gap between surface shell and bottom shell assembly

The bottom shell around the keyboard exceeds the surface shell by $\leq 0.10mm$;

4.2.1. Key avoidance gap

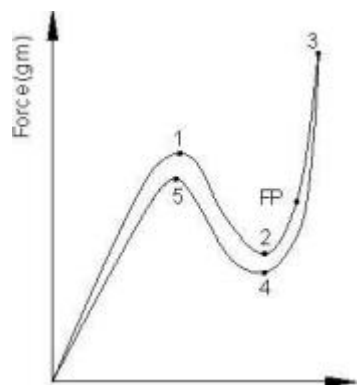
Pressing state of the gap between the keycap and the face shell: $\leq 0.5mm$; Gap in the pop-up state of keycaps: visually $\leq 0.6mm$; As shown in the following figure:

4.2.2 Appearance description of keycap screen printing and integrated LOGO molding process

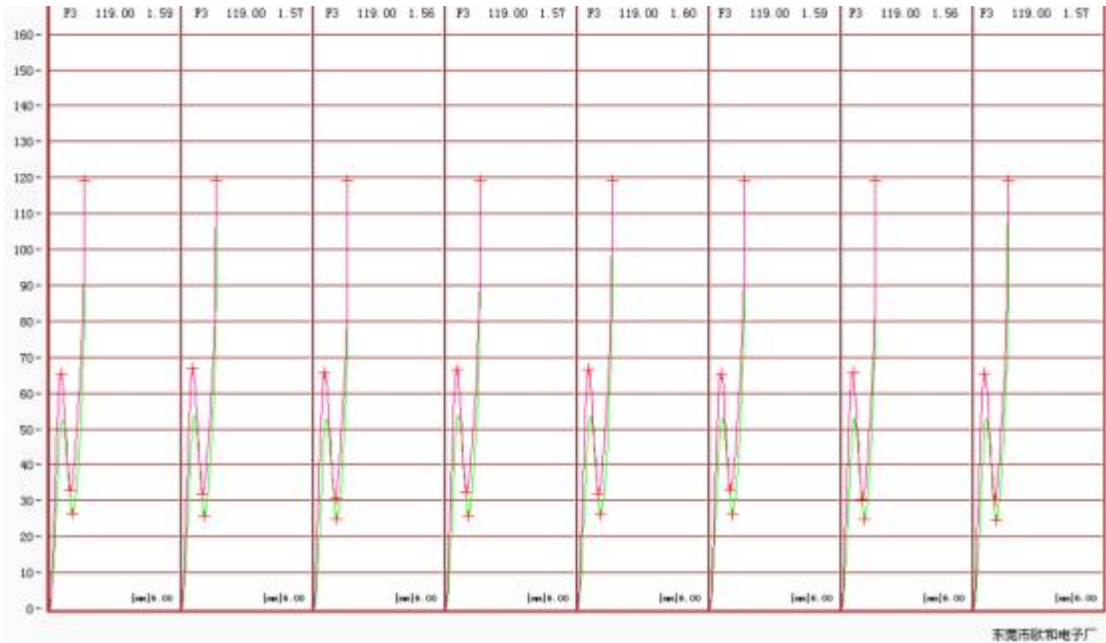
Special Reminder:

If the surface of the shell is not subjected to any post-processing treatment, and the surface of the shell has fine lines, the acceptable level of its surface shall be subject to the re signed sample. Other quality standards shall be subject to our company's general standards.

5. Key-press mechanism parameters

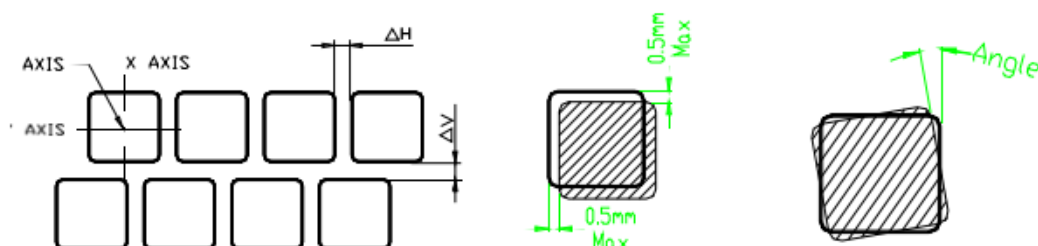


Poi nt	Posi tion (mm) In itial	For ce (Mark)	Forc e (g) Initial
P 1	S 1 =0.5 ±0.10	PF	65 ±20g
P 2	S 2 =1.4 ±0.10	C L	40%~60%
P 3	S 3 =1.8 ±0.10	TM	Max 120 g
P 4	S 4 =P 2 ±0.10	R F	Min 15 g
Fir e poi nt	SFP =P2+0.2~0.5		
PF =Peak force , CL =Click feeling , TM =Travel to make , RF =Return force , FP= Fire point			



5.1. Description of the keyboard operation stroke

Keys life	Three million times
Keystr force	50g~70g
Operating stroke	1.8 ± 0.2 mm
Maximu m key path	1.8 ± 0.2 mm (120g thrust)



Column spacing: 5.0mm to 5.5mm

Line spacing: 8.0mm to 8.5mm

Keycap spacing (standard keycap): ΔH (ΔV) -- ± 0.2 mm

The height difference between adjacent key caps is at most 0.4MM

The maximum keycap inclination is 20 degrees

X.Y direction action: the amplitude of X direction and Y direction should be less than or equal to 0.35MM;

6. Reliability test

6.1 Keyboard electrical function test

6.1.1 Keyboard function test

First, choose the corresponding tablet keyboard and switch to the corresponding language to click every button on the keyboard. The tablet will receive the corresponding signal.

The keys on the keyboard are used in combination with FN. Test the definition of the indicator to correctly test charging

6.1.2 Drop test

This test applies on the test after the sample packaging, one corner and three edges, six sides

At the following height requirements, the standard packaging after drop test has no physical and functional damage.

Weight (KG)	Drop Height (CM)
-------------	------------------

0 – 4.5	70
---------	----

4.6 – 11.0	60
------------	----

11.1 – 20.5	55
-------------	----

20.6 – 34.0	50
-------------	----

6.1.3 Printing inspection of key caps

The purpose of the test is to ensure the durability of the key-face printed letters.

Test equipment: Wear Tester (JME)

Ink supplier

Ink material: UV ink

Printing method: screen printing

Number of detection: 5 pcs

testing conditions:

Grinding rubber: SANFORD72215 rubber.

Key points: random
Weight bearing: 500g

Detection speed: 40-50 times / min

Removal length: 10 mm

Stress period: 500 times

6.2.2 Drop test

This test applies on the test after the sample packaging, one corner and three edges, six sides

At the following height requirements, the standard packaging after drop test has no physical and functional damage.

Weight (KG) Drop Height (CM)

0 – 4.5	70
4.6 – 11.0	60
11.1 – 20.5	55
20.6 – 34.0	50

6.2.3 Press press printing inspection

The purpose of the test is to ensure the durability of the key-face printed letters.

Test equipment: Wear Tester (JME)

Ink supplier

Ink material: UV ink

Printing method: screen printing

Number of detection: 5 pcs

testing conditions:

Grinding rubber: SANFORD72215 rubber.

Key points: random
Weight bearing: 500g
Detection speed: 40-50 times / min
Removal length: 10 mm
Stress period: 500 times

7. Finished product test

7.1.1 Keyboard environment requirements (non-working)

Non-operational, low-temperature test

Test conditions-20°C of low humidity

- 1) Start with the sample in 20°C low humidity (about 0%)
- 2) The temperature is reduced to-20°C for three hours
- 3) Stay at-20°C for 10 hours
- 4) The temperature rises to 25°C for three hours
- 5) Test samples

Non-operational high temperature and humidity tests

- Test conditions: 60°C 90% humidity (non-condensing), humidity change rate is about 20% per hour
- 1) at the start of the sample in 25°C temperature low humidity (about 20%) environment.
 - 2) Gradually increase the temperature to 60°C for two hours
 - 3) Gradually increase the humidity to 90% for 3.5 hours
 - 4) Stay at 55°C and 90% humidity for 24 hours
 - 5) Gradually reduce the humidity (at 25% change rate) for 3.5 hours.
 - 6) Gradually reduce the temperature to 25°C for 2 hours.
 - 7) Test samples

Non-operational high and low temperature and humidity cycle tests

The purpose of the test is to know whether the temperature and humidity will reflect the size of the plastic product and the ink color on the key cap

Ring, if so, consider the solution

test condition:

The sample was placed in repeated -20°C ~60°C temperature and 25% low humidity environment, both extremes stayed for 24 hours, and the whole test time lasted 48 hours.

- 1) Set the temperature of the cold tester to -20°C
- 2) Once the temperature of -20°C stabilizes, make the sample stay in the cold chamber for 24 hours.
- 3) When the sample stays in the cold chamber for 24 hours, the temperature is immediately changed to 60°C, and the temperature stabilizes and stays for 24 hours.

The sample must remain in the chamber for 48 hours at a normal temperature, and the following functions shall be completed after all tests
go

After the above temperature test:

1. Travel measurement of the switch position-use the computer test instrument
2. Operation contact, suspension detection-hold the middle and edge of the key with your finger.
3. Keyboard warping
4. Contact resistance- -less than 500 Ω
5. Check the printed letters, erosion lines and flash words- -keep more than 2 / 3 of the letters after testing

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment should be installed and operated with minimum distance 0cm between the radiator and your body.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.