

# **W85 TKL Tri-mode Mechanical Keyboard Specification**

Product name: Three-mode single white light  
mechanical keyboard

Model: W85 TKL

**DONGGUAN ARBITER TECHNOLOGY CO., LTD**

Address: No. 104, Dalang Shuixin Road, Dalang Town,

## Donguan City, China

### Directory

|                                                |     |
|------------------------------------------------|-----|
| 1. Product features .....                      | 1   |
| 2. Mechanical Electrical Characteristics ..... | 1-2 |
| 3. Main parts and materials .....              | 2   |
| 4. Connection.....                             | 2-3 |
| 5. Character abrasion test.....                | 3   |
| 6. Function description.....                   | 3-6 |
| 7. Compatibility.....                          | 6   |

### Attached product picture (For reference only)

Figure1: Six views

Figure2: Keyboard layout

Figure3: Keyboard pictures

Figure4: Receiver appearance and dimension

Figure5: Cable

## 1. Product features

1-1. Double color keycaps, stylish and easy to clean

1-2. Professional mechanical backlit bluetooth three-mode office keyboard, which can be freely switched and used in different devices, completely solving the trouble of multiple computers and multiple sets of equipment; welding shafts or plug-in shafts can be selected at will

1-3. RGB light backlight , the product supports 20 different backlight modes and is easy to switch, which strengthens the deep application of each mode, and freely adjusts the brightness and frequency

1-4. Full keys conflict free

## 2. Mechanical Electrical Characteristics

|                      |                    |                                                                |              |                              |
|----------------------|--------------------|----------------------------------------------------------------|--------------|------------------------------|
| Basic specifications | IC solution        | BYK901+BK3632, tri-mode mechanical keyboard                    |              |                              |
|                      | Working voltage    | Li-battery 3.7V, 3000mA/H                                      |              |                              |
|                      | Working current    | 180mA MAX                                                      |              |                              |
|                      | Battery life       | 15H                                                            |              |                              |
|                      | Interface          | USB+2.4G +Bluetooth Tri-mode                                   |              |                              |
|                      | USB+TYPE-C cable   | Charging cable OD:3.8*1800mm, nickel-plated black braided wire |              |                              |
|                      | Key number         | 85/86/87                                                       |              |                              |
|                      | Multimedia key     | No                                                             |              |                              |
|                      | Dimension          | 347.53*139.92*44.8±1mm                                         | Weight       | 840±30g                      |
|                      | Color              | Black                                                          |              |                              |
|                      | Working way        | Matrix scan                                                    |              |                              |
|                      | Language & process | Double color keycaps, laser engraving                          |              |                              |
|                      | LOGO               | Customized                                                     | LOGO process | Laser engraving/UV/silkprint |

|                       |                |                |
|-----------------------|----------------|----------------|
| Parametric properties | Key force      | 1.5KG          |
|                       | Starting force | 50±10g         |
|                       | Keycap spacing | 19.00mm±0.05mm |
|                       | Operating load | 60±5gf         |

|                          |                             |                                                                                                             |
|--------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------|
| Parametric properties    | Operating stroke            | 4.0±0.5mm                                                                                                   |
|                          | Conduction stroke           | 2.2±0.6mm                                                                                                   |
|                          | Trigger trip                | 1.8±0.5mm                                                                                                   |
|                          | Maximum force stroke (120g) | 3.8±0.2mm                                                                                                   |
|                          | Lifetime                    | In DC 5V 0.1mA Test more than 50 million times at a rate of 4 times per second under the working conditions |
|                          | Touch                       | Knock anywhere on the button at a rate of 4 times per second, and feel no bad hand feeling                  |
| Environmental parameters | Operating temperature       | 0 to + 55 °C                                                                                                |
|                          | Working humidity            | 40%~80%                                                                                                     |
|                          | Storage temperature         | -20°C to + 60°C                                                                                             |
|                          | Storage humidity            | ≤93% (40°C)                                                                                                 |

### 3. Main parts and materials

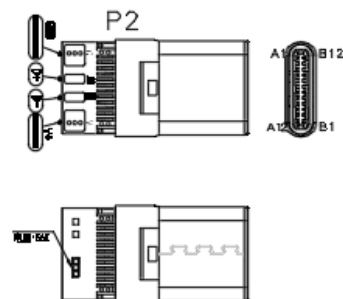
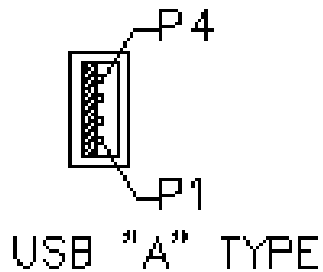
|             |       |     |
|-------------|-------|-----|
| Upper cover | Black | ABS |
|-------------|-------|-----|

|                       |       |              |
|-----------------------|-------|--------------|
| Lower cover           | Black | ABS          |
| Middle board          | Cream | PC           |
| Keycaps               | Black | Double color |
| Tripod (double layer) | Black | ABS          |
| Switch                | Cyan  |              |

#### 4. Connection

##### 4-1、TYPE-C cable length: 1800mm±30mm

The keyboard is connected to the host computer via a cable signal line, the interface of each follows:



##### 4-2、2.4G receiver connection

##### 4-3、Bluetooth 3.0, 5.0 connectivity

#### 5. Character abrasion test

Testing frequency: 1000 times

Testing speed: 72 times / min

Eraser type (1107#)

Journey: 12 mm

Ambient temperature: 25°C

Humidity: 65%

#### 6. Function description

## 6-1. Indicator light:

 = Caps Lock

 = Scroll Lock

 = Charging and low voltage indication (share one indicator light)

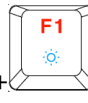
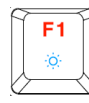
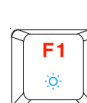
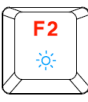
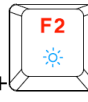
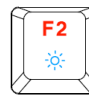
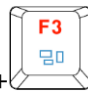
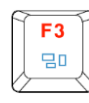
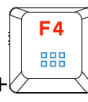
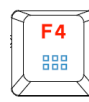
## 6-2. Lighting Arrangement (primary key area white light)

## 6-3. FN key combination function

### Definition of electrical function of monochromatic light scheme



Press the FN+ combination to switch, 20 kinds of backlight cycle sequence: always bright mode--To guide the country-breathing mode--One press Light goes out-- Follow the wave and go with the flow-Flowing light-Flowing coloredlight-DrippingRipples-StipplingEye-catching-Aboutto happen-steppingon thesnow-ButtonRipple-flowers bloom rich-RunningHorse-Rotating storm-VariableRunningHorse--starry spot-Constant stream-Oblique transformation-Light wave(Default always bright)

| MAC system function                                                                 |                            |                                                                                         |                     | WIN system function                                                                 |                     |                                                                                           |                            |
|-------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------|----------------------------|
| Shortcut keys                                                                       | Function definition        | Shortcut keys                                                                           | Function definition | Shortcut keys                                                                       | Function definition | Shortcut keys                                                                             | Function definition        |
|  | Decrease screen brightness | FN+  | F1                  |  | F1                  | FN+  | Decrease screen brightness |
|  | Increase screen brightness | FN+  | F2                  |  | F2                  | FN+  | Increase screen brightness |
|  | Open mission control       | FN+  | F3                  |  | F3                  | FN+  | Task view                  |
|  | Open Launchpad             | FN+  | F4                  |  | F4                  | FN+  | Open my computer           |

[여기에 입력]

[여기에 입력]

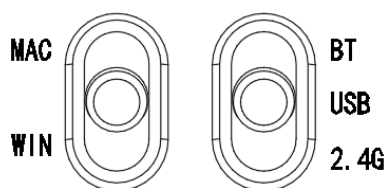
[여기에 입력]

|                                                                                     |                        |                                                                                                |     |                                                                                     |     |                                                                                                  |               |
|-------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|-----|--------------------------------------------------------------------------------------------------|---------------|
|                                                                                     |                        |                                                                                                |     |                                                                                     |     |               |               |
|    | One-click call to Siri | <b>FN+</b>    | F5  |    | F5  | <b>FN+</b>    | Search        |
|    | Screenshot             | <b>FN+</b>    | F6  |    | F6  | <b>FN+</b>    | Screenshot    |
|    | Previous song          | <b>FN+</b>    | F7  |    | F7  | <b>FN+</b>    | Previous song |
|    | Play/Pause             | <b>FN+</b>    | F8  |    | F8  | <b>FN+</b>    | Play/Pause    |
|   | Next song              | <b>FN+</b>   | F9  |   | F9  | <b>FN+</b>  | Next song     |
|  | Mute                   | <b>FN+</b>  | F10 |  | F10 | <b>FN+</b>  | Mute          |

[여기에 입력]

| MAC system function                                                                            |                     |                                                                                              |                     | WIN system function                                                                            |                     |                                                                                                |                     |
|------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|---------------------|
| Shortcut keys                                                                                  | Function definition | Shortcut keys                                                                                | Function definition | Shortcut keys                                                                                  | Function definition | Shortcut keys                                                                                  | Function definition |
|               | Decrease the volume | <b>FN+</b>  | F11                 |               | F11                 | <b>FN+</b>  | Decrease the volume |
|               | Increase the volume | <b>FN+</b>  | F12                 |               | F12                 | <b>FN+</b>  | Increase the volume |
| MAC/WIN system function                                                                        |                     |                                                                                              |                     |                                                                                                |                     |                                                                                                |                     |
| <b>FN+</b>  = |                     | Switch between 20 lighting effect modes                                                      |                     |                                                                                                |                     |                                                                                                |                     |
| Shortcut keys                                                                                  |                     | Function definition                                                                          |                     | Shortcut keys                                                                                  |                     | Function definition                                                                            |                     |
| <b>FN+</b>    |                     | restore factory settings                                                                     |                     | <b>FN+</b>    |                     | 2.4g mode (effective when the switch turned to the 2.4g position)                              |                     |
| <b>FN+</b>  |                     | Increase backlight brightness                                                                |                     | <b>FN+</b>  |                     | Bluetooth mode 1 (effective when the switch turned to the BT position)                         |                     |
| <b>FN+</b>  |                     | Decrease backlight brightness                                                                |                     | <b>FN+</b>  |                     | Bluetooth mode 2 (effective when the switch turned to the BT position)                         |                     |
| <b>FN+</b>  |                     | Backlight speed deceleration                                                                 |                     | <b>FN+</b>  |                     | Bluetooth mode 3 (effective when the switch turned to the BT position)                         |                     |
| <b>FN+</b>  |                     | Backlight speed acceleration                                                                 |                     | <b>FN+</b>  |                     | Turn on or turn off WIN function                                                               |                     |

#### 6-4. Description of the switch at the bottom of the keyboard



6-4-1. When the system switch is turned to MAC, it is the Apple system, and when it is turned to WIN, it is the Microsoft system.

6-4-2. When the mode switch is turned to USB, turn off the lithium battery, and insert the cable for charging and USB mode. When dialing to BT, it is Bluetooth mode, and when dialing to 2.4G, it is 2.4G mode.

## 6-5. Instructions for charging and low voltage indication



When charging,  Red Light often bright, full red light off, when the voltage is less than 3.3 v, red light flashing

## 6-6. Mode instructions

6-6-1. Wired mode: no indicator light, when the switch is turned to USB, it is wired mode

6-6-2. 2.4G mode: The white indicator of the Q key flashes, when the connection is successful and the backlight effect is restored; the slow flash is for reconnection, and the fast flash matches the code;

6-6-3. Bluetooth mode 1: the white indicator of the W key flashes, when the connection is successful and the backlight effect is restored; the slow flash is for reconnection, and the fast flash matches the code;

6-6-4. Bluetooth mode 2: The white indicator of the E key flashes, when the connection is successful and the backlight effect is restored; the slow flash is for reconnection, and the fast flash matches the code;

6-6-5. Bluetooth mode 3: The white indicator of the R key flashes, when the connection is successful and the backlight effect is restored; the slow flash is for reconnection, and the fast flash matches the code;

## 6-7. 2.4G pairing

### 2.4G pairing

After the keyboard is powered on, press the FN+Q combination key for 3S to enter the pairing mode, the Q key white indicator flashes quickly, insert the receiver, exit the pairing code after successful pairing, the Q key white indicator returns to normal backlight mode, and the paired device cannot be found After 20s, exit the pairing mode and the white indicator of the Q key will enter the waiting pairing mode. When there is no code matching, it will enter sleep mode after 7 seconds.

## 6-8. Bluetooth pairing

Press and hold the FN+W/E/R key combination for 3S, the keyboard enters the code matching state, the white light of the corresponding device key flashes quickly, and the Bluetooth device starts to be connected. After connecting the device, the indicator light returns to normal backlight mode. If not connected, the backlight will be off after 7 seconds and the keyboard goes to sleep.

## 6-9. Reconnection instructions

6-9.1 The indicator light flashes slowly during the 2.4G reconnection process. After connecting, the indicator light will return to normal backlight. Press the button during the reconnection process to extend the reconnection time. Within 2 minutes from releasing the button, the reconnection fails and the backlight turns off, the keyboard will go to sleep, if the pairing is successful, it will enter the pairing mode again. After the pairing fails, the keyboard will go to sleep but will keep the last successful pairing data.

6-9-2. The indicator light flashes slowly during the Bluetooth reconnection process. After connecting, the indicator light is normally backlit. Pressing the button during the reconnection process can extend the reconnection time. Within 2 minutes after releasing the button, the reconnection fails, the backlight goes out, and the keyboard turned off. Go to sleep, if the pairing is successful and enter the pairing mode again, after the pairing fails, the keyboard will go to sleep but the last successful pairing data will be retained

## 6-10. Device name

After wired connected, it shows: Bluetooth Keyboard

After 2.4G connected, it shows: 2.4G Wireless Receiver

After BT3.0 connected, it shows: BT3.0 KB

After BT5.0 connected, it shows: BT5.0 KB

## 7.System Compatibility

7-1. Interface: Compliant with USB standard V1.1; Support USB1.0/1.1 ; Compatible with USB 2.0/3.0

7-2. Operating system: WINDOWS XP/7/8/10/MAC V10.X

7-3. This solution can be certified (FCC, CE, ROHS and other safety certification)

## FCC Instructions

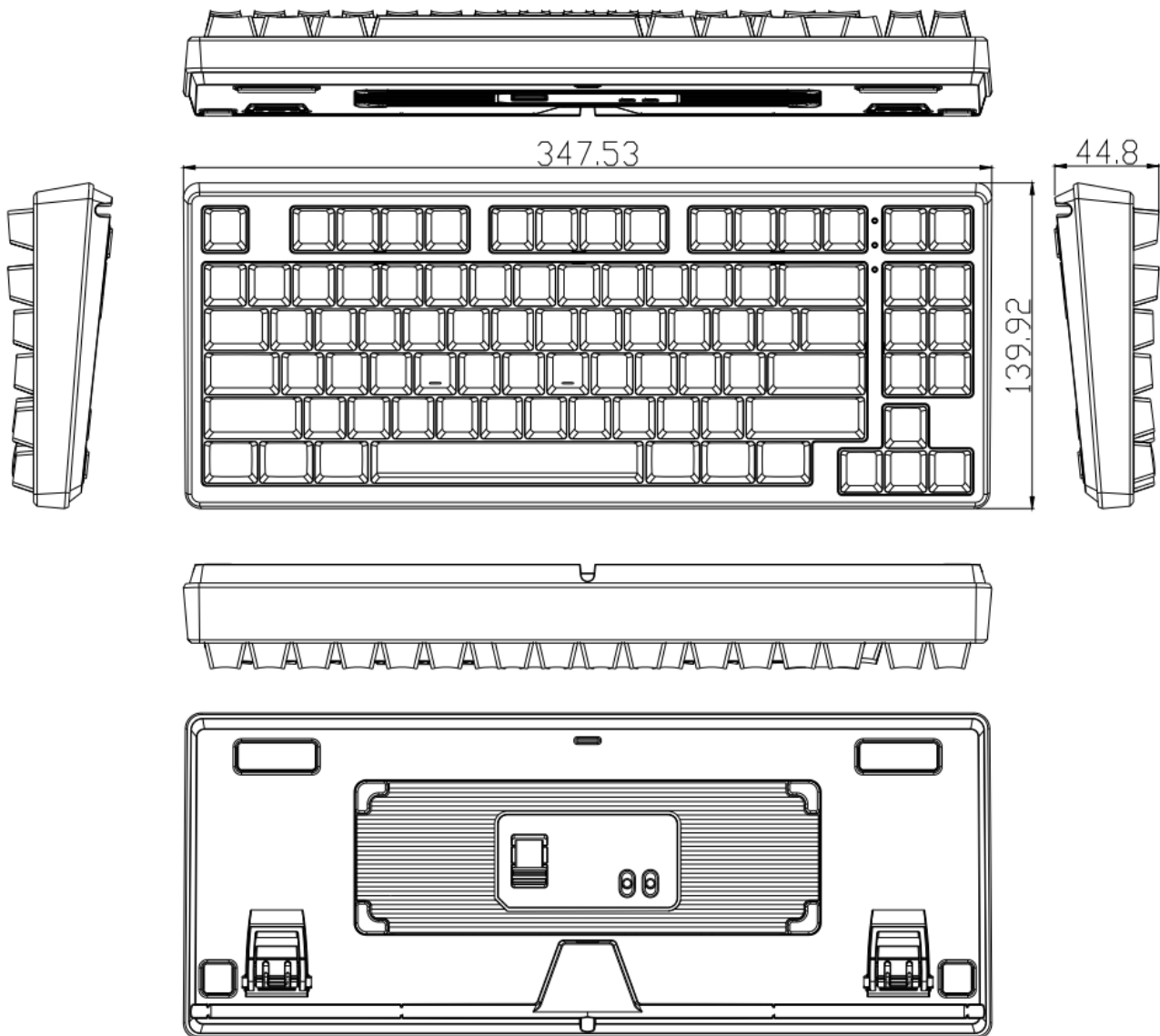
### FCC Compliance Statement(Part 15.19 (3))

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.

### FCC Caution

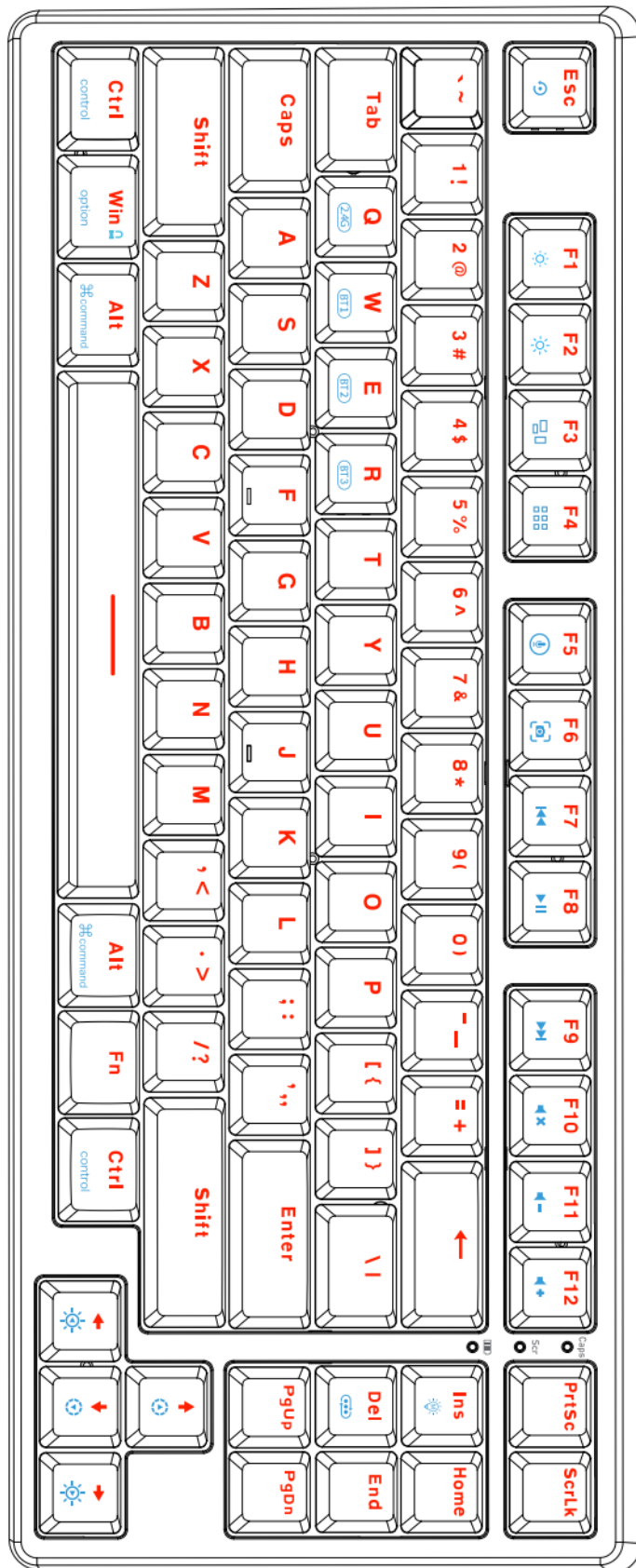
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FIG. 1:



**WORLD CLASS TECHNOLOGY, WORLD CLASS QUALITY, WORLD CLASS COST.**

FIG. 2:



---

FIG. 3:



**WORLD CLASS TECHNOLOGY, WORLD CLASS QUALITY, WORLD CLASS COST.**

---

FIG. 4: Receiver

Rated voltage: 5V

Interface: USB

Receiving distance: 8m

Weight: 2g

Dimension:  $18.6 \times 13.5 \times 6 \pm 0.01 \text{ mm}$

