

A network of orange lines and dots, with some dots having a double-circle outline, forming a complex web-like structure in the upper half of the page.

ES 120

Instruction Manual

V 1.0.3

A network of orange lines and dots, with some dots having a double-circle outline, forming a complex web-like structure in the lower half of the page.

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I. Safety Statement

1. General Safety



- Please use output of 5V power adapter for charging.
- Do not operate under high humidity;
- Do not operate in inflammable/explosive environment.
- keep product surface clean & dry.
- Please don't operate ES120 when it's wet or operate it with wet hands, which will cause an electric shock.
- When using ES120, the handle is constructed with precision, dropping shall be avoided.

2. Liability Statement

Any damage of the product, or losses related to the product damage, if it's man-caused, or assumed to be man-caused, the liability will belong to the user.

II. Product Introduction

ES120 is a STM32 processor-based mini smart electric screwdriver. It is featured with OLED display, Micro USB interface which serves as PC connecting and charging. Compact size, simple operation and easy to use. It can meet the essential requirements of school experiment, home appliance repair and electronic engineering.

III. Performance Parameters

Voltage: 3-5V

Operate time: 60 min

Charging time: 40 min

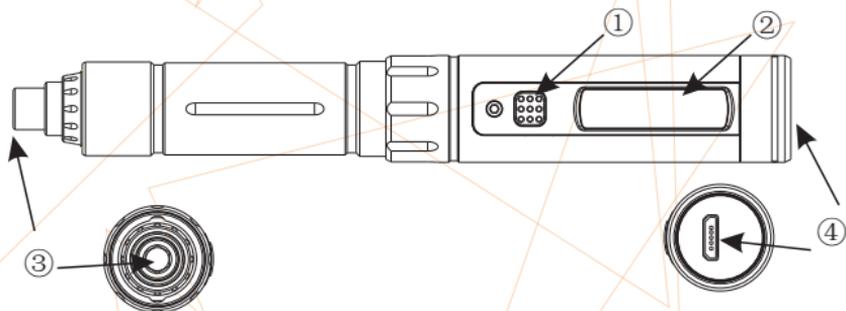
Unload speed: 170 RPM

Torque range: 2.5/20kgf.cm

Bit specification: 4mm hex socket

Charging mode: Micro USB 5V input

IV. Surface and Sockets



1. Button
2. OLED screen
3. Hex socket (size: 4mm)
4. Micro USB socket

V. Use Steps

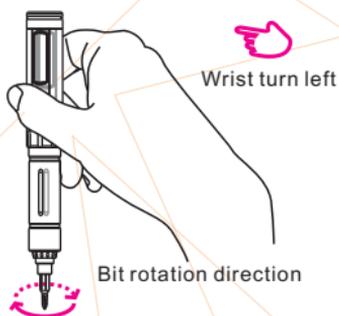
1. When the screwdriver is power off, short press the key to enter stand-by interface.

2. Way of use: In Standby mode, hold ES120's button, and:

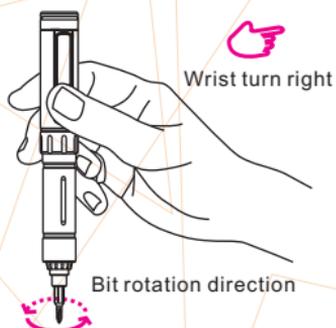
1) When your wrist turns left (see Pic.1 and Pic.3), the bit of ES120 will turn clockwise;

2) On the contrary, when your wrist turns right (see Pic.2 and Pic.4), the bit of ES120 will turn anti-clockwise.

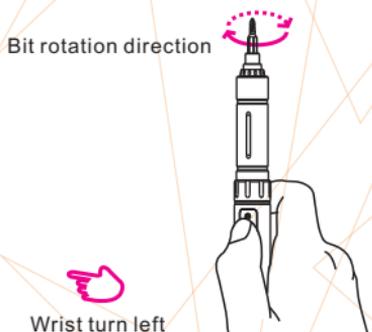
Operation Instructions:



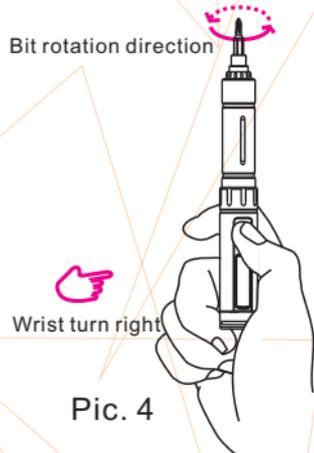
Pic. 1



Pic. 2



Pic. 3



Pic. 4

3. Keep the screwdriver still on stand-by interface and hold the key for 0.5 second, the screwdriver will rotate in the same direction as that of previous use.

Stand-by interface:



Working interface:



4. ES120 will automatically turn off if kept still for 15 seconds.

VI. Parameter Setting

1. Manual setting

Press the key continuously thrice on stand-by interface to enter setting mode, and long press the button or wait for 1.5 seconds to quit the setting mode. There are five torque shifts in setting mode:

- Shift A adopts an automatic mode, in which the rotation speed of screwdriver increases with the increase of rotation angle.
- Shift 1 to 4 correspond four torques, which decrease gradually.



2. Configuration file setting

When the screwdriver is power off, connect it to PC with USB data cable, short press the key to activate the flash disk; open config.txt file in the disk, and the contents are:

```
StartAngle=2      #(2~10)
Gear=4            #(0~4)
MotoTimeCont=0   #ReadOnly
Ver=1.1          #ReadOnly
```

Parameters	Paraphrase	Range
StartAngle	The angle that starts ES120. E.g. set as "2", ES120 will start working at a rotation angle of 2 degree.	2~10
Gear	Torque shifts, "0-4" corresponds with "A-4"	0~4
MotoTimeCont	Motor service time, read only	
Ver	Version, read only	

Note: Settings will be applied to ES120 by saving.

VII. Firmware Upgrade

- 1、 Visit www.miniware.com.cn and download the latest ES120 firmware to your PC
- 2、 When the screwdriver is power off, connect it to PC with USB data cable, and hold the key until "DFU3.44" displays on screen to enter DFU mode, and a virtual disk will appear on PC.

3. Copy the hex firmware to root directory of the disk, and when the suffix of firmware changes to .rdy, disconnect USB data cable or press the key continuously thrice to quit DFU mode and thus complete the firmware upgrade.

VIII. FAQ

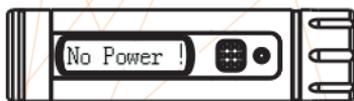
1. Torque shift: when the torque reaches the highest torque shift, the screwdriver will stop for 3 seconds before working again, as to protect the screw and motor.

2. DFU & flash disk mode: it may enter the mode only if you start the machine when the screwdriver is power off and connected with USB data cable.

3. Charging icon: 

Fully charged icon: 

When in low battery, a warning will appear on screen and the screwdriver will be automatically powered off:



4. It is a normal phenomenon if a little oil stain exists on surface of hexagon wrench socket.

IX. Certification Marks

9.1 Disposal



Do not dispose this product with domestic waste.

Handling and recycle: Disposal of the product shall be manipulated according to laws and regulations in your area.

9.2 Statement of Fulfilling FCC Standard



This device fulfills part 15 of the FCC regulations Device must fulfill below 2 conditions:

- (1) Device must not generate interference.
- (2) Device must be able to resist any interferences on it, including interferences that could cause dangerous manipulation.

9.3 Statement of Fulfilling CE Standard



This is a trademark of Europe Union.

This product with CE logo on it fulfills related Euro Union laws and regulations.