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OPERATING MANUAL

Product SW102 display for Tongsheng central motor

Model SW102



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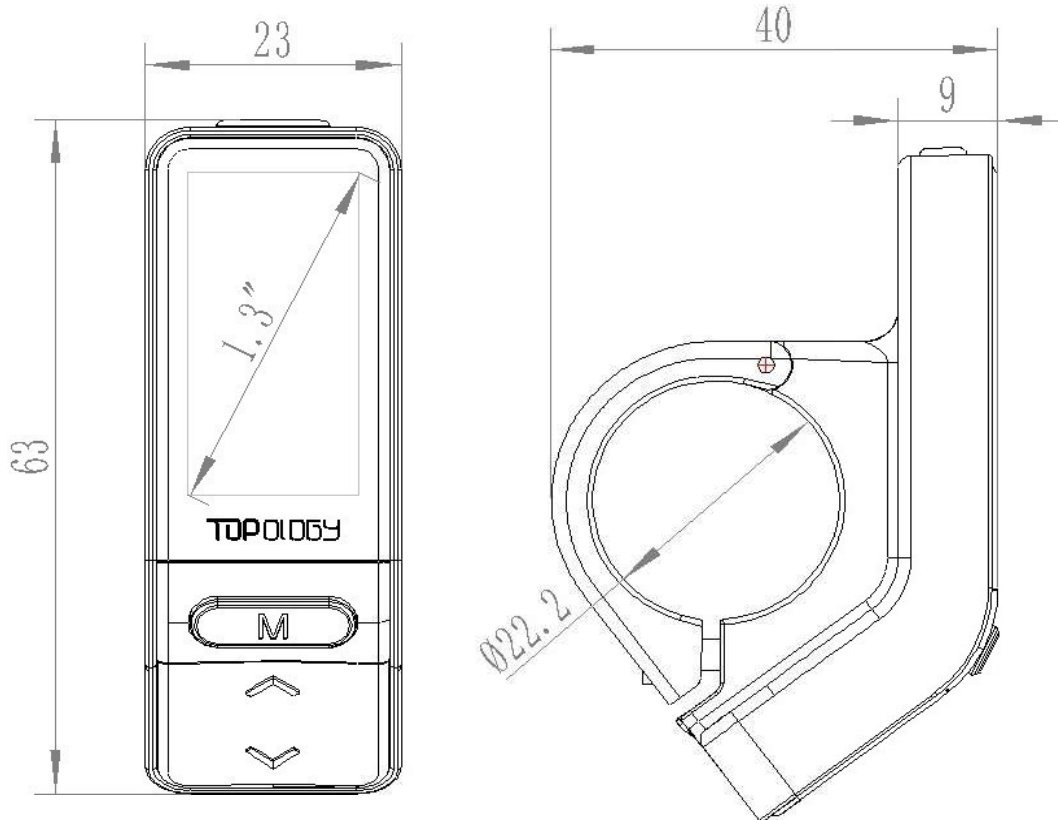
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Dimensions



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General information

Product

- Short description: Intelligent OLED display for Tongsheng e-bike motors
- Model name: SW102

Product introduction

- Minimalist design, assembled without screws.
- Super high-contrast 1.3-inch monochromatic OLED screen.
- IP65 waterproof.

Application

- Suitable for electric bikes according to the EN15194 standard.

Technical highlights

- Power supply: DC 24V/36V/48V
- Rated current: 12mA@36V
- Shutdown leakage current: <1uA
- Screen specifications: 1.3" OLED (64*128 dots)
- Communication method: UART (default)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 80°C
- Protection class: IP65

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Main features

- Only 4 buttons, easy to operate.
- Password (optional).
- Select distance units between km and miles.
- Speed display: real-time speed (SPEED); maximum speed (MAX); Average Speed (AVG)
- Five levels of support (1-5)
- Lighting Indicator: Headlight on/off status indicator (requires information from controller).
- Mileage display: Total trip kilometres (TRIP); All-time total Kilometres (ODO).
- Trip time (TRIP TIME) display.
- 6 km/h walking (pushing) assistance.
- Display of errors codes.

Assembly

- Open the screen lock clip, put the screen on the left handlebar (Standard handlebar size: $\Phi 22.2$).
- Set an easy-to-operate position and gently tighten the screw with the M3 hex.
NOTE: damage caused by excessive tightening is not covered by the warranty!
- Connect the display to the motor using the 6-pin connector

button function

	On / off switch
	Menu / selection / save button
	Control / adjust / toggle buttons

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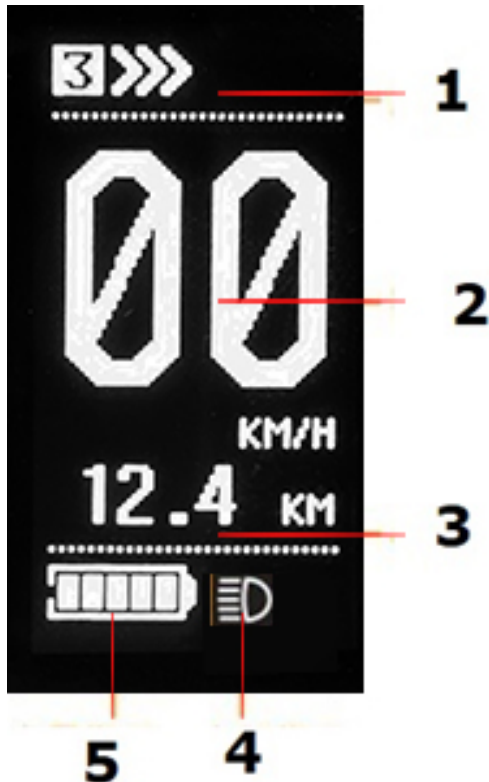
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Display

Basic display



1. Assistance level: 0-5 assistance levels, power from low to high are: 0, 1, 2, 3, 4, 5 (0 = OFF = no assistance)
2. Current speed and unit show the current riding speed.
3. Mileage / Kilometrage
4. Headlight symbol shows when the headlight is on.
5. Battery charge indicator (1-5). When flashes, the battery is empty.

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After powering on, press and hold the **M** button for 10 seconds to see the display in other modifications.

Function I:



The journey time is displayed instead of the mileage

Function II:



Here the average speed (AVG) and the maximum speed (MAX) replace the value of the current speed.

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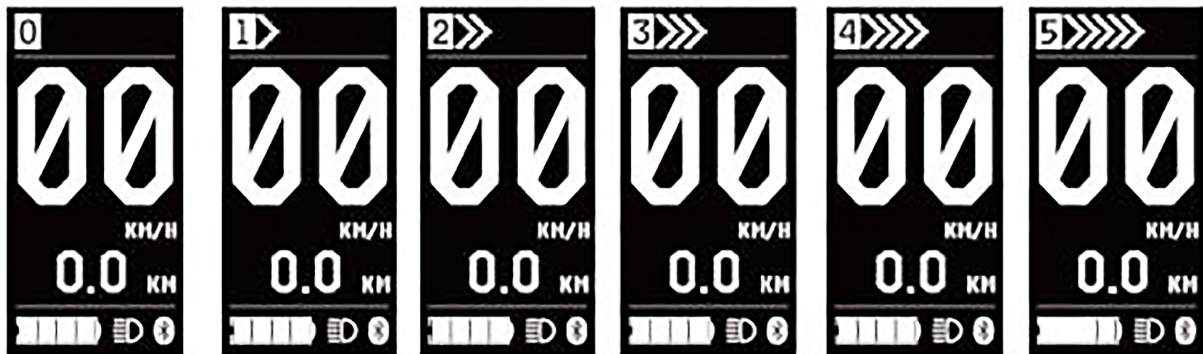
General operation

Switching On / Off

1. Hold down the on/off button for about 2 seconds and the display goes on in the basic interface. Hold down for 2 seconds again to switch off the display.
2. When the display is on and the bike is not used, the display will automatically turn off after a certain time (can be individually defined, see below).

Support level

1. The control buttons toggle between 5 different support levels 1, 2, 3, 4, 5 and 0 (0 = OFF = no support).
2. Level 1 is the default at power up.



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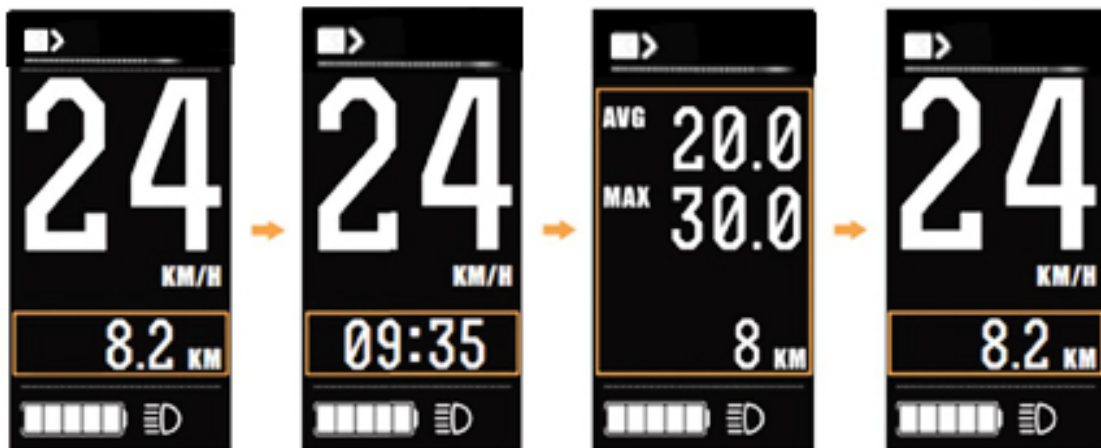
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Information on journey data, speed, etc. **M**

1. With a short press of the button **M** you can switch between trip kilometres (TRIP), trip time (TRIP TIME), average speed (AVG), maximum speed (MAX) and total kilometres (ODO).



6 km/h walk mode (walking/pushing assistance)



1. Press the control button  for 2 seconds.
2. The walking assistance starts with the display of the icon on top and remains so as long as the button is pressed.
3. Release the button and the bike will go back to the last saved setting.





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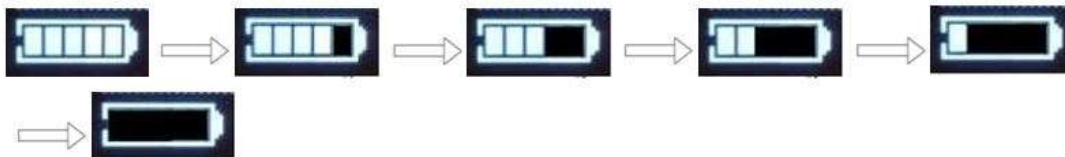
Lighting on / off 

1. To turn on the headlight, press the control button  for approx. 1 second until the lighting icon is displayed.
2. To turn off the light, press the  button for 1 second.



Battery Level Indicator / state of charge (SOC)

The battery level indicator has 6 levels as shown in the image below.
When the battery is empty, the empty battery symbol (with no bars) blinks.



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Individual settings

To change the individual settings, the display must first be on within 10 seconds.

Press the **M** button for 2 seconds to go into the menu.

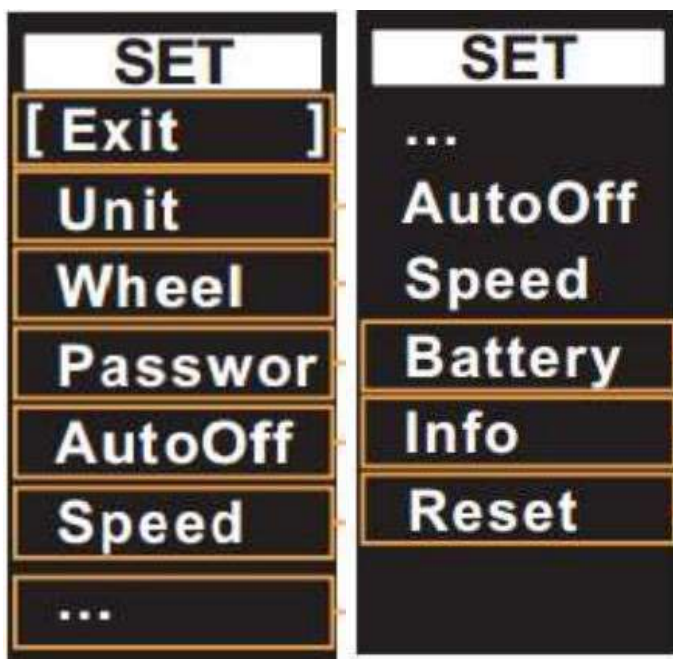
Press the **M** button for 2 seconds to exit the menu (the data remains saved).

Briefly press the **M** button to select a setting and to save previous programming.

With the control buttons **^** and **v** you can toggle between the parameters.

SET (settings menu)

With the control buttons **^** and **v** you can browse between the menu items. Briefly press the **M** button to select the setting you wish to change.





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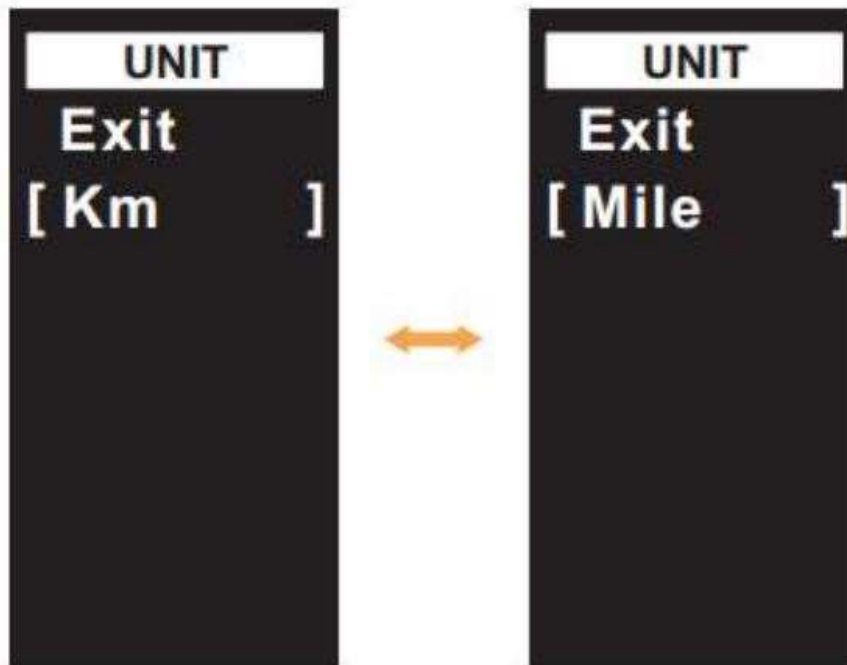
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UNIT (distance units)

Select between Km and Mile: Use the control buttons  and  the **M** button to select and save the desired setting.

Short press on **M** at "Exit" to return to the main settings menu.



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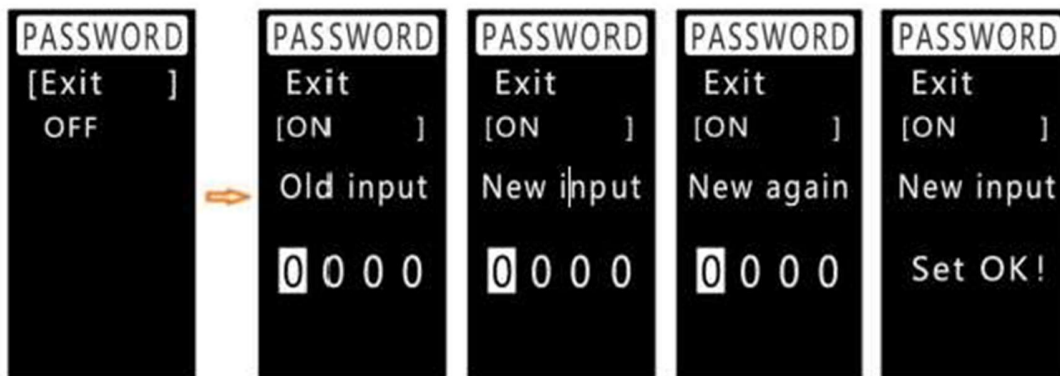
WHEEL (wheel size)

With the control buttons ▼ and ▲ toggle between the options.

Short press on the **M** button at "Exit" to go back to the main settings menu.



PASSWORD (define password)



With the control buttons ▼ and ▲ go to Off / ON and with a short press on the **M** button switch from OFF to ON (= password function is on).

Define a 4-digit password from left to right. Toggle between the digits using the control buttons ▼ and ▲ and short press on the **M** to save the column. At the end of the entry, save with a short press on the **M** button.

Important: After saving your password you must turn the display off and on again. Otherwise, the display switches off automatically!!!



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AUTO OFF (automatic shutdown)

Use the control buttons  and  to select an automatic switch-off between 1 minute and 10 minutes.

Short press on the **M** button to save.

The factory default is 5 minutes.

AUTO OFF	
1	Min
2	Min
3	Min
[5	Min]
8	Min
10	Min

SPEED (speed limit)

This display is pre-set at the factory to 25 km/h and cannot be changed.

SPEED
Limit
25KM/H

BATTERY (battery level indicator)

In this parameter, the display shows the charge status in in % in addition to the bar graph and the voltage. The number of charging and discharging cycles (Cycle NO.) does not apply to batteries without communication function.

BATTERY
BAT % :
+ 87%
BAT V :
34.3 V
Cycle NO.:
--

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INFO (system information)

Data such as firmware and hardware are displayed here.

Short press on the **M** button to return to the main settings menu.



```
INFO
S/N :
C117001A
0010001
FW Ver:
V1.0
HW Ver:
V1.0
```

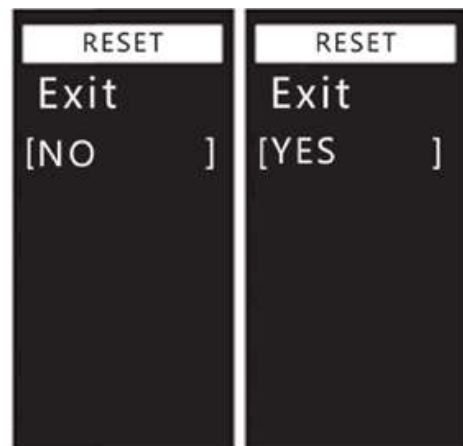
RESET

Caution: Only use this function if you want to discard all previous settings.

Use the control buttons **▼** and **▲** to navigate to

YES and NO. With a short press on the **M** button

toggle between YES and NO. Press the **M** to select YES and the display will delete the individual settings and will reset itself to the factory settings.



```
RESET
Exit
[NO ]

RESET
Exit
[YES ]
```

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CLEAN (delete collected values)



Use this function ONLY to delete the following data:

1. Average speed (AVG SP)
2. Maximum speed (MAX SP)
3. Trip distance (TRIP)
4. TRIP TIME

To log in, you need to turn on the display and wait at least 10 seconds. The speed must be 0 (function cannot be used while riding). Long press on the **M** button (at least 2 seconds) will take you to the menu.

Use the control buttons  and  to select the desired parameter.

With the **M** button confirm the deletion of the individual parameters.

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ERROR (Error indication)

If there is an error in the system, the display can show it.

The following table presents the different error codes and their meanings.



Error code	Error description
"04" displayed at SPEED	Not relevant
"05" displayed at SPEED	Throttle problem
"07" displayed at SPEED	Overload
"08" displayed at SPEED	Hall sensor problem
"09" displayed at SPEED	Phase wire problem
"10" displayed at SPEED	Temperature problem
"11" is displayed at SPEED	Failure of the temperature sensor in the motor
"12" is displayed at SPEED	Power failure
"13" is displayed at SPEED	Not relevant
"14" is displayed at SPEED	Controller is too warm
"15" displayed at SPEED	Controller temperature sensor failure
"21" is displayed at SPEED	Speed sensor failure
"23" is displayed at SPEED	Failure of the light
"24" displayed at SPEED	Light sensor failure
"25" is displayed at SPEED	Problem with the torque sensor
"26" is displayed at SPEED	Problem with the torque sensor
"30" displayed at SPEED	Communication error
"--" is displayed with speed	BMS (Battery Management System) communication error

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