



# TOWER KD58C ELECTRIC BICYCLE LCD DISPLAY MANUAL



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Tower Electric Bike Owners

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# Tower KD58C Electric Bicycle Intelligent Display

## Specifications

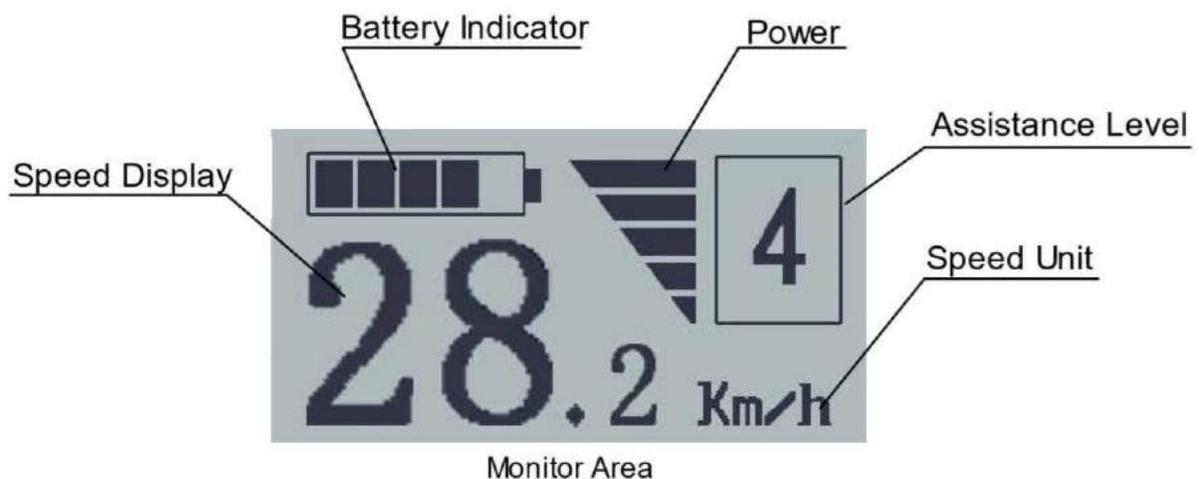
- 48V Power Supply
- Rated current: 10mA
- The maximum working current: 30mA
- Off leakage current: <1uA
- The supply controller working current: 50mA
- Working temperature: -20 ~ 60 °C
- Storage temperature: -30 ~ 70 °C

## Appearance and Size

Size: 56x46mm:



## Display Layout



## Function Summary and Button Definition

### Function Summary:

This LCD controller is capable of the following functions:

- Smart battery level indicator: Top Left Corner
- Pedal assistance level indication: Top Right Corner, 0-5
- Speed indication (incl. running speed, max speed and average speed)
- Motor-output indication
- Trip time indication
- Odometer, and individual trip distances
- Headlight power (On/Off)
- Error code indication.

### Button Definition

There are three buttons ( -,  , + ) on the KD58C display that represent the following functions: **DOWN, POWER/MODE, UP**.

## General Operation

### Turning the eBike On/Off:

- Make sure the red flip switch on the battery itself is “ON” meaning the O is popped up (- is pushed down)
- To turn on the eBike system, hold the **POWER** button on the LCD screen for 2 s. Perform the same function to turn the eBike system off.
- When the eBike system is turned off, the leakage current is less than 1 uA. To completely limit the leakage manually flip the red power on the battery off.
- When parking the eBike for more than 10 minutes, the eBike system will switch off automatically.

### Turning Your Front Light On/Off:

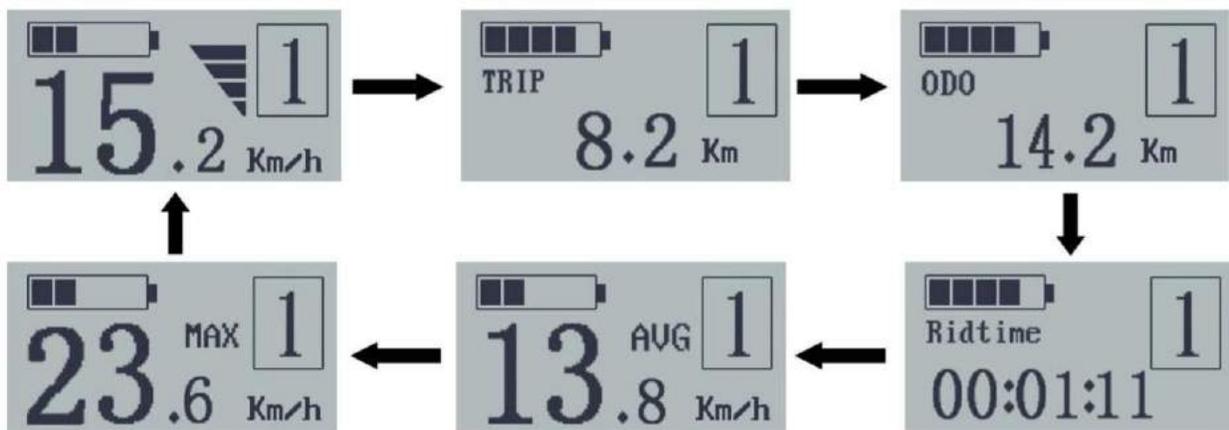
Your front light will automatically turn on when you turn on your bike.

- To turn off the eBike headlight, hold the **(+)** button for 2s.
- To turn on the eBike headlight, perform the same task. (hold the **(+)** button for 2s)

## Display Interface:

After turning on the eBike system, the display shows the speedometer in the main monitor. Press POWER to transition through the available six display interfaces:

- Running Speed (**mph**)
- Trip Distance (**mi**)
- Odometer (**mi**)
- Ride Time (**min**)
- Average Speed (**mph**)
- Max Speed (**mph**)



Each interface will display for 2 seconds before automatically returning to the Running Speed interface.

## Pedal Assistance Level Selection

Assistance levels indicate the output power of the motor. The default value is level 0, so as a safety precaution when you turn on your LCD display your eBike's pedal assistance will not be engaged. .

The Pedal Assist power range is from Level 0 to Level 5. There is no output on Level 0, so the eBike will ride like a normal bicycle. Level 1 is the minimum power. Level 5 is the maximum power.

E.g. Pedal Assistance Level 4



## Power Indicator:

The motor output power will be displayed on the display as below in an inverted triangle. The more of the triangle that appears, the more battery you are currently consuming. When you are completely using your own pedal power or momentum, your power indicator will be minimal, which means you're not draining your battery at all currently. This indicator varies from moment to moment to show you how reliant you are being on your battery reserves:

### Motor Power Indicator Interface



## Error Code Identification:

If there are errors regarding the electronic control system, an error code will appear automatically on your screen. A list of error codes and definitions can be found on page 8 at the end of this manual.

## General Settings

After the eBike system is powered on, to access the general settings menu, hold both the **UP(+)** and **DOWN(-)** buttons for 2s.

You will then be prompted to input a password. **The default password is 1 2 3 4.** This can be entered by using the UP(+) arrows to change each digit of the combination, followed by selecting the **POWER** button to both select the currently active digit slot and move the cursor to the next digit of the combination.

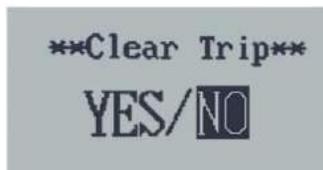
To exit the settings menu, hold the **DOWN( - )** button for two seconds.

If there are not any operations for one minute, the display will exit the settings menu automatically.

Use the **+** and **-** buttons to toggle through different settings, and **POWER** to select a setting. The settings will show up in the following order:

### Setting 1: Clear Trip

Clear Trip is used to reset the trip distance. Press the **UP** or **DOWN** button to choose YES or NO to clear the trip distance. The default value is NO. Press the **POWER** button to confirm the selection, the display will then show OK and return to the general selection settings interface.



## Setting 2: MPH or KPH Unit Selection

The default unit for all Tower eBikes is “Miles”. To change the units to “Kilometers”, press **UP** or **DOWN** until the desired setting is highlighted. Press **POWER** to store the selection and return to the general selections interface.



## Setting 3: Slow Start

The “Slow Start” feature can be used to delay the pedal assist power. For example, setting this to “3 sec” will result in the pedal assist system kicking in 3 seconds after the rider begins to pedal. The default value of the “Slow Start” is 0, which means there is no delayed response of the pedal assist system. As soon as you push the pedals, the pedal assist will kick in. The “Slow Start” delay can be set for 0, 1, 2 or 3 seconds.

To change the slow start up settings, press the **UP** or **DOWN** button to adjust the value. Press the **POWER** button to save the selection and return to the advanced settings page.



To access a second level list of advanced settings, “flip the page” by clicking and holding down **UP (+)** and **DOWN (-)** at the same time once again. This will prompt you to the next level of settings labeled “Specific Set”.

## Advanced Settings ( \*\*SPECIFIC SET\*\* )

### Setting 1: Pedal Assist

This setting can be used to adjust the power exerted for each of the corresponding five pedal assist levels.

To access the PAS ratio settings page, select “Pedal Assist” from the \*specific Set\* menu by pressing **POWER**. The first screen shows you that the pedal assist mode has 6 levels, 0-5. Zero just means the pedal assist is not activated. The other 5 have pre-set battery power percentages exerted, but you can modify these as you like.

To get to the battery % level assistance for level 1, press **POWER**. This takes you to the setting level for Pedal Assist level 1. By default it is set to 40% (denoted on the screen by “5-1-40%”, or out of 5 levels this is level 1 and it’s set to 40%. You can change the % by pressing the **UP** or **DOWN** button to increase or decrease the pedal assist percentage.

Once that's set, press POWER to jump to the next incremental level, and set that as you like.

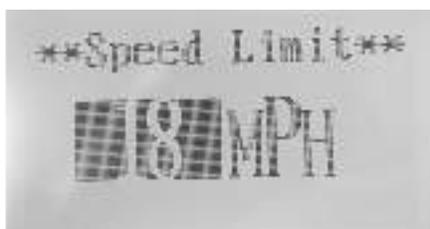


After the desired PAS ratio for each power level is input for all 5 pedal assist levels, press the **POWER** button to confirm and return to the advanced settings interface.

\*\*We don't recommend you modify these power settings as they are set pretty good out of the factory. The factory settings are level 1 at 40%, level 2 at 52%, level 3 at 64%, level 4 at 75%, and level 5 at 96%.

## Setting 2: Speed Limit

Select "Speed Limit" to change the maximum speed. The speed limit range is 7mph to 25mph. For safety purposes, the default maximum speed is set to 18mph. When your eBike's speed exceeds this maximum speed limit, the eBike power system will cut out automatically. Note, you can set this speed limit and password protect things so others can't change the top speed.



To change this setting, press **UP** or **DOWN** to increase or decrease until the desired speed limit is displayed. Press **POWER** to store the selection and return to the general selections interface.

### Setting 3: Set Password

To change the settings password (default is 1234), input your new code, and press **POWER** to save.

### Recover Default Settings

To reset the LCD screen to the default factory settings, press both the UP and POWER buttons for 2 seconds. Select Y/N (yes/no). It may take 1 minute for this to register. Note that this action can not be undone. It will reset your password to the default setting of 1 2 3 4

### Error Code Definitions

#### Error Code 21 - Current Abnormality

Definition: Generally means there is an issue with the controller. More specifically that there is too much current leaving the controller.

#### Possible Causes

- When using a higher power motor than what is compatible with your controller, your LCD system may stop working and display this error.
- When the instant current exceeds double the rated current, or the continuous current exceeds the rated current, it may stop working and display this error. Since all controllers for Tower eBikes are 48V/20A controllers, this error means that the instant current is over 40A or the continuous current is over 20A.

What to do: Call our team at 866-622-447 and confirm your Error Code 21. A new controller is likely necessary.

#### Error Code 22 - Throttle Connection Error

Definition: There is a faulty connection running from the throttle sensors to the main controller. Throttle is not responding even after the battery is turned on, LCD is powered up, and the throttle button is pushed in.

#### Possible Causes

- Throttle cable is not properly connected to the main wiring harness or has visible damage.
- Magnets inside of throttle have become dislodged due to damage.

#### What To Check (Before Calling Tech Support):

Follow the cord running from the throttle into the black wiring on the front of the bike. Unravel the black wiring until you reach the plug connection. Inspect the plug connection where this cord reaches. If the inner color of the cord (yellow) is showing at all then it is not properly

connected. It is advised to unplug and replug back in this connection to ensure it is properly connected.

#### Error Code 23 - Motor Connection Error

Definition: Wiring running from the rear hub motor to the controller is damaged/faulty/not connected.

#### Possible Causes

- Wiring below the right foot pedal is damaged or cut.
- Cable wiring has become undone or disconnected.
- If bike fell over and landed on the cable spring and has been damaged or pushed in.

#### What To Check (Before Calling Tech Support):

Inspect the wiring coming out of the right side of the motor hub. There is a black cap on it for protection where it connects to the motor hub. Follow this cable all the way to its connection point underneath the right pedal arm. Ensure the connection is tight and secure.

#### Error Code 24 - Motor Hall Sensor Error

Definition: The sensor within the rear hub motor is failing to read. Same with Error Code 23, there is an issue with the wiring running from the rear hub motor to the controller.

#### Possible Causes

- Bike back motor has been damaged via a crash or hit.

#### What To Check (Before Calling Tech Support):

Inspect the wiring coming out of the right side of the motor hub. There is a black cap on it for protection where it connects to the motor hub. Follow this cable all the way to its connection point underneath the right pedal arm. Ensure the connection is tight and secure.

#### Error Code 25 - Brake Sensor Connection Error

Definition: Connection error between the brakes and the bike itself. Brakes will still manually work, but not they are not in sync with the speedometer and LCD screen.

#### Possible Causes

- Caused by the brakes being used while the LCD screen is being turned on. While powering up the LCD screen make sure the brakes are not touched and in their upright position.

#### What to Check (Before Calling Tech Support)

Try turning on your LCD screen while not touching any brake lever. If the error code persists, inspect brake cables. Follow the cable wiring running down from one brake lever and unplug the connection point. Turn on the LCD screen and test again. Run this test to figure out which brake lever (left or right) is causing this error code.

## Error Code 30 - Communication Error - Unplugged Wiring

Definition: Physical connection error between the LCD screen and the Controller.

### Possible Causes

- The only cause of this error is an unplugged cord somewhere running from the LCD screen to the controller.

### What to Check (Before Calling Tech Support)

Follow the cable running from the LCD screen and ensure it is plugged in underneath the black wiring frame. Ensure plugs underneath the controller, and by the foot pedals are plugged in firmly.

## Technical Appendix

Figure 1 - Connection Layout

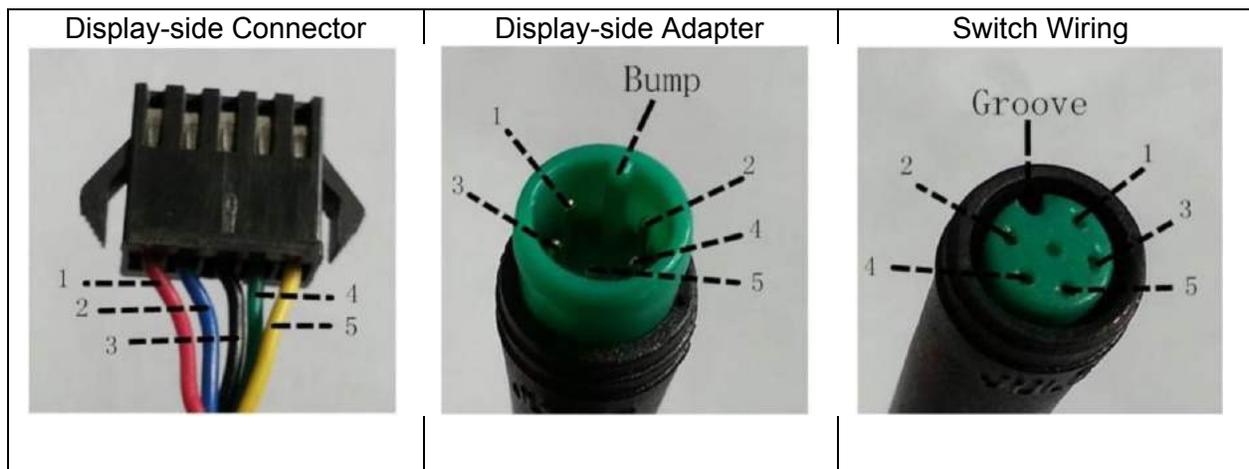


Figure 2 - Line Sequence Table

Line Sequence	Color	Function
1	Red (VCC)	+
2	Blue (K)	Lock
3	Black (GND)	-
4	Green (RX)	RX
5	Yellow (TX)	TX