用户手册
User Manual

KT-LCD5 eBike Special Meter
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Preface

The illustrated manual will help you understand and be familiar with the meter function, guiding you on how to operate the meter, how to set the project parameters, how to achieve the best match of the three as motor, controller and meter to improve electronic control performance of the electric motor. This manual covers installation, operation, parameter setting of the meter and how to use it properly, which help you resolve the problems appeared in practical use.

Outlook and Size

○ Meter Dimension

○ Main Material and Color

PC material is mainly used for KT-LCD5 meter, and the housing color is dark gray.

○ Wiring Schematic

Installation Instruction

The meter body and button box are mounted on the handlebars of the electric vehicle, adjusting perspective. In the case that the vehicle is power off, the meter connectors are in plug connection to corresponding controller connectors. Turn on the power, electric vehicle and meter will be under normal operation, the meter installation is finished. The
protection film on meter display panel should be torn.

- Physical Installation Icon

**Function Overview**

KT-LCD5 meter provide you with a variety of functions such as vehicle controls and vehicle status digitized displays to meet the trip demands.

- Trip time display (with displays of a single trip time (TM) and total trip time (TTM));
- Trip speed display (with displays of real-time speed (Km/H or MPH) and a single maximum speed (MXS) and a single average speed (AVS));
- Trip distance display (with displays of a single trip distance (DST) and total trip distance (ODO));
- Display of turned on throttle (THROTTLE);
- Display of power-assist startup (PAS);
- Power-assist ratio (or throttle) gear (ASSIST) switch;
- 6Km/H power assistant push (▲) function;
- Cruise function (CRUISE);
- Battery capacity indicator (▲▲▲);
- Real-time battery voltage (VOL) display;
- Brake display (●●●);
- Turn on backlighting and lights (●●●);
- Data clearing;
◇ Fault code display;
◇ User parameter setting
◇ 24V, 36V, 48V supply voltage can automatic identification and be compatible

**Display Content**

The display content is shown as follow.

![Display Diagram]

There are three keys on the KT-LCD5 display panel, icons 

- ▲ is UP button,
- ◇ is SW button,
- ▼ is DOWN button.

**Normal Operation**

◇ **On/Off**

Hold ◇ button (SW) long, the meter is powered on and into normal operation, and it provides the controller with power supply. Under normal operating status, hold ◇ button (SW) long, the meter is powered off, meanwhile to shut down the power supply of controllers. **When the vehicle is stopped and without any button operation on the meter for five minutes, the meter will automatically shut down, and the power supply of the electric vehicle will be powered off.** In power off mode, the power consumption of the meter and controller is zero.
**Display Interface**

Display 1:

The meter is startup to enter display 1.

Display 1

The followings are shown on display 1.

- **Battery Capacity Indicator**
- **Single Trip Time (TM) Display**
- **Power Assist Ratio Gear (ASSIST)**
- **Real-time Trip Speed (Km/H)**
Single Trip Distance

6Km/H Power Assist Function

Backlights and Headlights Status

Brake Status

Cruise Function Display

Power-assist Startup Display

Throttle Turned on Display
Display 2:

In display 1, hold button (SW) shortly to enter display 2.

The followings are shown on display 2:

- **Total Trip Time (TTM)**
- **Total Trip Distance (ODO)**
- **Single Average Speed (AVS)**

*In the riding mode after 5 seconds, display 2 automatically returns to display 1.*

Display 3:

In display 2, hold button (SW) shortly to enter display 3.
The followings are shown on display 3.

Single Maximum Speed (MXS)  Real-time Voltage (VOL)

In the riding mode after 5 seconds, single maximum speed will automatically return to real-time trip speed (Km/H) as shown in the icon.

In display 3, hold button (SW) shortly again to enter display 1.

In each display interface, if you hold button (SW) long, the meter will be powered-off together with that of the controller.
○ Display of Turned on Throttle

Rotate the throttle control handle under normal operating of the meter, the display interface shows the sign of turned-on throttle, see the Figure below. The sign will be off automatically after about five seconds.

○ Display of Power-assist Startup

The meter is driving with power-assist under normal operating conditions, the display interface flashes the power-assist startup sign (PAS) as shown in the figure. The sign will be off automatically after about five seconds.

○ PAS Ratio (or Throttle) Gear Switch

Under normal operation, hold ▲ button (UP) or ▼ button (DOWN) to switch the power-assist ratio (or throttle) gear (ASSIST), changing motor output power. Switching range is 1-5 gear (this can also be configured according to the customer requirements), gear 1 is for the lowest power, and gear 5 is for the highest power.
At every startup, the meter will automatically restore gear (this can also be configured as required by users) when it was at last shut down. When the power-assist ratio is gear 0 zero, there’s no power-assist function.

○ Power Assistant Push Function

Users can use 6Km/H power assist function when pushing vehicles. Hold  button (DOWN), the meter assist function logo (🏃‍♂️) flashes, the vehicle drives at the speed of no more than 6Km/h. Release  button (DOWN), the assist function will be revoked.

○ Cruise Function

When C7 parameter setting is 1 (see C parameter setting), the meter turns on cruise function, hold  button (DOWN) long to enter the cruise status when the vehicle speed is more than 7 km/h, and the cruise function logo (CRUISE) lights. Brake or hold any button to revoke cruise function.
- Startup Backlights and Headlights

Hold ▲ button (UP) long, the meter turns on the backlights as well as the vehicle headlights (the Controller should have headlights driving and output functions), meter backlighting and vehicle lights power logo (_DRV) light, hold ▲ button (UP) long again to turn off backlights and vehicle headlights.

- Battery Capacity Indicator

The meter can automatically identify 24V, 36V, 48V battery capacities when it is supporting use with the specified controller. When the battery capacity is over 70%, the four power displays of the meter are lit, when the battery capacities drop, the four power displays are off in order, when the power capacity is less than 15%, the four power displays are totally turned off.

When the controller is power off due to voltage shortage, the power display frame flashes, indicating the vehicle has been in voltage shortage and waiting for shutdown currently.
○ **Single Data Clearing**

5 seconds after the meter is powered on, at display 1, hold both the ▲ button (UP) and the ▼ button (DOWN) simultaneously for about 2 seconds, the single trip time (TM) and single trip distance (DST) flicker, then hold ▲ button shortly (SW), the record contents of both will be cleared.

![Single data clearing display](image)

Under the status of data flashing, if there were no operations on the data within 5 seconds, the meter will automatically return to display1 after 5 seconds, and the original record content will be saved.

○ **Automatically Prompt Interface**

Error Code Display:
When the electronic control system of the electric vehicle fails, and the meter will automatically display (flicker) fault code. You can’t exit the fault code display only the fault is removed.

### Error Code Display

#### Error Code & Definition Table:

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>01_info</td>
<td>Throttle Abnormality</td>
</tr>
<tr>
<td>03_info</td>
<td>Motor Hall Signal Abnormality</td>
</tr>
<tr>
<td>04_info</td>
<td>Torque sensor Signal Abnormality</td>
</tr>
<tr>
<td>05_info</td>
<td>Axis speed sensor Abnormality (only applied to torque sensor)</td>
</tr>
<tr>
<td>06_info</td>
<td>Motor or controller has short circuit Abnormality</td>
</tr>
</tbody>
</table>

### User Setting Project

KT-LCD3 meter user setting project:

- General project setting
- P parameter setting
- C parameter setting

#### General Project Setting

- **Maximum Trip Speed**

  Under power off status, hold (SW) button long, the meter is turned on. Within 5 seconds after boot-up, hold (UP) button and (DOWN) button (DOWN) simultaneously for about 2 seconds, the first is to enter the maximum riding speed setting
interface, then the speed display column flashes. Hold ▲ button shortly (UP) or ▼ button (DOWN) in order to set the maximum riding speed value. The default maximum riding speed value was 25Km/h. When the speed of the electric vehicle exceeds the set value, the motor will be stopped driving.

![Setting interface of maximum trip speed](image)

Under the setting maximum riding speed interface, if there’s no button operation on the meter for more than 1 minute, and then the meter will automatically return to display 1, and the original set values will be saved.

After finishing the maximum riding speed setting, hold ■ button shortly (SW) to save the current set values and enter into the next setting.

○ Wheel Diameter

After finishing the maximum riding speed setting, enter the wheel diameter setting interface, and then the wheel diameter display column flashes. Hold ▲ button (UP) or ▼ button (DOWN) to choose the corresponding wheel diameter specification to a selected vehicle. The selection range of wheel diameter specifications are 13 species such as 6,8,10,12,14,16,18,20,22,24,26,700 c and 28 inches.
Setting Interface of Wheel Diameter

Under the wheel diameter setting interface, if there’s no button operation on the meter for more than 1 minute, and then the meter will automatically return to display 1, and the original set values will be saved.

After finishing the wheel diameter setting, hold button (SW) shortly to save the current set specification and enter into the next setting.

○ Metric and Imperial Units

After finishing the wheel diameter setting, enter into the metric/imperial units setting interface, and then the speed and mileage unit flash. Hold button (UP) or button (DOWN) shortly to make sync selection of three metric/imperial units as speed, mileage, and the environment temperature.

Setting Interface of Metric/Imperial Units

Definition Table of Metric/Imperial Units:

<table>
<thead>
<tr>
<th>Display</th>
<th>Metric</th>
<th>Imperial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riding speed</td>
<td>Km/H</td>
<td>MPH</td>
</tr>
<tr>
<td>Total distance</td>
<td>Km</td>
<td>Mil</td>
</tr>
</tbody>
</table>
Under the metric/imperial units setting interface, if there’s no button operation on the meter for more than 1 minute, and then the meter will automatically return to display 1, and the original set units will be saved.

After finishing the metric/imperial units setting, hold \[\text{button (SW)}\] button shortly (SW) to save the current set values, and then speed and mileage units stop flashing. Hold \[\text{button (SW)}\] button (SW) shortly again, and the meter will enter into the maximum riding speed interface again, or hold \[\text{button (SW)}\] button (SW) long for about 2 seconds to exit the general project setting environment and return to display 1.

○ Exit General Project Setting

Among the three general project settings, after each setting is completed, if hold \[\text{button (SW)}\] button (SW) long for about 2 seconds, all can exit the setting environment and return to display 1, meanwhile, the current set parameters are saved.

Under each setting interface, if there’s no button operation on the meter for more than 1 minute, and then the meter will automatically return to display 1, and the original set parameters will be saved.

P Parameter Setting

After finishing metric/imperial unit settings, the speed and mileage units stop flashing. Within one minute after stopping flashing, hold \[\text{button (UP)}\] button (UP) and \[\text{button (DOWN)}\] button (DOWN) simultaneously for about 2 seconds to enter P parameter setting environment.

○ P1 Motor Characteristic Parameter Setting

P1 is motor characteristic parameter setting, \(P1 = \text{motor gear reduction ratio} \times \text{number of rotor magnet pieces}\), just rounding if there’s any decimal.

After entering P parameter setting environment, the first is to set P1 parameter, P1 parameter column flashes. P1 setting ranges between 1-255, hold \[\text{button (UP)}\] button (UP) or \[\text{button (DOWN)}\] button (DOWN) shortly for selection.
Under P1 parameter setting interface, if there’s no button operation on the meter for more than 1 minute, and then the meter will automatically return to display 1, and the original set parameter will be saved.

After finishing P1 parameter setting, hold \[\text{button}\] shortly to save the current set values and enter P2 parameter setting interface.

○ P2 Wheel Speed Pulse Signal Setting

Enter P2 parameter setting interface after P1 parameter setting is finished, and P2 parameter column flashes.

P2 is wheel speed pulse signal setting, if wheel generated 1 pulse signal by a revolution, P2 should be set as 1. If wheel generated 6 pulse signals by a revolution, P2 should be set as 6. If users didn’t configure the pulse signal system, and then P2 parameter setting can be 0. The setting range of P2 should be between 0-6, hold \[\text{button}\] (UP) shortly or \[\text{button}\] (DOWN) for selection.
Under P2 parameter setting interface, if there’s no button operation on the meter for more than 1 minute, and then the meter will automatically return to display 1, and the original set parameter will be saved.

After finishing P2 parameter setting, hold [SW] button (SW) shortly to save the current set values and enter P3 parameter setting interface.

**Please Note:** when P2 parameter is set to be 0, for the built-in clutch motor, there will be the following defects, when the internal motor rotors stop or the internal rotor speed is lower than the outer rotor speed, then the speed displayed on the meter is inaccurate!

○ **P3 Power-assist Control Mode Setting**

Enter P3 parameter setting interface after P2 parameter setting is finished, and P3 parameter column flashes.

![P3 parameter setting interface](image)

P3 is for power-assist control mode setting, when P3 parameter setting is 1, power-assist control mode is gear 5 of "imitation torque control" mode, when P3 parameter setting is 0, power-assist control mode is gear 5 of "speed control" mode. P3 parameter needs to be determined according to the distributed function of the controller, its setting range is 0 or 1, hold [UP] button (UP) shortly or [DOWN] button (DOWN) for selection. P3 parameter setting method is the same to that of P2.

○ **P4 Throttle Startup Setting**

Enter P4 parameter setting interface after P3 parameter setting is finished, P4 parameter column flashes.
P4 is throttle startup setting, when P4 setting is 1, indicating the throttle is under "non-zero startup" mode, namely, the throttle can be effective only after startup the foot power assist. When P4 setting is 0, indicating the throttle is under "zero startup" mode, the motor can be startup by the throttle control handle directly. P4 setting range is 0 or 1, hold ▲ button (UP) or ▼ button (DOWN) shortly for selection. P4 parameter setting method is the same to that of P2.

○ P5 Power Monitoring Setting

Enter P5 parameter setting interface after P4 parameter setting is finished, P5 parameter column flashes.

P5 is power monitoring setting, when P5 setting is 0, the power monitoring is the "real-time voltage" mode. Namely, it is the method to determine the battery capacity based on real-time battery voltage. When P5 equals to a specified parameter, the power monitoring is the "smart power" mode (this parameter is determined by the battery characteristics, ordinary 24V lithium is generally is 4-11, 36V lithium is between 5_15). P5
setting ranges from 0-40, hold ▲ button (UP) or ▼ button (DOWN) shortly for selection. P 5 parameter setting method is the same to that of P2.

After finishing P5 parameter setting, hold  button (SW) shortly to save current set the values, and then P5 parameter column stops flashing. Hold  button (SW) shortly again, the meter re-enter P1 parameter setting interface. Or hold  button (SW) long for about 2 seconds to exit P parameter setting environment and return to the display 1.

○ Exit P Parameter Setting

Among the five P parameter settings, when each parameter setting is completed, if held  button (SW) long for about 2 seconds, all can exit the setting environment and return to display 1, meanwhile, the current set parameters would be saved.

Under each parameter setting interface, if there’s no button operation on the meter for more than 1 minute, and then the meter will automatically return to display 1, and the original set parameters will be saved.

C Parameter Setting

After finishing P5 parameter setting, P5 parameter column stops flashing. Within 1 minute after stopping flashing, hold ▲ button (UP) and ▼ button (DOWN) for about 2 seconds to enter C parameter setting environment.

○ C1 Power-assist Sensor and Parameter Selection Setting

Set C1 parameter first after entering C parameter setting environment, C1 parameter column flashes.
C1 parameter setting interface

C1 is power-assist sensor and parameter selection setting, its definition is shown in following table. C1 setting ranges between 0-7, hold △ button (UP) or ▼ button (DOWN) for selection.

C1 parameter definition table:

<table>
<thead>
<tr>
<th>KUNTENG power-assist sensors</th>
<th>C1 value</th>
<th>Start Sensitivity</th>
<th>KUNTENG V12 power-assist sensors</th>
<th>C1 value</th>
<th>Start Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward 5 Signal</td>
<td>00</td>
<td>Standard</td>
<td>Reverse 6 Signal</td>
<td>05</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>01</td>
<td>Lower</td>
<td></td>
<td>06</td>
<td>Lower</td>
</tr>
<tr>
<td></td>
<td>02</td>
<td>Lowest</td>
<td></td>
<td>07</td>
<td>Lowest</td>
</tr>
<tr>
<td>Forward 8 Signal</td>
<td>00</td>
<td>Highest</td>
<td>Reverse 10 Signal</td>
<td>05</td>
<td>Higher</td>
</tr>
<tr>
<td></td>
<td>01</td>
<td>Standard</td>
<td></td>
<td>06</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>02</td>
<td>Lower</td>
<td></td>
<td>07</td>
<td>Lower</td>
</tr>
<tr>
<td>Forward 10 Signal</td>
<td>00</td>
<td>Highest</td>
<td>Reverse 12 Signal</td>
<td>05</td>
<td>Highest</td>
</tr>
<tr>
<td></td>
<td>01</td>
<td>Higher</td>
<td></td>
<td>06</td>
<td>Higher</td>
</tr>
<tr>
<td></td>
<td>02</td>
<td>Standard</td>
<td></td>
<td>07</td>
<td>Standard</td>
</tr>
</tbody>
</table>

Forward power sensor signal waveforms  Reverse power sensor signal waveforms

After finishing C1 parameter setting, hold ◁ button (SW) shortly to save the current set values and enter C2 parameter setting interface.

○ C2 Motor Phase Classification Coding Setting

Enter C2 parameter setting interface after C1 parameter setting is finished, C2 parameter column flashes.
C2 parameter setting interface

C2 is motor phase classification coding setting, it is served as identification parameter of different phases of the motor when using sine wave drive and the default value is 0. When C2 setting is 0, indicating that the used Quantum motor phase is an ordinary one. When the setting is a certain value, indicating a particular motor phase is used. C2 setting range is 0-7, hold ▲ button (UP) or ▼ button (DOWN) for selection.

After finishing C2 parameter setting, hold  button (SW) shortly to save the current set values and enter C3 parameter setting interface.

○ C3 Power-assist Ratio Gear Initialization Setting

Enter C3 parameter setting interface after C2 parameter setting is finished, C3 parameter column flashes.

Hold ▲ button (UP) or ▼ button (DOWN) for selection C3 parameter values.

The factory default is 8.

C3 parameter values:
<table>
<thead>
<tr>
<th>C3</th>
<th>Parameter value meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>The meter is powered on and the power-assist ratio is at gear 0.</td>
</tr>
<tr>
<td>1</td>
<td>The meter is powered on and the power-assist ratio is at gear 1.</td>
</tr>
<tr>
<td>2</td>
<td>The meter is powered on and the power-assist ratio is at gear 2.</td>
</tr>
<tr>
<td>3</td>
<td>The meter is powered on and the power-assist ratio is at gear 3.</td>
</tr>
<tr>
<td>4</td>
<td>The meter is powered on and the power-assist ratio is at gear 4.</td>
</tr>
<tr>
<td>5</td>
<td>The meter is powered on and the power-assist ratio is at gear 5.</td>
</tr>
<tr>
<td>6&amp;7</td>
<td>Retain</td>
</tr>
<tr>
<td>8</td>
<td>Each startup will automatically restore the gear shutdown last time.</td>
</tr>
</tbody>
</table>

After finishing C3 parameter setting, hold button (SW) shortly to save the current set values and enter C4 parameter setting interface.

○ **C4 Throttle Function Setting**

Enter C4 parameter setting interface after C3 parameter setting is finished, C4 parameter column flashes.

![C4 parameter setting interface](image)

C4 is throttle function setting, the setting range is 0-4, hold button (UP) or button (DOWN) for selection.

**C4 parameter definition table:**

<table>
<thead>
<tr>
<th>C4 value</th>
<th>P4=0</th>
<th>P4=1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>zero startup throttle</td>
<td>Non-zero startup throttle</td>
</tr>
<tr>
<td>1</td>
<td>Zero startup, throttle speed limit is</td>
<td>Before power-assist, the throttle speed limit is</td>
</tr>
</tbody>
</table>
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<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6Km/h</td>
<td>6Km/h, after power-assist, throttle is full speed.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Zero startup, throttle speed limit is specified</td>
<td>Non-zero startup, throttle is specified speed limit.</td>
</tr>
<tr>
<td>3</td>
<td>Zero startup, Zero gear effectively</td>
<td>Before power-assist, the throttle speed limit is 6Km/h, after power-assist, throttle is full speed. Stop power-assist, return the throttle speed limit is 6Km/h.</td>
</tr>
<tr>
<td>4</td>
<td>Throttle gears is distinguished according to the display meter.</td>
<td>Non-zero startup throttle, Throttle gears is distinguished according to the display meter.</td>
</tr>
<tr>
<td>5</td>
<td>Retain</td>
<td>Retain</td>
</tr>
</tbody>
</table>

When C4 = 2 is confirmed, "specified speed limit value of throttle" flashes, press ▲ (UP) button or ▼ (DOWN) button for short to make selection, and the default value is 20.

When C4 = 4 is confirmed, the "percentage value of the first gear speed accounts for its full speed" of the power-assist gear flashes, press ▲ (UP) button or ▼ (DOWN) button for short to make selection, and the default value is 50%. The percentage values of other gears divide automatically in equal.

After finishing C4 parameter setting, hold button (SW) shortly to save the current set values and enter C5 parameter setting interface.

○ C5 Controller Maximum Current Adjustment Setting

Enter C5 parameter setting interface after C4 parameter setting is finished, C5 parameter column flashes.
C5 parameter setting interface

C5 is controller maximum operating current adjustment setting (tiny-adjustment of limit current value), the default value is 10, setting range is 0-10, hold ▲ button (UP) or ▼ button (DOWN) shortly for selection.

C5 parameter definition table:

<table>
<thead>
<tr>
<th>C5 value</th>
<th>Maximum current value(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Three level slow start/ Maximum current value</td>
</tr>
<tr>
<td>01</td>
<td>Two level slow start/ Maximum current value</td>
</tr>
<tr>
<td>02</td>
<td>One level slow start/ Maximum current value</td>
</tr>
<tr>
<td>03</td>
<td>Maximum current value ÷ 2.00</td>
</tr>
<tr>
<td>04</td>
<td>Maximum current value ÷ 1.50</td>
</tr>
<tr>
<td>05</td>
<td>Maximum current value ÷ 1.33</td>
</tr>
<tr>
<td>06</td>
<td>Maximum current value ÷ 1.25</td>
</tr>
<tr>
<td>07</td>
<td>Maximum current value ÷ 1.20</td>
</tr>
<tr>
<td>08</td>
<td>Maximum current value ÷ 1.15</td>
</tr>
<tr>
<td>09</td>
<td>Maximum current value ÷ 1.10</td>
</tr>
<tr>
<td>10</td>
<td>Maximum current value</td>
</tr>
</tbody>
</table>

When C5 setting is 10, maximum current value is controller maximum operating current value (ie, limit current value); when setting is 9, maximum current value divided by 1.10, when setting is 8, maximum current value divided by 1.15 and so on.

After finishing C5 parameter setting, hold ▼ button (SW) shortly to save the current set values and enter C6 parameter setting interface.

- C6 Backlight Brightness Adjustment Setting

Enter C6 parameter setting interface after C5 parameter setting is finished, C6 parameter column flashes.
C6 is the meter backlight brightness adjustment setting, the default value is 3, and setting range is 1-5, hold ▲ button (UP) or ▼ button (DOWN) shortly for selection.

C6 parameter definition table:

<table>
<thead>
<tr>
<th>C6 value</th>
<th>Backlight brightness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dimmest</td>
</tr>
<tr>
<td>2</td>
<td>Darker</td>
</tr>
<tr>
<td>3</td>
<td>Standard</td>
</tr>
<tr>
<td>4</td>
<td>Brighter</td>
</tr>
<tr>
<td>5</td>
<td>Brightest</td>
</tr>
</tbody>
</table>

After finishing C6 parameter setting, hold 电源 button (SW) shortly to save the current set values and enter C7 parameter setting interface.

○ C7 Cruise Function Setting

Enter C7 parameter setting interface after C6 parameter setting is finished, C7 parameter column flashes.
C7 parameter setting interface

C7 is cruise function setting, the setting range is 0 or 1, hold ▲ button (UP) or ▼ button (DOWN) shortly for selection.

C7 parameter definition table:

<table>
<thead>
<tr>
<th>C7 value</th>
<th>Cruise function</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>1</td>
<td>On</td>
</tr>
</tbody>
</table>

After finishing C7 parameter setting, hold ▼ button (SW) shortly to save the current set values and enter C8 parameter setting interface.

○ C8 Undefined

Enter C8 parameter setting interface after C7 parameter setting is finished, C8=0.

C8 parameter setting interface

C8 is not defined temporarily. Hold ▼ button (SW) shortly to enter C9 parameter setting interface.
○ C9 Startup Password Setting

Enter C9 parameter setting interface after C8 parameter setting is finished, C9 parameter column flashes.

C9 is meter power-on password setting, the default value is 0, hold ▲ button (UP) or ▼ button (DOWN) shortly for selection.

C9 parameter definition table:

<table>
<thead>
<tr>
<th>C9 value</th>
<th>Startup password setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Function off</td>
</tr>
<tr>
<td>1</td>
<td>Function on</td>
</tr>
</tbody>
</table>

When C9 setting is 1, hold ✂ button (SW) shortly, indicating that the password function is startup, and then enter the password settings interface, three password setting columns flash.

The password setting is done sequentially from left to right, hold ✂ button shortly...
to confirm after each setting and enter next setting. Password setting range is 000-999, hold ▲ button (UP) or ▼ button (DOWN) shortly for selection.

Please note: If you forget your password, the parameters can only be copied (see parameter copy) by data source meter prier to be decoded.

After finishing C9 parameter setting, hold button (SW) shortly to save the current set values and enter C10 parameter setting interface.

○ C10 Automatically Restore Default Setting

Enter C10 parameter setting interface after C9 parameter setting is finished, C10 parameter column flashes.

C10 parameter setting interface

C10 is automatic restore default settings, the default is n, and the setting can be n, or y, hold ▲ button (UP) or ▼ button (DOWN) shortly for selection.

C10 parameter definition table:

<table>
<thead>
<tr>
<th>C10 value</th>
<th>Restore default setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>Function off</td>
</tr>
<tr>
<td>y</td>
<td>Function on</td>
</tr>
</tbody>
</table>

When the meter is needed to restore default setting, C10 selects y, hold button long for about 2 seconds, all parameters restore default settings and exit setting environment, and then return to the display1.

C10 selects n, hold button (SW) shortly to save the current set values and enter C11 parameter setting interface.
○ C11 Attribute Selection Setting

Enter C11 parameter setting interface after C10 parameter setting is finished, C11 parameter column flashes.

C11 parameter setting interface

C11 is meter attribute selection setting, the setting range is 0-2, hold ▲ button (UP) or ▼ button (DOWN) shortly for selection.

C11 parameter definition table:

<table>
<thead>
<tr>
<th>C11 value</th>
<th>Meter Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Meter uses LCD3 new version of communication protocol, it is compatible LCD1 and LCD2.</td>
</tr>
<tr>
<td>1</td>
<td>Meter uses LCD1 and LCD2 old version communication protocol, it is not compatible LCD3.</td>
</tr>
<tr>
<td>2</td>
<td>As data source for copying parameters, the meter transfers the new LD3 parameter to other meters.</td>
</tr>
</tbody>
</table>

C11 selects 2, hold ⌫ (SW) long for about 2 seconds to exit the setting environment, and then the meter is served as data source for copying parameter (see parameter copy), there’s source logo on display interface.
After finishing C11 parameter setting, hold button (SW) shortly to save the current set values and enter C12 parameter setting interface.

○ C12 Controller Minimum Voltage Adjustment Setting

Enter C12 parameter setting interface after C11 parameter setting is finished, C12 parameter column flashes.

C12 parameter setting interface

C12 is controller minimum operating voltage adjustment setting (tiny adjustment of voltage shortage), the default value is 4, and the setting range is 0-7, hold button (UP) or button (DOWN) shortly for selection.

C12 parameter definition table:

<table>
<thead>
<tr>
<th>C12 value</th>
<th>Minimum Voltage(V)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24V Controller</td>
</tr>
<tr>
<td>0</td>
<td>Default value-2V</td>
</tr>
<tr>
<td>1</td>
<td>Default value-1.5V</td>
</tr>
</tbody>
</table>
C12 default value is 4, namely, controller minimum operating voltage (voltage shortage value); when setting is 5, the default value plus 0.5V, when setting is 4, the default value minus 0.5V and so on.

After finishing C12 parameter setting, hold button (SW) shortly to save the current set values and enter C13 parameter setting interface.

○ **C13 ABS brakes of the controller and parameters of anti-charge control Setting**

Enter into C13 parameter setting interface, C13 parameter bar flashes.

C13 is ABS brakes of the controller and parameters of anti-charge control setting, the default value is 0 with the setting range between 0-5, press (UP) button or
(DOWN) button to make selection.

C13 parameter definition table:

<table>
<thead>
<tr>
<th>C13 Value</th>
<th>ABS braking strength</th>
<th>Energy recovery efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>Class 1 braking strength</td>
<td>Best energy recovery efficiency</td>
</tr>
<tr>
<td>2</td>
<td>Class 2 braking strength</td>
<td>General energy recovery efficiency</td>
</tr>
<tr>
<td>3</td>
<td>Class 3 braking strength</td>
<td>Weaker energy recovery efficiency</td>
</tr>
<tr>
<td>4</td>
<td>Class 4 braking strength</td>
<td>Poor energy recovery efficiency</td>
</tr>
<tr>
<td>5</td>
<td>Class 5 braking strength</td>
<td>Bad energy recovery efficiency</td>
</tr>
</tbody>
</table>

The recommended value of C13 is 1; other values need to be chosen with caution for use.

**Be sure to note:** the higher is the braking intensity level, and the braking strength will be greater, the greater damage to the motor shaft accordingly.

After finishing the parameter setting of C13, press (SW) button for short to enter C14 parameter setting interface.

**C14 Power-assist Tuning Parameters Setting**

Enter into C14 parameter setting interface, C14 parameter bar flashes.

C14 parameter setting interface

C14 is the parameters of power-assist tuning setting, with the default value of 2. The power-assist is between 1-4 gear, and it is invalid until P3 equals to 1. The setting range 1-3, and press (UP) button or (DOWN) button for short to make selection.
C14 parameter definition table:

<table>
<thead>
<tr>
<th>C14 Value</th>
<th>Assist strength of intelligent pedal motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Weak assist strength of motor</td>
</tr>
<tr>
<td>2</td>
<td>General assist strength of motor</td>
</tr>
<tr>
<td>3</td>
<td>Stronger assist strength of motor</td>
</tr>
</tbody>
</table>

After finishing C14 parameter setting, hold button (SW) shortly to save current set values and enter C1 parameter setting interface again. Or hold button (SW) long for about 2 seconds to exit C parameter setting environment and return to the display 1.

○ Exit C Parameter Setting

Among the fourteen C parameter settings, when each parameter setting is completed, if held button (SW) long for about 2 seconds, all can exit the setting environment and return to display 1, meanwhile, the current set parameters would be saved.

Under each parameter setting interface, if there’s no button operation on the meter for more than 1 minute, and then the meter will automatically return to display 1, and the original set parameters will be saved.

Parameter Copy

Set parameters (include general project parameter, P parameter and C parameter) of all KT-LCD5 meter produced by our company according to requirements, and set the meter to be a data source according to the method of "C11 Attribute Selection Setting".

Use special wiring cables to properly wire to LCD5 meter needs to be copied according to the diagram.
Special wiring cable

Turn on meter power supply of data source. Power supply of 48V or 36V or 24V is available (VB + positive power supply). After wiring the meter needs to be copied, hold button long till meter is startup. Within 5 seconds after startup, hold button (UP) and button (DOWN) simultaneously for about 2 seconds, meter parameter copy is completed. If the copy operation is correct, the meter subject to be copied will display as follow.

![Special wiring cable](image)

Interface of finishing parameter copy

Please note: Both C9 power-on password and C11 meter attributes can’t be copied. Besides, LCD5 meter can only copy parameter of the same meter model.

User Setting Note

After entering the user setting environment, if there’s no button operation on the data for more than 1 minute, the meter will automatically return to display1, and the new set parameters won’t be saved.

The factory parameter set value and the default value of the meter can be set according to user requirements, the meter parameter can be restored by using "C10
Automatically Restore Default Setting" approach when adjusting it.

Version Information

<table>
<thead>
<tr>
<th>KT_LCD5_V1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Released on June 16, 2015</td>
</tr>
</tbody>
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