

SPECIFICATION FOR APPROVAL

ELECTRIC BIKE LED DISPLAY

TYPE: T319



1.

Kindly Reminder

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Version: V1.0

1. (Kindly Reminder)

Thank you for use T319 series display of KING-METER Company, T319 series display is the LED display adapt to e-bike. To ensure your safety, take care when you riding, avoid unnecessary hurt to you caused by accelerate too fast or disoperation. In order to ensure your safety, please comprehend the specification basic function and the attention matters of e-bike specification before you ride it.

Users' precaution

1. Attention that hard object knock on or force assembly are not available, which due to failure of display was not within the scope of warranty.
2. Be sure not to use some sharp object scratched display, prohibiting that use organic solvent when cleaning display, the appearance failure was not within the scope of warranty.
3. Do not tear off the labeling at the surface of display, because of tearing off the labeling which due to flooding water of display was not within the scope of warranty.
4. The cable of display cannot change by oneself, because of changing cable by oneself which due to failure was not within the scope of warranty.
5. Do not hot-line work when installation, please check carefully if connection correct or not, because of connection error which due to failure was not within the scope of warranty.
6. Do not pull joint vigorously that between display and cable, it was filled with sealant for special handling in order to prevent flooding water, pulling cable vigorously which due to the cable fall off possibly, it will cause badness to waterproof which due to failure ,it was not within the scope of warranty.
7. It is inseparable of the housing which was handled by special processing. The failure caused by tearing open the housing was not within the scope of warranty.

2. (The functions summary of T319 display)

- Battery indication :24V、36V independently indicate, voltage indication or communication mode displayed capacity information, it implemented tripartite communication use of BMS system.
 - Level adjustment: 0-3、1-4 or 0-4 level, the two control plan is analog voltage and communication.
 - The functions of power switch and the lock wires of display controller controlled by display, supply power for the lock wires of controller after switching on, confirm normal work for single chip of controller, play the function of lock control.
 - The display can match with majority controller. The display realized the function of level adjustment via simple adjustment as long as controller have throttle signal, realize the adjustment of PAS ratio via display.
 - The LCD of KING-METER can instead of this display arbitrarily, for some customer can upgrade whole e-bike. For example: The S2 and KM5S of ANSMAN can compatible single controller exactly.
- Above functions can not reflect on the same display. According to the above functions requirement, choosing appropriate function which reflect on display.

3. (Function introduction of general production)



图 1 Figure1

Battery indicator, Level indicator ,Level control, Power control

Detailed instruction of the functions:

1. The functions of power switch: The inside working power of e-bike controller was controlled by button. The ON state can supply 0-200mA current, the normal working current is less than 60 mA for controller, it was strictly prohibit that the lock wires of display connect headlight and other device, excessive current can due to failure to display, when lock wires was short circuit that will have the functions of short circuit protection. OFF state, the power consumption of display was less than 1uA.

2. Functions of Level adjustment : The max value of controller output PWM for the e-bike was controlled by the switching among the three levels of button.

0 level is the default value of switch on, press button once skip to max level,

press button again skip to min level, press button thirdly skip to mid-level, 0-1-2-3-4-0 circulation.(Optional changing mode: such as 1 level is the default value of switch on, or added functions of neutral position、PAS etc., according to the requirement of e-bike manufacturer.)

3. Functions of battery indication: Four levels LED indicate current voltage of battery. The changing state of battery voltage was real-time monitored, the indication delayed time of battery voltage reduction is 3s,in case of load changed suddenly due to battery voltage waving which caused LED flash at using procedure. The indicator battery of min battery flashed 1Hz at low voltage, but power supply to the controller was not cut off. It can match with BMS smart battery, the information of battery capacity etc. was reflected on display and battery communication, in this way the continuation line distance of whole e-bike and error information of battery etc. which can judge accurately. (The specification refers to BMS of battery)
4. Meet the ROHS specification and CE certification.
5. Waterproof and dustproof level: IP65 (The advisement is corresponding protection during riding rainy day, avoid that affect normal use for you which caused by the accident of flooding water.
6. Auto control of light on indication (According to illumination intensity from external environment)
7. Type marking: The marking of Housing: There are different marking for different functions and e-bike manufacturer.
8. Extendable function:
 - (1)6KM function
 - (2)Headlight control

4. (Dimension, Assembly diagram)mm

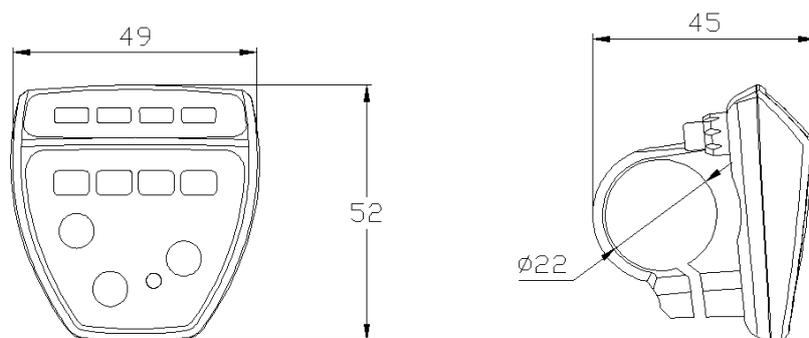


图 2 Figure2

5. (Color、 material of housing & typical film pattern)

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1、 Black ABS: Bolt/nut material: 316L(meet 120 hours salt spray test)
 Samples Photos and ROHS、 CE character (Samples Photos)

2、 Typical film pattern



图 3 Figure3



Figure4

6. (Specification & Reliability)

1.Indicator corresponding voltage characteristic

type	battery type	battery voltage	Corresponding value of four level voltage $\pm 0.3V$			
			L4	L5	L6	L7
24L	lithium battery	24	Supply us that according to discharge curve of battery or demanded data of display			

List1

The battery voltage is less than L4 that persisting 3s.In order to inform the rider that the battery voltage is serious under voltage and L4 will be able to flash.

2. Parameter adjustability and standardization: The main control chip of display is the

high-end single chip of 8bit accuracy. It can adapt to different type and parameter requirement. It has high accuracy.

The parameter of display can be programmed via special DISP-PRO. Through DISP-PRO can change the external voltage value for the same voltage type of display. For example changing battery for customer, because battery have many materials, because of different materials have difference discharge curve(such as ternary and lithium manganite materials),and the different display mode. So confirm the consistency of battery information that must through changing display or adjustment battery parameter of display.

So it require that through adjust corresponding parameter in several minute at repair shop or after sales center.

3. The circuit of display has the function of inversed connection and short-circuit protection.

7. Connector & Cable(The diameter of cable that only use for the display is less than 3.8mm)

1. Analog connection mode

Connector specification	Cable sequence and color			(mm) Cable length(mm)
	1	2	3	
SM2A	Red	Blue		According to order
SM3Y	Black	Green	空 vacancy	

List2

Cable signal introduction:

Red line: connection battery anode

Blue line: locking control line of connection controller

Green line: signal line level (Do not connect the throttle signal of controller, otherwise it will due to the failure of run way.

2. Communication connection mode

Connector specification	Cable sequence and color			(mm) Cable length(mm)
	1、Red	2、Blue	3、Black	
KM5Y	4、Green	5、Yellow		According to order

表 3 List3

Red :VCC Blue: K Black: GND Green: RXD Yellow: TXD

Cable color definition:

) In order to prevent salinization and corrosion at connector, reinforcing safeguard procedures for cable.

Diagram of prevent salinization and corrosion at connector

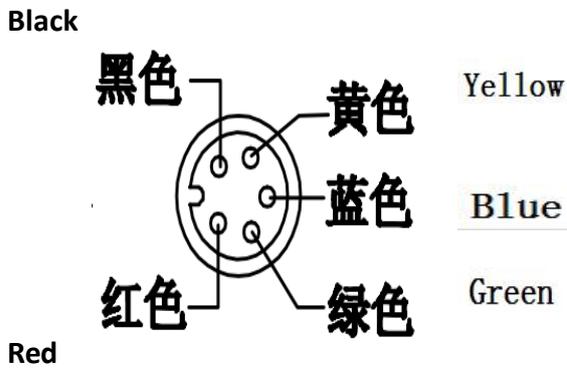


Figure 5



Figure 6

8. (Dependability Test)

item		condition	specification
Cable	Tensile strength test of the connector	tension strength:20N duration time:60S	OK
	Tensile strength test of housing cable	tension strength:10N duration time:60S	OK
	Lead to housing insulation test	The type of ZC25-3 MΩmeter test	> 100MΩ OK > 100MΩ
Lock wires voltage drop test		Digital millimeter	Normal electrical property
Battery indication test		Temperature: normal (20°C)	Normal electrical property (±0.3V)

	Temperature: -20℃(low)	Normal electrical property (±0.3V)
	Temperature: 70℃(high)	(±0.3V) Normal electrical property (±0.3V)
Voltage Pattern test	(20℃) Temperature: normal (20℃)	(±0.1V) Normal electrical property (±0.1V)
	Temperature: -20℃(low)	Normal electrical property (±0.1V)
	Temperature: 70℃(high)	Normal electrical property (±0.1V)
Under voltage indication delayed test	stopwatch	OK
Super voltage test 24V meter	Voltage: DC42V Duration time:60S	OK Display supply power again work normally
High-temperature detection test	Temperature: 75℃±2℃ Voltage: nominal voltage duration time:>2H	OK Normal work
Temperature-rise test	Temperature: normal (20℃) Display normal work	OK Housing temperature < 5℃
Constant humidity	Temperature:45℃±2℃ Relative humidity : 90%±5% duration time > 24H	OK Normal work
Vibration test	Voltage: nominal voltage Vibration frequency : 20HZ amplitude: >10MM duration time: >2H	OK Normal work

Analog spray test	Display normal work duration time: >2H	OK Normal work
Button endurance test	Special button endurance test machine	100,000 Cycles Min
RRohs &CE certification	Third party institution certification	Qualified pass and third party document introduction
housing protection class IP65	Third party institution certification	Qualified pass and third party document introduction

List 4

9. (Film & Type marking printed)

① Film selection: besides the general film of company. We can design the personalized film for customer. The suggestion is that the gradient ramp and complicated color design of film for no use. The environmental material of film accord with ROHS、CE environmental certification.(According to the customer for specific demand)

② Type marking printed

The character on display housing: 5001T32001 represents the first numbered production in the T319 production for this customer. There are single specification and corresponding test method for it. As long as you supply the display information for us as you inquiry specification, you can obtain the introduction of corresponding production function and technology. The information have corresponding cable length、voltage value、production date etc, In order to inquire convenience and corresponding after sales service work.



Figure7

Marking: 60732004-36L 2014-02-S11002

The printing on the display

The production number represents: 607 represents some customer,319 represents type of display,04 represents fourth type of T319 display for customer,36L represents the nominal voltage of lithium battery is 36V,2014-02 represents production date, S11002 represents program code.

10. (Packing requirement)**① Packing specification**

- 1、 Cable banding: Rubber band banding.
- 2、 A pouch pack for assembly: 300cmx200cm plastic closed bag.
- 3、 Packing specification of carton: 440×380×210 (cm)
- 4、 Quantity of each carton: Different loading quantity according to different specific cable length.

①The indication of production outer packing: supplier name/mark、 production type specification、 loading quantity 、 production date/lot number and order number.

②Packing and loading plan according to customer demand. The specific details by both sides negotiation. Be as the criterion is sealed sample.

11. (Other)

1、 This confirmation must be approved by both sides, any one part modification is invalid.

2、 After receiving the confirmation in each other,7 workdays must be signed confirmation, overdue as default agree.

12. (After sales service)

KING-METER take the purpose of “customer completely satisfaction”. We supply satisfactory after sales service. We promise that supplying 12 month quality assurance for our production. All production of our company supply 1% repair parts which was free of charge for customer. The suggestion is that the repair parts supply e-bike customer and corresponding after sales branch.

1、 Because of oneself quality problem of production which was failed in production process, contact us in time, we will handle the problematic production in time for you, repair and changing rejects in production process for you immediately.

2. Because of stop production or other special reason can not supply the same type production, we will change the same grade new production not lower than primary production. We will supply higher grade new production for changing such as not have the same grade new production. And without price difference.

Note: The same grade represents specification, nothing with the price. The same below.

3、 Because of serious failure can not repair or the type of parts have stopped supplying during quality assurance. We will supply higher grade new production for changing such as not have the same grade new production. And without price difference.

4、 Expired warranty production, we will receive some cost according to damaging

level or changing parts case. According to the case as it unable to repair that customer can purchase same type or specification display for change.

The following case was not at the scope of warranty or for value warranty.

1. The damage is caused by force installation.
2. Scratched or damaged housing
3. Tearing off label
4. Opened housing
5. Fall off or fracture of cable and damaged connector
6. The fault or damages caused by force majeure (such as earthquake etc.) or natural disasters (such as thunder etc.)

5. Expired warranty

The following service was not at the scope of warranty:

1. Transportation charges
2. Daily check and adjustment
3. Production installation and open packing service
4. Production appearance and additional parts