



RM 02 LED

Functionality Introduction

Product Name: Intelligent LED Display

Product Model: RM 02




	Signature	Date
Editor	Lei Liu	2021.07.26
Checked		
Approved		



Revision History

Version No.	Reviser	Date	Revision content
V1.0	Leo Liao	2021.04.26	Initial version
V1.01	Lei Liu	2021.07.26	Revision

 Hangzhou VeloFox Intelligent Technology Co., Ltd.	文件编号	
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Declaration

DM03 functional definition is a function definition description of the standard-version DM03 display produced by Velofox , and is part of the technical documentation.

All of Velofox’s display products are customized according to the electric system’s requirements. While this document is a reference for complete function definitions, operation instructions, and error codes, any configuration difference between your display and the standard DM03 is possible, due to various technical requirements in different ebike applications. Please consult your drive system supplier for additional function requirements and data display.


If you have any questions about DM03 functional definition, please consult our sales or technical support team.

Our company (VeloFox ®) reserves all the rights to interpret and explain DM03 functional definitions.

Hangzhou Velofox Intelligent Technology Co., Ltd



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 杭州威狐智能科技有限公司 Hangzhou VeloFox Intelligent Technology Co., Ltd.	文件编号	
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A Product Introduction

1. Product name and model

LED display of electric power assist bikes

Product model: RM02

2. Product Introduction

- ✧ Dual color LED, clear five levels indication
- ✧ Integrated buttons with good hand feeling
- ✧ IP65 waterproof level, excellent for outdoor use
- ✧ Service Tool function for fast firmware upgrade, parameter setting, and easy maintenance

3. Range of application

Suitable for all E-bikes that comply with EN15194 standard

4. Appearance and size

The shell material is PC+ABS. This product is suitable to be installed on the left side of horizontal tube with a handlebar size of ϕ 22.2mm.



5. Display coding rules

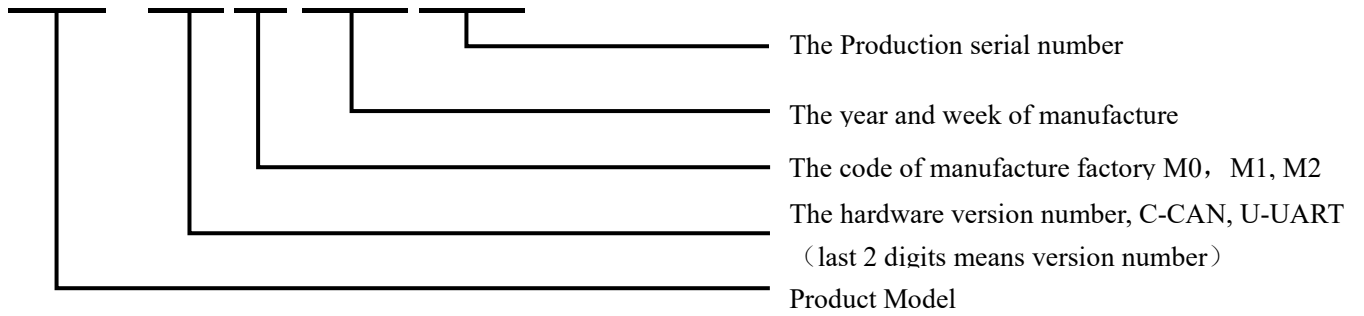


RM02-C01M120140001

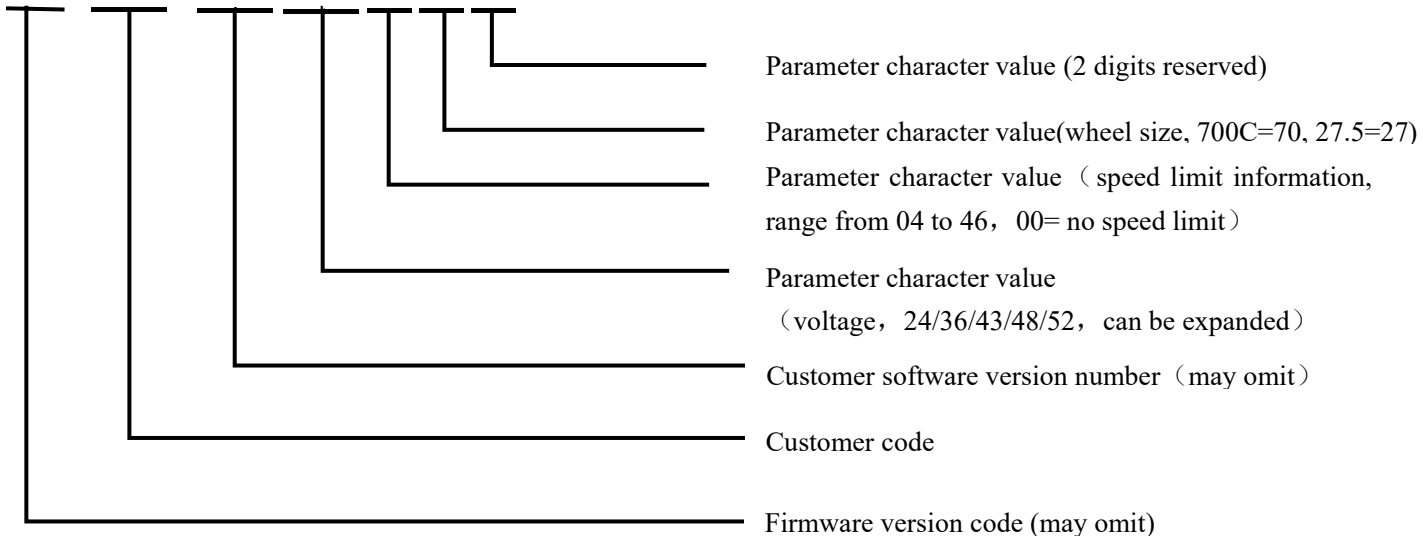
V001. XXX-24VA26

As shown as above picture:

RM02-C01M120140001



V01. XXX. XX-24V2526XX



B Product manual

1. Specifications

① Power supply: DC 24V/36V/48V

② Rated current: 12mA



- ③ Shutdown leakage current: <1uA
- ④ Screen Specification: LED
- ⑤ Communication method: UART/ CAN-BUS
- ⑥ Operating temperature: -20° C ~ 60° C
- ⑦ Storage temperature: -20° C ~ 70° C
- ⑧ Waterproof level: IP65

2. Function overview

- ① Four buttons, independent walk assist button, ergonomic hand feeling
- ② Five assist levels
- ③ Battery power indication
- ④ Headlight control
- ⑤ Walk assist function
- ⑥ Error code indication

3. Installation

- ① Open the display locking clip, set the display in the left handlebar (standard handlebar size: $\Phi 22.2$)
Adjust to a position easy to operate, using M3 hex set to screws and tighten. Tightening torque:
0.8N.m.

***Note: Damage caused by excessive torque is not covered by the warranty.**

- ② Connect the 5 pin plug to the docking plug of the controller as marked

4. Interface


4.1 Boot interface





Boot interface with full lights on are displayed for 2 seconds when display is turned on. When the communication connection is established, battery level and assist level information is obtained from controller for displaying real system information. (All data displayed is following communication protocol provided by the customer)


4.2 Basic interface and operation



①  Turn on/off button, for turn on off display;

②  LED indication light, for display battery level, assist level and error code according to info from controller;

③  Adjust up and down button, for assist level switch and setting functions;



④  Walk assist button, for activate walk assist function;

Definition of button operation:

Operation Type	Description
Short press	Press the button and soon released, while the button is released,the function activated accordingly
Long press	Press the button and hold, when the hold time exceeds the setting time(generally 2 seconds), the function activated accordingly.

5. Basic function operation

5.1 Turn on/off the display

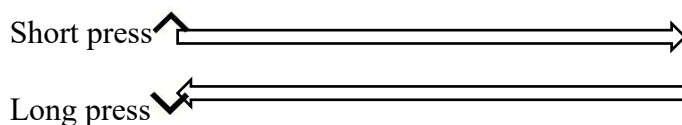
When display is connected to controller, long press  button, the display LED lights will blink at 0.5 Hz and following with display battery level. When display is on, long press  to turn off display. If the rider does not perform any operation on the display within set shutdown time,while speed is 0, and current is less than 1A, then display will be turned off automatically.


5.2 Assist level switch

Short press 、 buttons to switch assist level, and change assist mode, total 5 assist levels





LED steady blue lights means assist levels, and five lights means 5 levels




Switching level is not cycled, that is, after reaching 5th level, short press  button to return to


0 level. It's the same when adjusting up.


5.3 Light control function

In a power-on state, long press  button to turn on the front light, long press  button again to turn off front light.

5.4 Walk assist function

When speed is 0, long press  button to enter walk assist mode, motor output according

to the setting speed and control the actual walk speed, display shows full blue lights  and blink at

1 Hz. Release  button or any other button to exit walk assist mode, the motor is turned off, and the display gets back to the basic interface.

6. Error information

Display can warn bike faults. When faults are detected, LED green lights will be full on and flashing at 1Hz frequency.

Display interface as shown below:



:

7. Standard wires definition:

The standard outlet of display is in the form of Velofox's standard harness outlet with matching conversion wire. Velofox has set a corresponding standard for conversion wire length and pin definition standards. If the standard setting cannot be met, specially customized conversion wires are required.

Standard harness and pin definition:

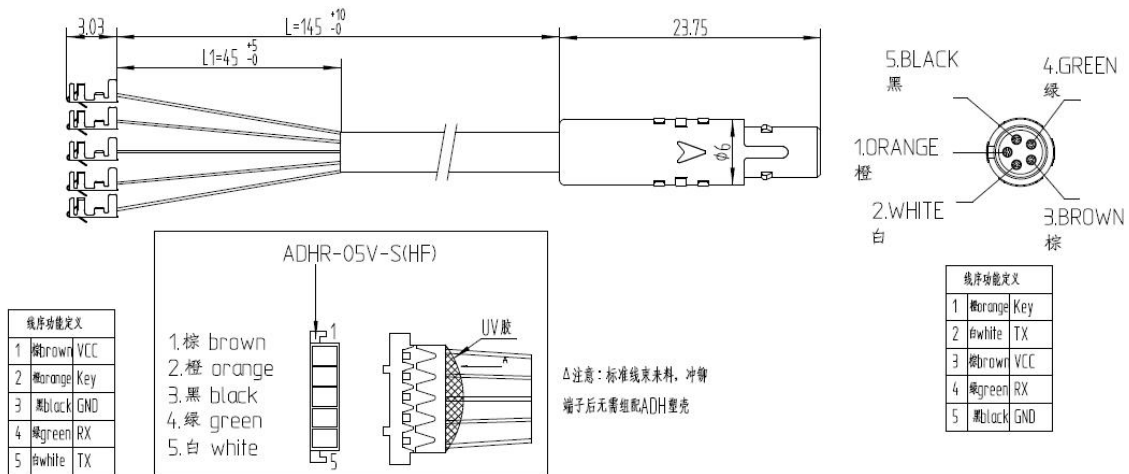
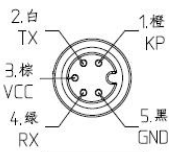


表 1 标配接插件线序表

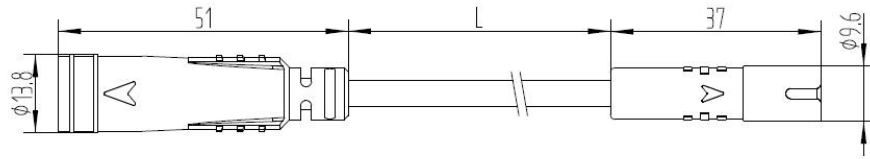
No.	Color	Function
1	橙色(KP)	Power lock control wire
2	白色(TX)	Data transmission wire of display
3	棕色(VCC)	Power wire of display
4	绿色(RX)	Data receiving wire of display
5	黑色(GND)	GND of display
6	空缺	reserve

11.2 Standard conversion wire specifications:

Adaptor-C2H:



线序功能定义	
1	#orange Key
2	#white TX
3	#brown VCC
4	#green RX
5	#black GND

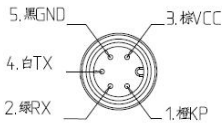


线序功能定义	
1	#orange Key
2	#white TX
3	#brown VCC
4	#green RX
5	#black GND

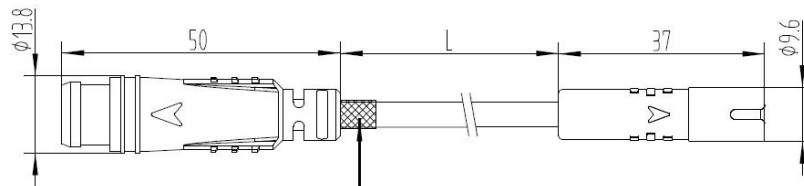
线长L允许根据客户订单调整, 优先选用推荐线长尺寸, 推荐规格如下:

L<mm>	50	100	150	350	550	650	850

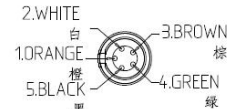
Adaptor-C2J:



线序功能定义	
1	#orange Key
2	#green RX
3	#brown VCC
4	#white TX
5	#black GND



△10mm白色热缩套管标记
Adaptor C2J



线序功能定义	
1	#orange Key
2	#white TX
3	#brown VCC
4	#green RX
5	#black GND

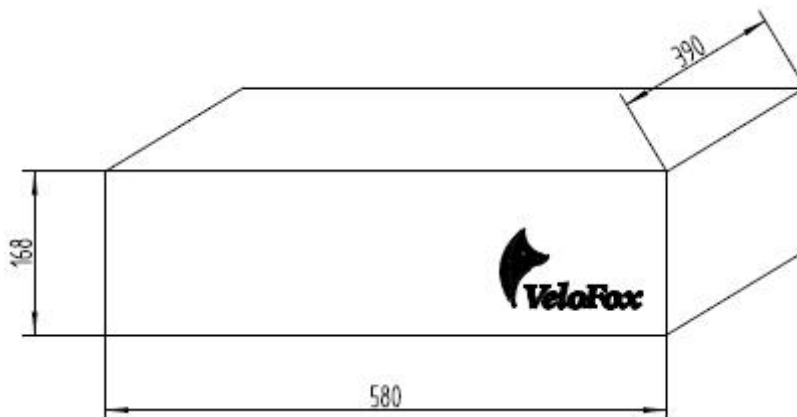
线长L允许根据客户订单调整, 优先选用推荐线长尺寸, 推荐规格如下:

L<mm>	50	100	150	350	550	650	850

C Package specifications

Standard delivery, in double corrugated box packaging. Inner layer is double corrugated septum plus EPE foam product bag.

Outer box size: 580*390*168mm (L*W*H)





D Note

- ✧ In the use of the display, pay attention to the security, do not plug the display in and out the when the power is on;
- ✧ Try to avoid exposure in harsh environments like heavy rain, heavy snow, and strong sunlight
- ✧ When the display can't be used normally, it should be sent to repair as soon as possible