Product number：DM 06

目录 contents

statement

This manual is the product function manual of KAABO products.It is part of the KAABO technical file.

Customers is allowed to adjust the functions of the KAABO display according to their needs,All descriptions in this file are for reference only, the final product is subject to the result confirmed with the customer. As a component unit of the human-machine interaction , the display has the function of interaction between the vehicle and the user. However, all interactive functions depend on the function definition and data support of the overall electrical system. The realization of some of the functions will depend on your scooter configuration.

If you have any questions about this manual, please consult KAABO sales or KAABO technical support.

Kaabo ® reserves all interpretation and explanation authority of this product manual.

宁波联拓思维电子科技有限公司

Ningbo Kaabo Technology Co.,Ltd

Product name and model

Electric scooter 3.5 inch IPS color LCD display

Model:DM06.KB

Product Introduction
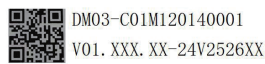
✧ 视窗采用进口钢化玻璃，2.5D 倒角加工工艺

Screen use imported tempered glass, 2.5D chamfering processing technology

✧ 高亮度 3.5 英寸高清高亮度全视角 IPS 彩色液晶屏

High-brightness 3.5-inch high-definition high-brightness full viewing angle IPS color LCD screen

✧ 采用特殊贴合工艺，确保户外使用的可视性

Use special bonding technology to ensure visibility for outdoor use

✧ 独立操作开关，按键结合人机工学设计

Independent operation switch, ergonomic design button

✧ 优异的户外防水设计，可达到 IP65 以上防水能力

 Reach IP65 waterproof

✧ 支持 Service Tool 功能，可快速实现固件升级及参数设置，方便维修服务

Support Service Tool function, can quickly realize firmware upgrade and parameter setting, convenient for maintenance service

Appearance and size

    The shell material of DM06 product is PC+ABS, and the screen use high-hardness imported tempered glass, combined with 2.5D rounded corner technology. The product is suitable for Φ 22.2mm, Φ 25.4mm, Φ 31.8mm horizontal pipes.
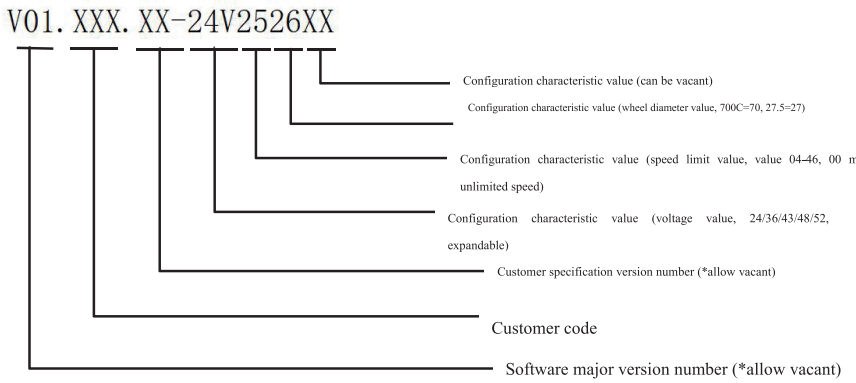
61 mm

14.5 mm

91 mm

73.5v ED 23:26 DUAL MOTOR

✕ ERROR

KICK START

25.0 KM/H

100%

ECO

TOTAL INFO **2357.9** KM

TRIP INFO **579.3** KM

SPEED INFO AVG 25.2 KM/T

125

01:32

MAX 58.5

Size：Φ22.2mm，Φ25.4mm，Φ31.8mm

Instrument coding rules

DM03-C01M120140001
V01.XXX.XX-24V2526XX

As shown in the diagram：

DM03-C01M120140001

Production serial number

Year and month of production

M0, M1，M2, M3

Manufacturer code   M0, M1，M2, M3

C-CAN, U-UART, Hardware versiona number, C-CAN,

U-UART, the last two digits represent the version

Product number
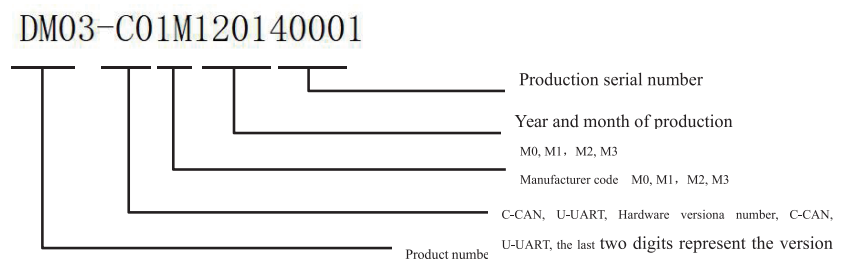
M0: on behalf of HW self-made

V01.XXX.XX-24V2526XX

Configuration characteristic value (can be vacant)

Configuration characteristic value (wheel diameter value, 700C=70, 27.5=27)

Configuration characteristic value (speed limit value, value 04-46, 00 means
unlimited speed)

Configuration characteristic value (voltage value, 24/36/43/48/52,
expandable)

Customer specification version number (*allow vacant)

Customer code

Software major version number (*allow vacant)

example：

DM06-C01M020340001

A08.01-36V2570

product manual

Specifications

① Power supply: DC 48/60/72V

② Rated working current: 42 mA

③ Shutdown leakage current: <1uA

④ Screen specifications: 3.5-inch IPS high-brightness and high-resolution LCD screen with a resolution of 320*480

⑤ Communication method: UART

⑥ Operating temperature: -10°C ~ 60°C

⑦ Storage temperature: -20°C ~ 70°C

⑧ Waterproof rating: above IP65

Functional Overview

① Single and double motor switching

② Cruise control

③ Support metric/imperial switch

④ Conventional display function, speed, mileage, power and other instructions

⑤ Fault code display, dual-motor controller working condition display

⑥ Parameter setting and advanced setting

⑦ RTC module, providing real-time clock display

⑧ Electronic brake

⑨ USB charging

Installation

① The instrument locking ring includes two sizes, A model is Φ31.8mm in diameter, and B model is Φ25.4mm in diameter. Please indicate the corresponding locking ring size requirements in the order according to the actual specifications of the horizontal tube.

(Tightening operation instructions: Adjust the meter to a suitable position, use M3*10 inner hexagon to fix and tighten the fixing screws, the tightening torque: ≤0.8 N.m.)

*Damage to the instrument caused by excessive torque is not covered by the warranty.

② Open the locking ring of the left key switch and then lock it on the left handlebar. Note that the middle instrument can be equipped with a left switch. Please refer to our product catalog for specific selection specifications.

③ Connect the switch outlet plug-in with the meter, as well as the meter plug-in and the controller docking connector according to the signs.

1 Button rules

1.1　Button name definition

Power button

Function switch

Adjustment button

USB socket
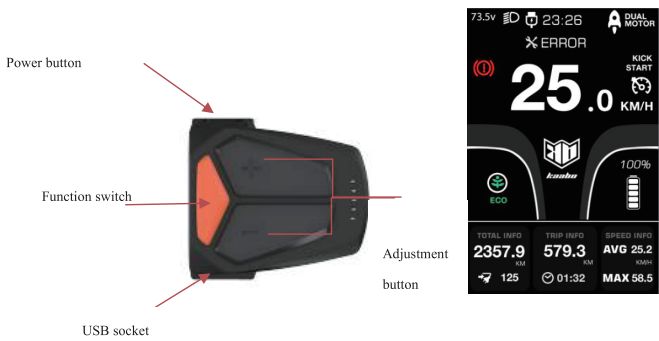
Power-on button: switch machine operation

Adjustment button: adjust the gear position during riding and cooperate with the function switch button for setting operation

Long press the adjustment button to perform the corresponding specific function operation

Function switch button: switch the function display interface and enter the parameter setting interface operation

USB socket: provide charging function

Button operation definition

| Operation type	description
Short press	Short press refers to pressing the button and then immediately releasing the button, and the corresponding function is triggered when the button bounces.

Long press	Long press means that the button is pressed and kept pressed. When the button is pressed for longer than the long press set time (usually 2s), the corresponding function is triggered.

2 Basic function operation

2.1 On/off

Keep the instrument and the controller in the normal connection state, long press ![key] key when the instrument is off, the instrument will display the startup logo interface when it is turned on, and then enter the basic interface normally and start to work; long press ![key] in the power-on state, the instrument will turn off. If the rider does not perform any operation on the meter within the set off time, and the speed is 0, and the bus bar current is less than 1A, the meter will automatically turn off within the set off time.

2.2 Boot interface

logo Boot logo   startup screen
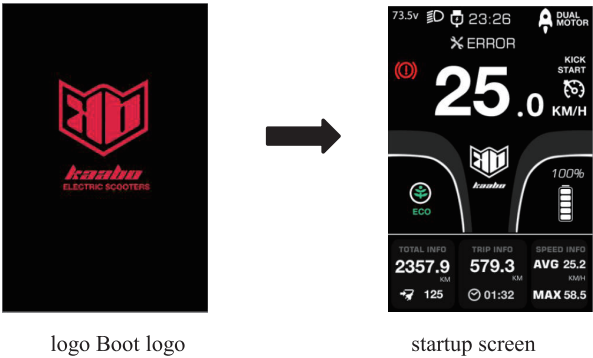
When power on, the boot interface will be displayed for 3 seconds. After the communication connection is established, the instrument enters the main interface display state, and the instrument uses the information obtained from the controller communication for actual display. (The displayed data information is executed according to the communication protocol provided by the customer)

3 Basic interface and operation butto

3.1

Boot interface and basic function interface

| Boot interface | Basic function interface |

USB charging · RTC clock · Light on/ff · Single/dual motor · Brake failure · Kick start · Eco mode · Cruise mode · speed · Number of gears · battery power · Riding statistics display
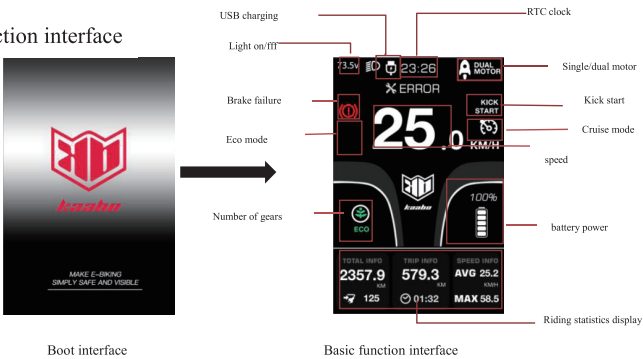
After booting, the boot logo interface will be displayed for 3 seconds. After the

instrument establishes communication and obtains information normally, it enters the normal riding display interface.

The meter reads the relevant information stored in the controller for display according to the communication protocol, reads the battery BMS information for display, and displays the rest of the information in real time.

The basic function interface includes real-time speed, power information, gears, clock information, light on instructions, single and double motor modes, USB charging, cruise mode, slow start, brake status, eco energy-saving mode connection status, and cycling statistics display.

4 Basic operation

4.1 Gear shifting

In the power-on state, operate the up/down button on the main interface to increase or decrease the gear position.

4.2 Headlight function

In the power-on state, the lights are controlled by the light switch. The main controller detects the light-on state and returns the status value to the instrument. The instrument displays the headlight on icon in the upper left corner of the page according to the received communication data.

When the headlights are turned on, the brightness of the instrument backlight is

reduced by half.
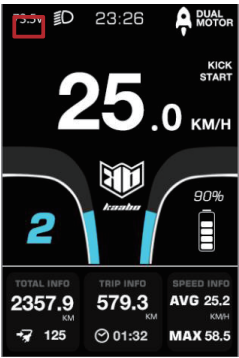
4.3 Information switching page

　　In the power-on state, short press the M button on the main page to switch to the information page (the indicator is in the status display area at the bottom, and according to the feedback value of the controller, the front/rear motor on status, temperature status, abnormal status and current status are corresponding to the attributes value)
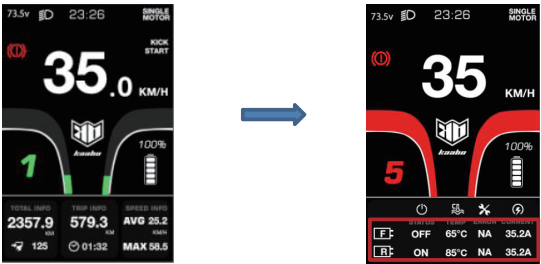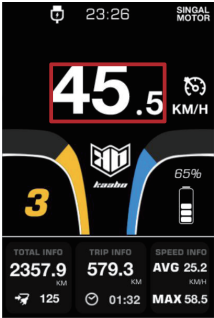

5 UI introduction

5.1 Speed

According to the data returned by the controller, the real-time vehicle speed is displayed, and the unit defaults to KM/H (the unit can be modified through user configuration).

5.2 USB charging

When the USB interface is connected to the device for charging, the controller returns to the charging indication state, and the meter displays the charging icon on the top after receiving the status command.
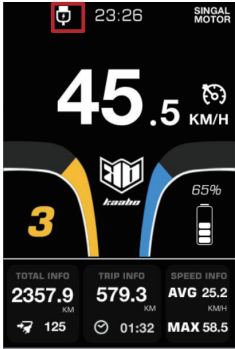
5.3 time

The meter can display the current time. The current time can be set and modified through the setting interface.
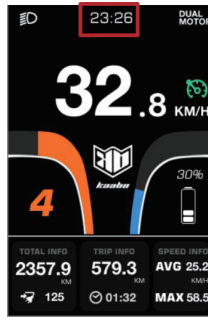
5.4 Single motor mode

The instrument defaults to the single-motor mode. In the single-motor state, only the rear-wheel motor is turned on to work, and the single-motor working instrument displays on the upper right corner .
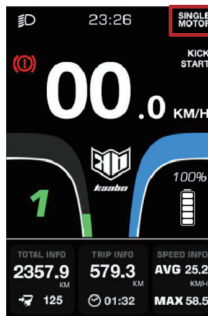
5.5 Dual motor mode

The icon in the upper right corner of the meter lights up after the dual motors are turned on

In the single-motor working state of the meter, press ⌃ and hold the key to turn on the dual-motor mode, and the controller will receive the command to turn on the

front-wheel motors, and the upper right corner of the meter will display.
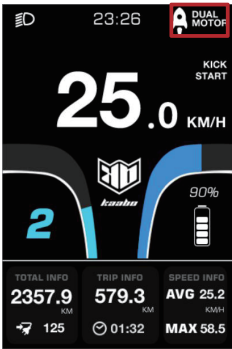
5.6 Brake state

After the user operates the electronic brake, the controller receives the brake status signal, cuts off the power supply of the motor and feeds back the brake status value to the meter, and the meter displays after receiving it.

5.7 eco mode

When the current gear of the instrument is in gear 1, short press to enter the eco gear, the on display is on , and the energy saving mode can be exited by changing the gear.

5.8 Cruise mode

There are three modes for defining the cruise state of the vehicle: OFF/AUTO/MANUAL. The user can enter the advanced setting menu to select the corresponding cruise function state.
OFF state: The cruise function is turned off. When the OFF option is selected in the advanced settings, the cruise is turned off (the system defaults to OFF), the user cannot trigger the cruise at a constant speed, and the screen does not display related icons.

AUTO state: automatic cruise state. After the user selects the AUTO mode, the meter will display a white auto cruise icon when it is turned on; in the automatic cruise state, the speed of the car is controlled by the handlebar, and the controller automatically judges whether it enters the cruise state. When the vehicle speed is stable and enters the cruise state, the instrument displays a green cruise control icon.

MANUAL status: Manual cruise status. After the user selects the manual mode, the system enters the endurance function manual control status, and the instrument displays a white icon. In the manual control mode of cruise control, if you press and hold the key, you can directly enter the cruise control mode. The cruise speed is set at the current operating speed, and the instrument displays a green cruise control icon.
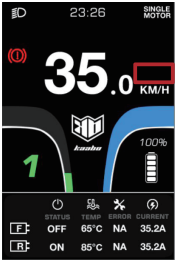
In the cruise state, exit the cruise condition:
1. The user turns the handle, and the controller detects the voltage change of the handle and exits the cruise state.
2. The user operates the electronic brake, and the controller detects the brake state and exits the cruise state
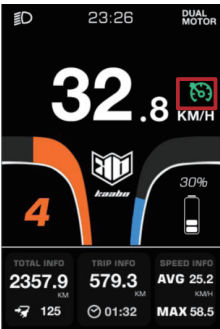
5.9   Cruise mode-without set the cruise mode

5.10 kick start

When the user sets the "KICK START" option in the first-level setting menu to the ON value (the system defaults to ON), the system enters a non-zero start state, and the instrument interface displays![KICK START icon]. In the non-zero start state, the whole vehicle needs to be at a speed greater than zero. In order to allow the user to start through the handlebar; in the zero start state (when KICK START is OFF), the user is allowed to directly turn the handlebar to start at zero speed.
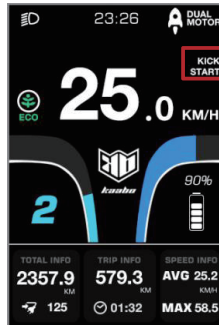
5.11 Power-on password

The password setting functions are divided into "GREETING" and "ADVANCED SET" (default OFF, if not set, the default password for advanced settings is "1500"), and select "ON" in the "GREETING" and "ADVANCED SET" menus to turn on either , The other is also turned on by default with the same password. Similarly, one of them is turned off by selecting "OFF", and the other is turned off by default.

5.12Power display

The screen displays the battery information returned by the controller, and the

screen displays the corresponding power bar according to the battery capacity
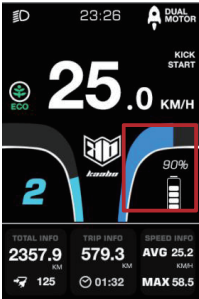
The corresponding table of battery capacity percentage and power display icon is as follows (need BMS or controller to provide power percentage):

Remaining battery percentage information	Battery indicates	explanation
80% ≤ SOC		Show full grid (5 grids)
60% ≤ SOC ＜ 80%		Show 4 grids
40% ≤ SOC ＜ 60%		Show 3 grids
20% ≤ SOC ＜ 40%		Show 2 grids
10% ≤SOC ＜ 20%		Show 1 grid
5% ≤ SOC ＜ 10%		Show 0 grid
0% ≤ SOC ＜ 5%		show 0 grid, and the battery symbol 1Hz flashes

5.13 Average speed, maximum speed

After the meter calculates the speed of motor rotation, the controller reads back to the meter, and records TOTAL, TRIP, AVG, MAX, and riding time respectively.
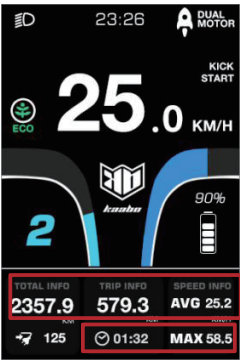
5.14 Fault information display

The instrument can prompt and warn the failure of the whole vehicle. When the fault is detected, the interface of the instrument will display the fault code and flash at 1Hz. When a fault code appears, the key function of the instrument is not affected, that is, when the fault code is displayed, the key operation can return to the normal display interface. If there is no key operation, the meter will return to the fault code display after 5S, and the error code interface will display as follows:.
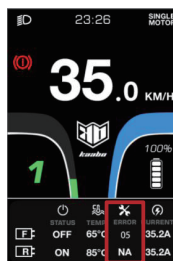
error code	Failure description
Display 1 at the bottom of the information switching page	Motor phase loss
Display 2 at the bottom of the information switching page	Hall fault status
Display 4 at the bottom of the information switching page	Handlebar failure status
Display 5 at the bottom of the information switching page	Undervoltage protection status
Display 6 at the bottom of the information switching page	Controller failure status
Display 7 at the bottom of the information switching page	communication fail
Display 8 at the bottom of the information switching page	Over temperature protection

error code	Failure description

Display 30 at the speed area	Instrument communication failure

5.15 Riding information clear

10s after the meter is turned on, long press the M button to pop up the subtotal mileage clearing prompt on the page, select YES to clear the subtotal mileage, riding time, average speed, and maximum speed (retain total mileage and number of charges).
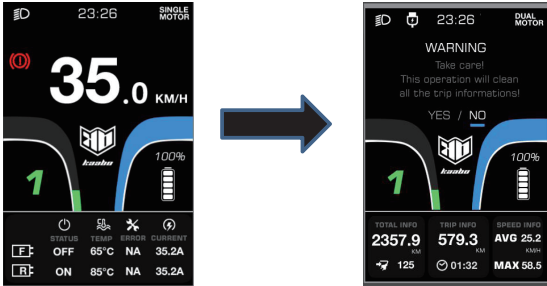
5.16 Current display voltage

The top left corner of the instrument shows the voltage V currently supplied to the instrument.

5.17 Number of display charging times

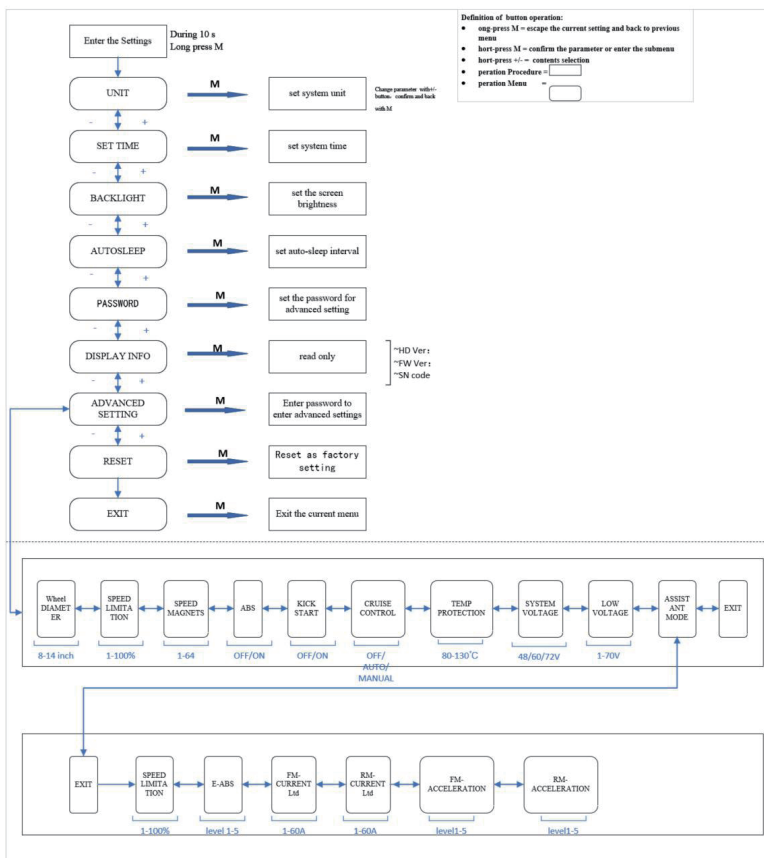The lower left corner appears ，Overlay statistics the number of instrument charging, with full charge once.

6 User configuration

The user configuration functions are as follows, divided into a first-level menu and a second-level menu.
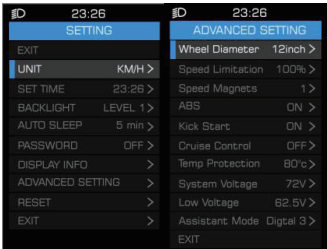
Schematic diagram of setting menu directory

Enter the Settings → During 10 s Long press M

UNIT — M → set system unit — Change parameter with +/- button, confirm and back with M

SET TIME — M → set system time

BACKLIGHT — M → set the screen brightness

AUTOSLEEP — M → set auto-sleep interval

PASSWORD — M → set the password for advanced setting

DISPLAY INFO — M → read only — "HD Ver: "FW Ver: "SN code

ADVANCED SETTING — M → Enter password to enter advanced settings

RESET — M → Reset as factory setting

EXIT — M → Exit the current menu

Wheel DIAMETER ↔ SPEED LIMITATION ↔ SPEED MAGNETS ↔ ABS ↔ KICK START ↔ CRUISE CONTROL ↔ TEMP PROTECTION ↔ SYSTEM VOLTAGE ↔ LOW VOLTAGE ↔ ASSISTANT MODE ↔ EXIT

8-14 inch | 1-100% | 1-64 | OFF/ON | OFF/ON | OFF/AUTO/MANUAL | 80-130°C | 48/60/72V | 1-70V

EXIT ↔ SPEED LIMITATION ↔ E-ABS ↔ FM-CURRENT Ltd ↔ RM-CURRENT Ltd ↔ FM-ACCELERATION ↔ RM-ACCELERATION

1-100% | level 1-5 | 1-60A | 1-60A | level1-5 | level1-5

Method of operation

Long press the M key within 10s after the meter is turned on to enter the basic setting interface

In the setting interface, long press the M key to exit the setting page (or return to the previous menu)

In the setting interface, short press ⌃ ⌄ to select the menu (or parameter modification and edit), and short press the M key to enter the menu (or confirm the state that needs to be changed)