**User Guide**
**Keypad K8 Open**


**Release 1.02**

# 1 – Introduction



**Keypad K8 Open** features 8 pushbuttons whose status is transmitted through the CAN bus. Both buttons and CAN Messages are fully configurable through the USB connection using AiM RaceStudio3 Software.

Each button can be set as:

- **Momentary**: the pushbutton status is ON when the pushbutton is pushed
- **Toggle**: the pushbutton status changes from ON to OFF each time the pushbutton is pushed
- **Multi-status**: the pushbutton value changes from 0 to a MAX Value each time the pushbutton is pushed.

Furthermore, you can define a time threshold for each button that defines different behaviours when SHORT or LONG pression event is detected.

Each pushbutton can be enlightened in a different colour, in solid, slow or fast blinking mode.

It is also possible to define a CAN INPUT protocol, to allow using the individual colour not only to acknowledge a button pression event but also to show the status of a device.

Finally, it is possible to configure a pushbutton for incrementing or decrementing the brightness level of the keypad.
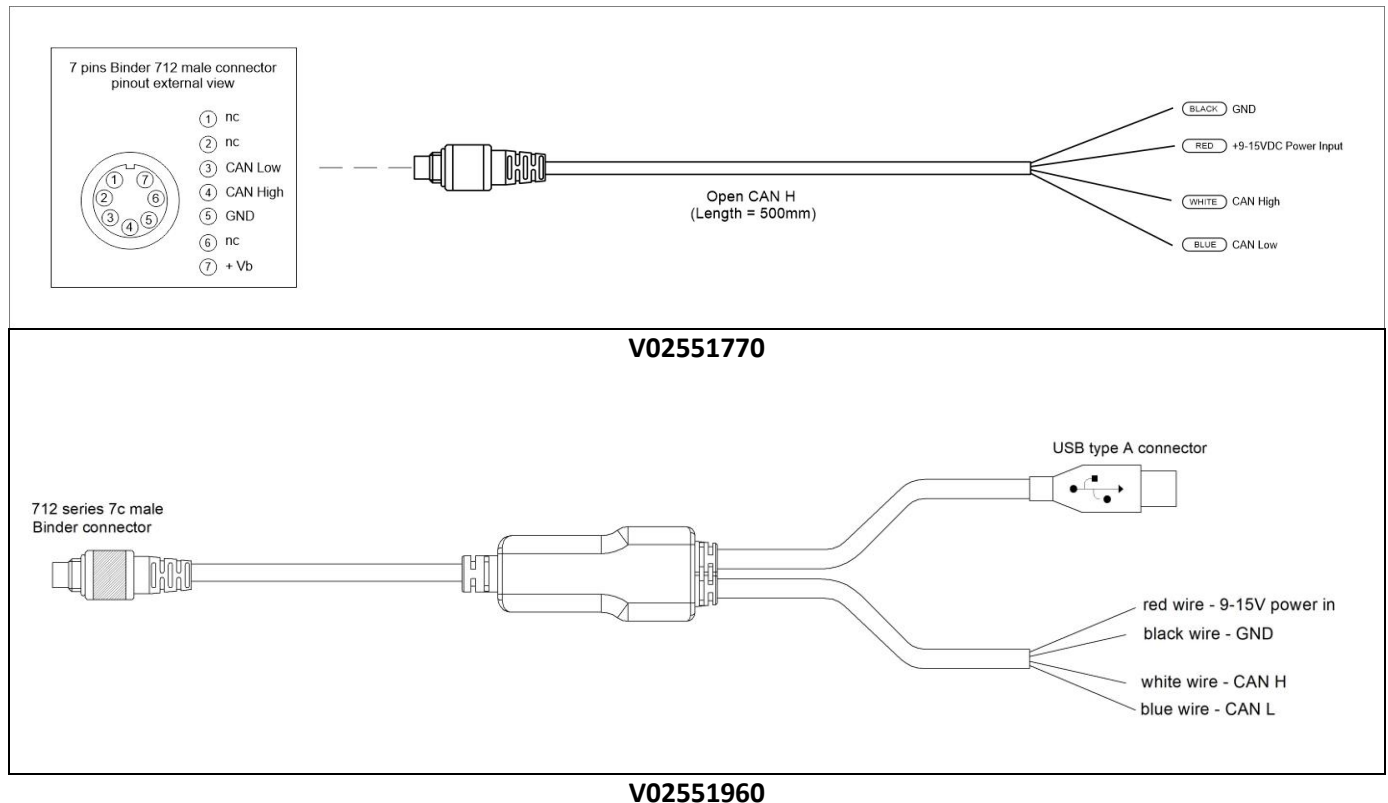
# 2 – Wiring

The Keypad K8 features with **2 cables**, shown here below, whose part numbers are:
• CAN harness to connect to an external master; part number **V02551770.**
• **optional** USB harness to connect K8 Keypad to the PC to configure the device; part number **V02551690.**

Here below they are shown with their pinout.



V02551770



V02551960

**Attention!** You can use the cable V02551690, here down, for transmitting the configuration to your K8, but, since it does not support the external power, the LEDs remain OFF



V02551690
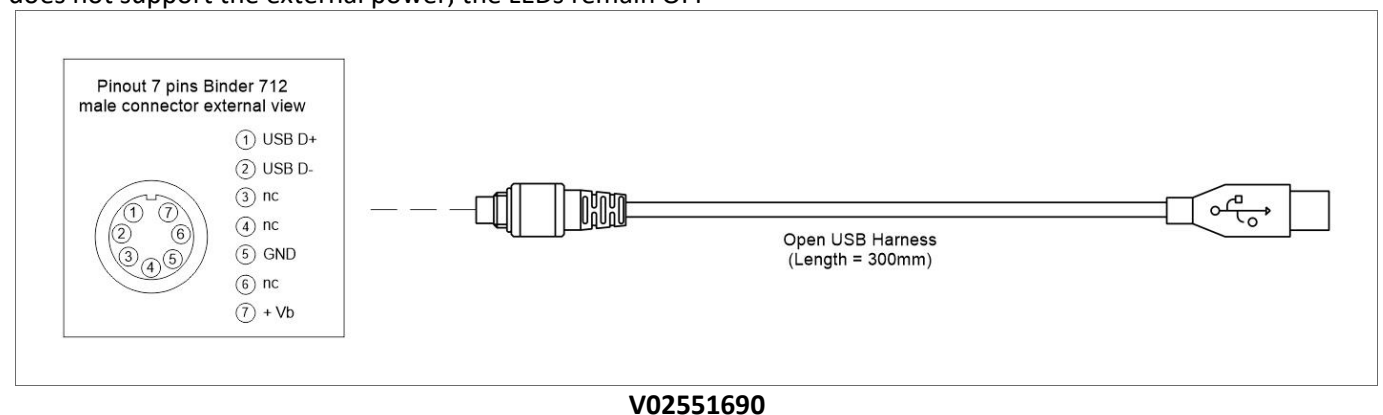
# 3 – Software configuration

For configuring K8 Keypad please download AiM RaceStudio3 software from AiM website:

AiM - Software/Firmware download (aim-sportline.com)

Once the software installed run it and follow these steps:
- enter Configuration Menu clicking the icon highlighted here below.



- Press "New" button (**1**) on the top right toolbar
- scroll the panel that is prompted, select K8 "Open" (**2**)
- press "OK" (**3**)
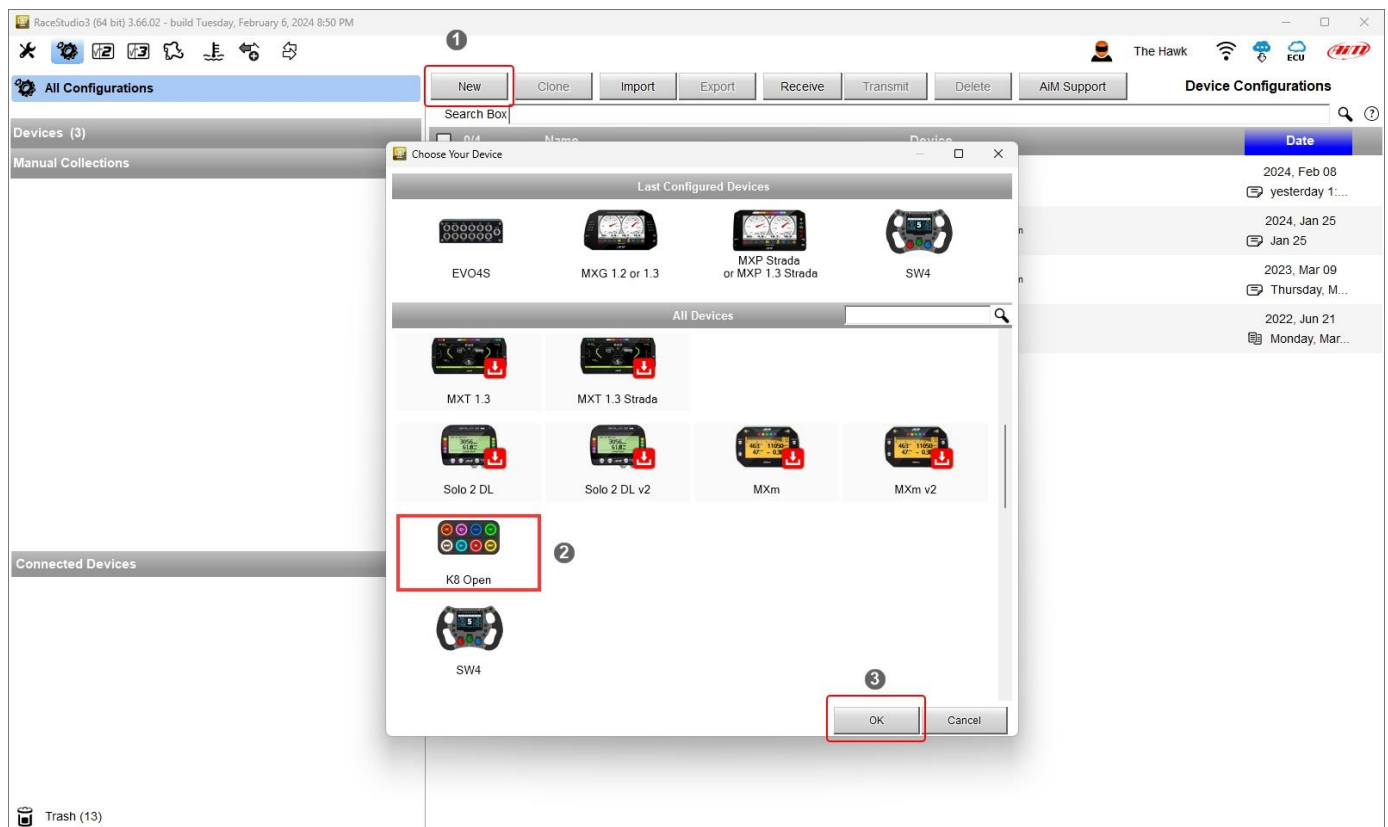


You need to configure:
- pushbuttons.
- CAN Input protocol.
- CAN Output messages.

## 3.1 – Pushbuttons configuration

Some quick notes before we start analyzing how to configure the Keypad:
- the pushbuttons status can be set as Momentary, Toggle or Multi-status as explained in paragraph 3.1.1;. it is moreover possible to set a time threshold to manage short and long buttons pressures in different ways.
- pushbuttons status can be transmitted through CAN at a fixed frequency and/or when it changes.
- the status of each pushbutton at power OFF can be restored at the following power ON.
- each pushbutton can be enlightened – solid or blinking – in 8 different colors as explained in paragraph 3.1.2
- K8 Open Keypad can manage a CAN INPUT protocol in order to give a feedback, trough the K8 LEDs color, based on the information it receives.
- it is possible to configure a pushbutton for incrementing or decrementing the LEDs brightness level.
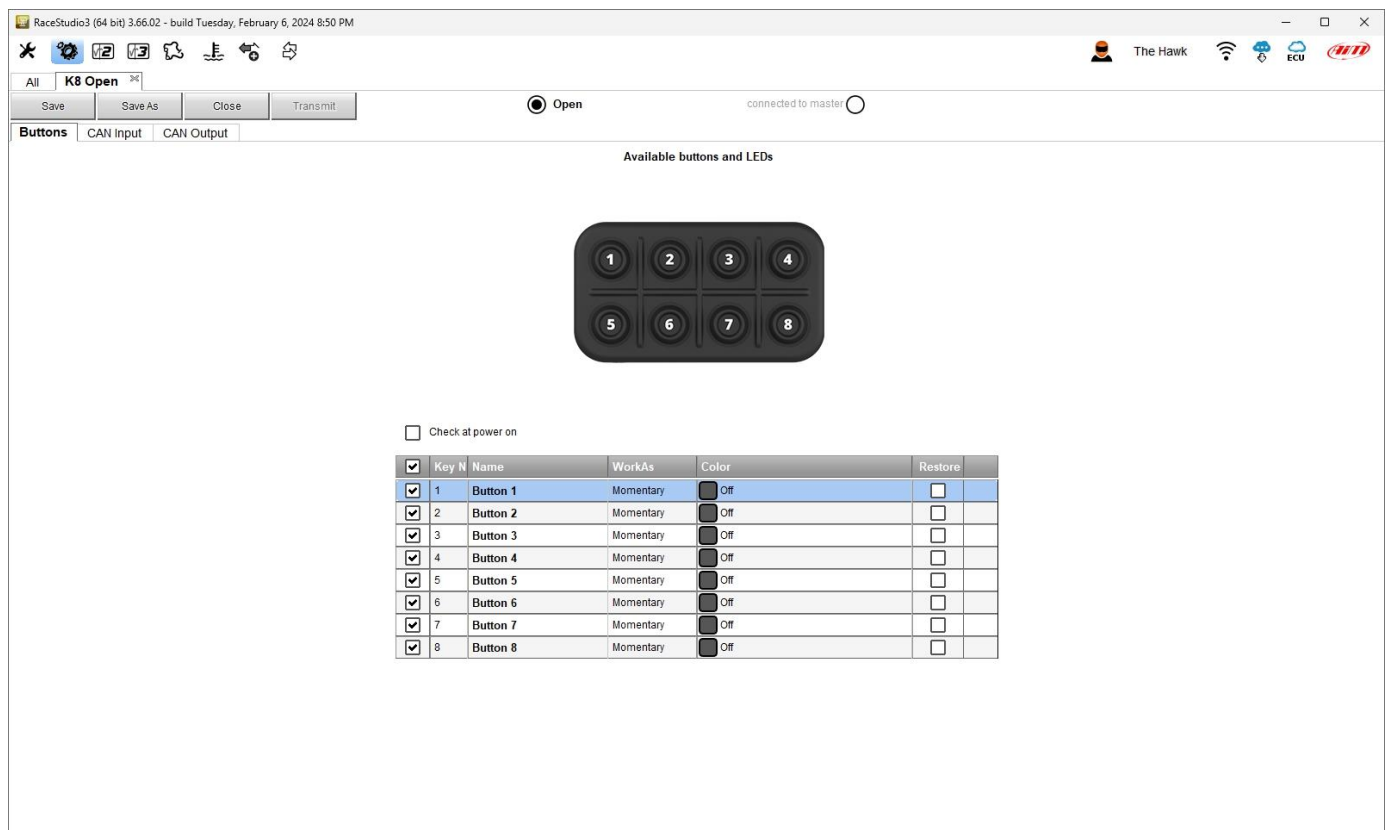


## 3.1.1 – Pushbuttons status configuration

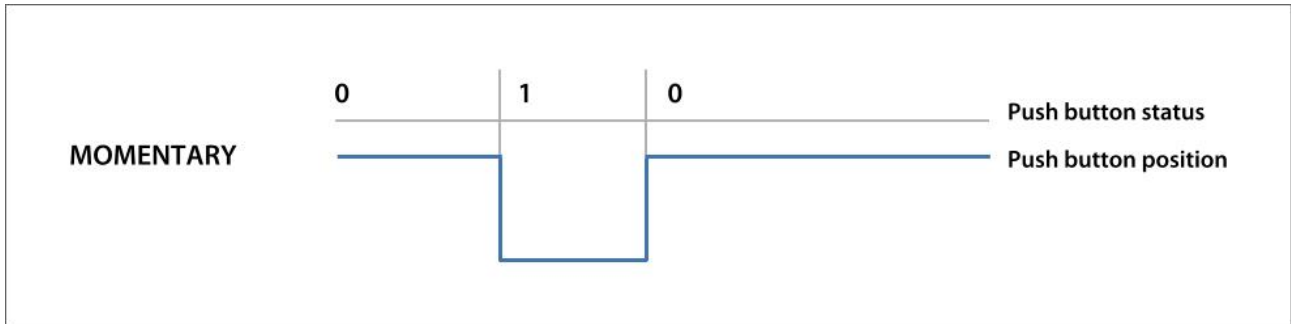You may set different modes per every pushbutton:

**Momentary**

the Status is:
- o ON when the pushbutton is pushed

o    OFF when the pushbutton is released.

**B**oth Status ON and OFF can be freely associated to a numeric value
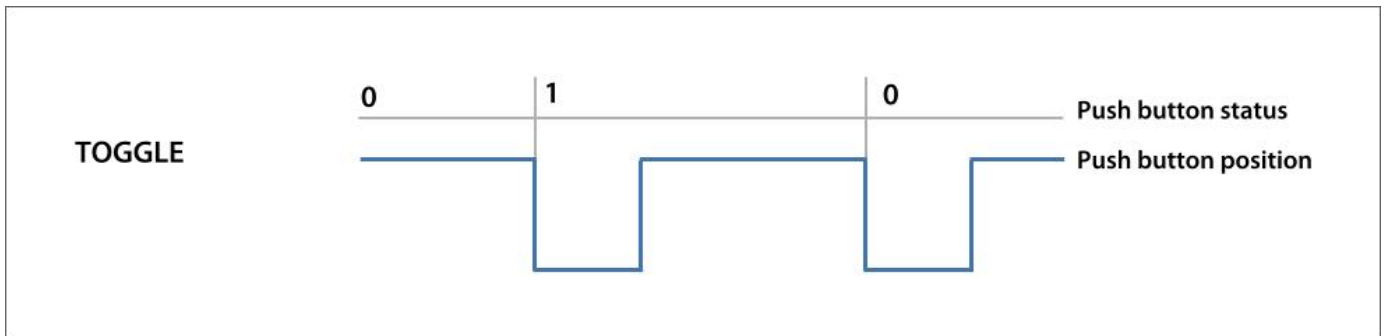


**Toggle**

Setting the pushbutton as **Toggle**, the Status is:
o    ON when the button is pushed once, and it remains ON till when is pushed again.
o    OFF when the button is pushed the second time.

Both Status ON and OFF can be freely associated to a numeric value



**Multi-status**

Setting the pushbutton as **multi-status** the status may assume different values, that change every time the pushbutton is pushed. This setting is useful, for example, to select one among different maps or to set different suspensions levels etc.:
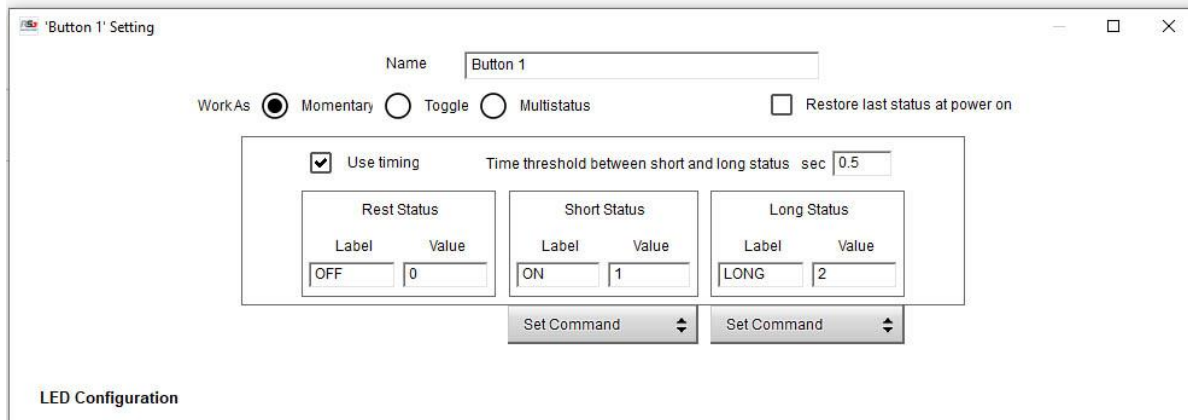
Finally, you can set a time threshold: in this case, the pushbutton is set at two different values, that you may define, in dependance upon how long you push it.
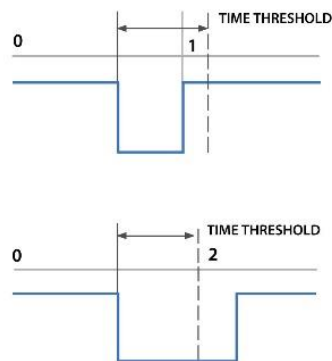


To do so enable "use timing" checkbox on the top box of the setting panels. In this case the pushbutton is set at two different values you may define according to how long you push it.

## 3.1.2 – Pushbuttons colour configuration

Each pushbutton can be set with different colours to indicate the action performed by the driver and the feedback of that action: the pushbutton may be turned – for example – blinking (slow or fast) GREEN to show that the pushbutton has been pushed, and solid GREEN when the action is activated.
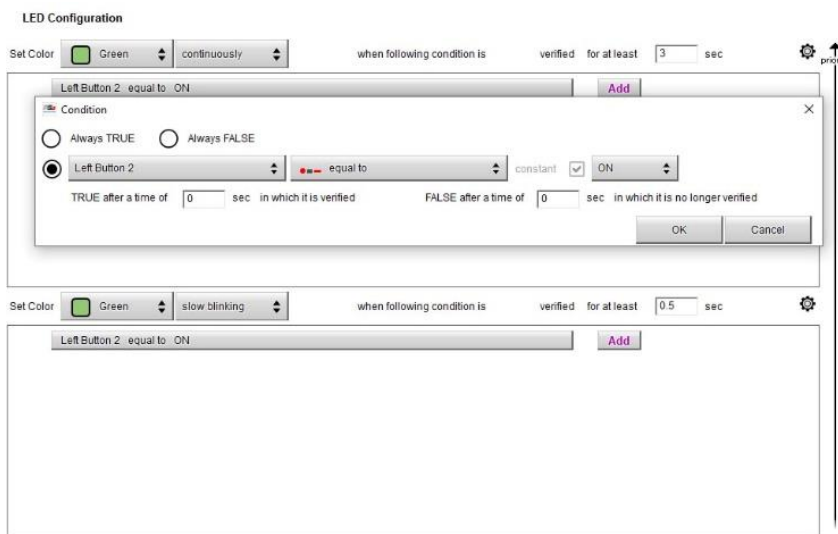


## 3.2 – CAN Communications

It is possible to configure both the Output CAN messages, used for transmitting the Status of the Pushbuttons and the CAN Input messages, used for receiving feedback from the field entering the related tabs shown here below.

## 3.2.1 – CAN Output messages configuration

K8 Open keyboard can send all the messages you like, and each message can be transmitted at a fixed frequency or whenever there is a change in the fields transmitted. You can, for example, transmit a message every time a pushbutton changes status or/and every second.
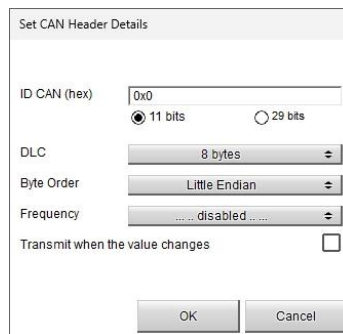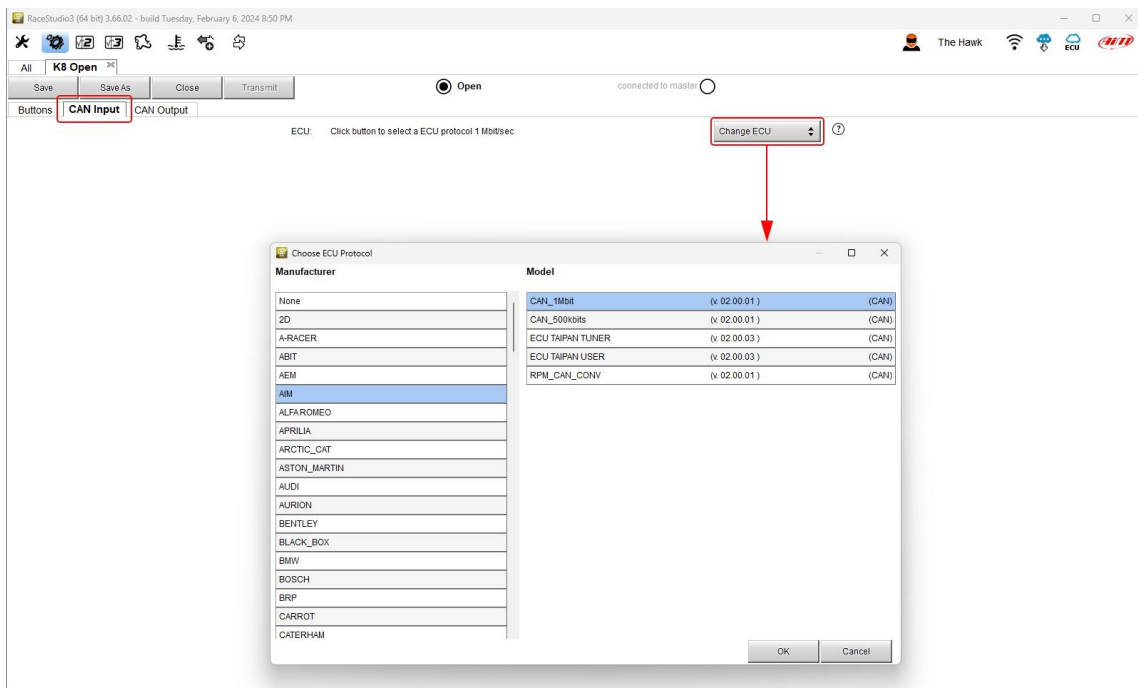


Please, refer to the following document:

FAQ_RS3_CAN-Output_100_eng.pdf (aim-sportline.com)

for reading the information you need for configuring a CAN message.

## 3.2.2 – CAN Input messages configuration.

The CAN input protocol is a bit more complex to manage: the Keypad is supposed to be connected to a CAN network, were more devices share their status and channels and can read this information for giving the driver the status of the device that a pushbutton has to activate. In order to read the CAN messages, you may select the proper protocol, if available in the protocol list.

Else, you can configure your custom protocol, using the CAN Driver Builder.

Please, refer to the proper documentation:

CAN_Protocol_ECU_CAN_Builder_102_eng.pdf (aim-sportline.com)