



# Installation Guide Golf MK1/MK2 MFA2.0

## Preface

Thank you, for purchasing the “MFA 2.0” to install in a Golf MK1/MK2 instrument cluster. Now high tech is entering your car.

During development, we put high effort into fitting accuracy and quality. The MFA has been tested and test fitted by several people and will be steady improved, so you will have no problems during the modification of your instrument cluster.

In spite of our great care and tests it can happen that unpredictable difficulties or problems may occur. This may occur due to many different versions of instrument panels, which cannot be considered upfront. On the other hand, a very limited space is available for our MFA2.0. So please apologize these factors.

If you have any feedback, criticism or change request, do not hesitate to get in contact with us at [info@canchecked.de](mailto:info@canchecked.de).

## Required Tools

- Phillips screwdriver small
- Slotted screwdriver small
- Duct tape
- Instant adhesive

## Advices

The retrofit set is a very sensitive electronical device. Please use a antistatic mat and wrist band to avoid any damage to the device itself. Avoid pressure or touching the OLED screen. This may lead to defects or faults in displaying your data.

CANchecked does not assume any liability for this modification or any damage during modification or during operation. This installation guide has been put together with the best of our knowledge and belief.

## Installation

### Preparation



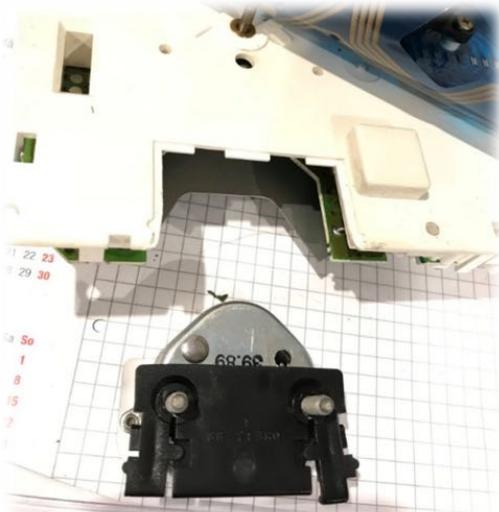
- remove 8x phillips screws (red)
- remove plug from suppressor
- remove 2x phillips screw (green) from GALA-sensor
- remove GALA sensor
- remove 3 lightbulbs
- remove 3 hexagon screws (yellow) from RPM gauge
- remove 2 hexagon screws from fuel gauge (yellow)
- remove pressure sensor (yellow)



- bend flap from main connector and unlatch it



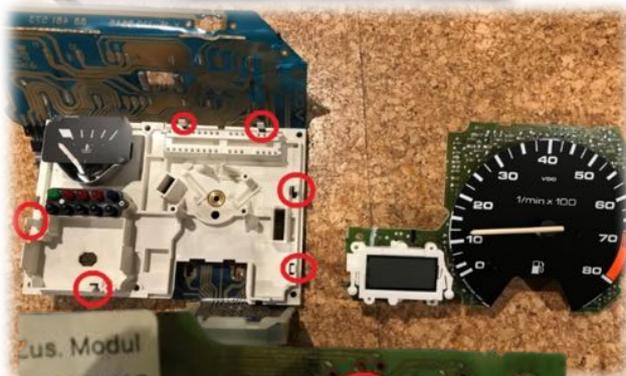
- remove speed and RPM gauge from case



- to hook off fuel sensor, pinch latch balls



- remove two slot screws (yellow) of the speedometer
- remove two slot screws (red)



- bend 6 snap arms and pull PCB – might be a little hard for the plug contacts



- remove two phillip screws in the backside (red)

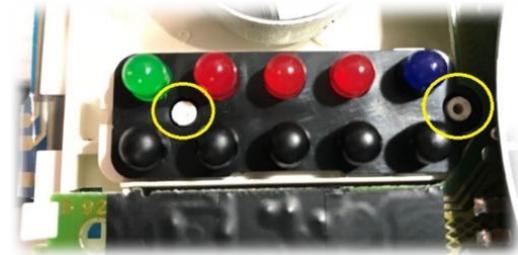


- Remove display from PCB
- Cover PCB with duct tape
-

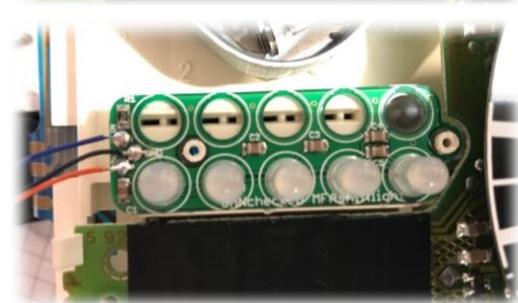


- push back RPM PCB into case
- tighten RPM with two screws as it was before
- Insert and tighten hexagob screws on backside
- Latch fuel gauge and tighten with two hexagon screws
- Insert map sensor and tighten with screws

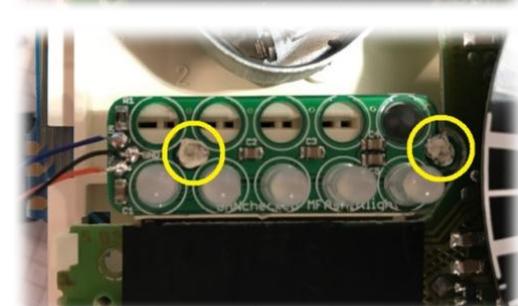
## Installation of shift light (optionally)



- Ream plastic bumps with a phillips screwdriver
- Lever black plastik and remove it
- Pull the five LEDs



- Put on LED PCB

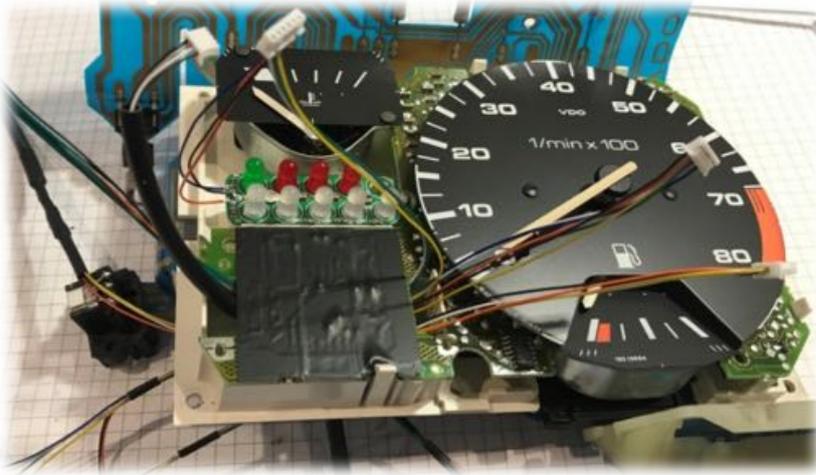


- Glue plastik bumps to lock the PCB into position
- Push in LEDs (green, red, red, red, white)



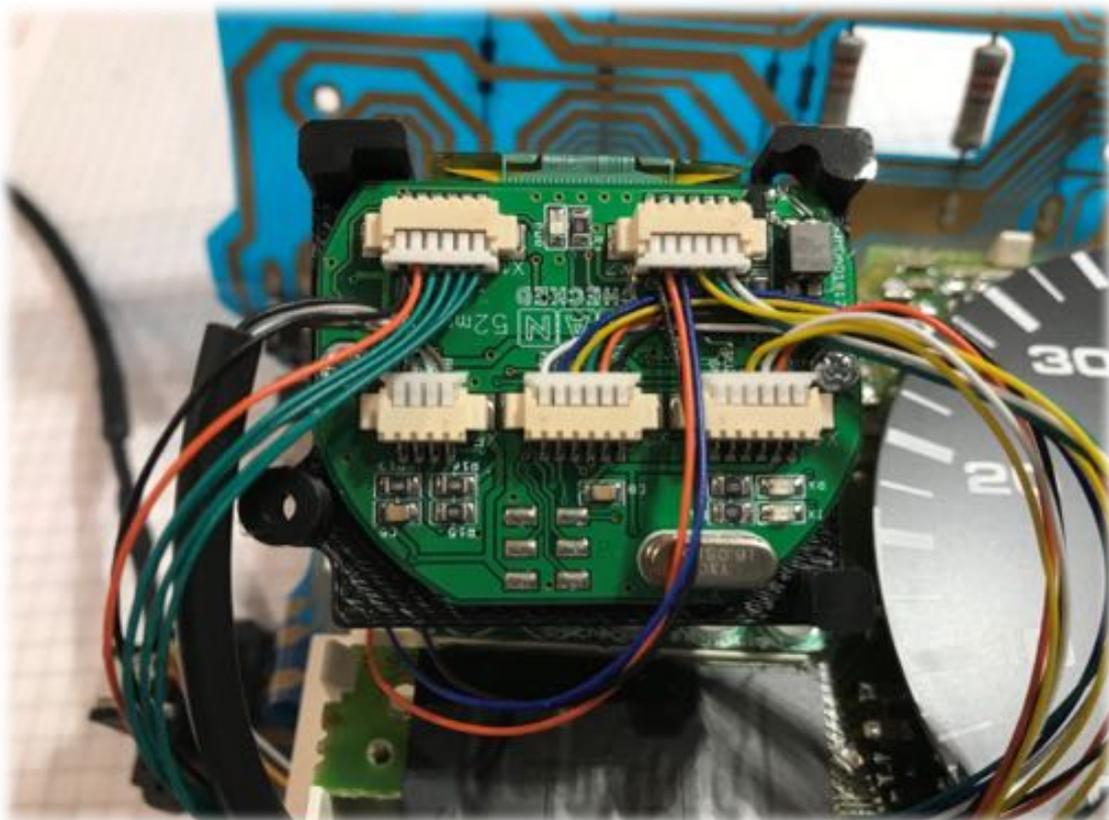
- Insert blue LED cover into instrument cluster and lock with some glue into position

## Installation MFA 2.0

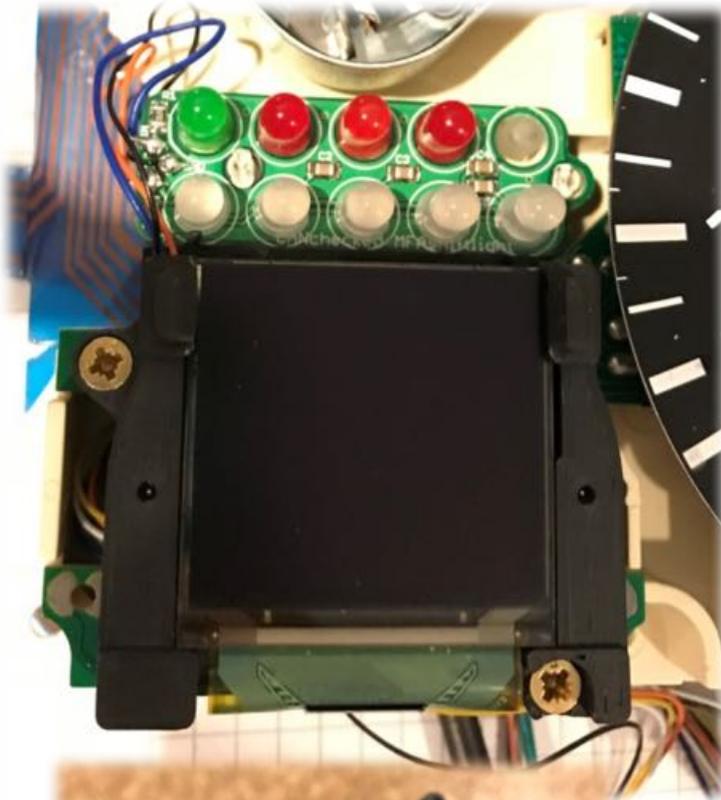


- Insert all 5 plugs from the backside through the old light bulb hole.

- Plug for analogue inputs and encoder needs to go left from PCB
- Plug for USB, MFA lever + power supply, shift light and CAN-Bus needs to go right
- Insert plugs as shown guide cables like in the picture below. No cables above any white plugs!



- If you ordered the shift light as well, please replace the can bus plug on the top right with the one from the shift light.



- Insert display bracket
- Make sure now cables are pinched between PCB and those white plugs.
- Tighten the display bracket with the provided screws.
- Insert the USB plug into your PC/laptop to check if display boots up.



- Install case of instrument cluster on the RPM gauge
- Use the provided spacers for all 8 screw connections between case and RPM/speedometer. This provides a little bit more space.
- Attach PCB foil to instrument cluster
- Insert light bulbs
- Latch connector

Next chapter will cover the electrical connection within your car Your instrument cluster should look like the pictures shown below.



## Electrical connection

### Power supply:

Red cable = switched positive (12V) – use a 5A fuse (not included)

Black cable = Ground

### CAN-Bus connection:

White cable = CAN High

Yellow cable = CAN Low

Green Kabel = CAN-BUS termination 120 Ohm

If the CAN-Bus termination needs to be activated within the display, please connect the green and white cable together and connect them both to the CAN High.

Most of the times there are no other devices in the CAN Bus available so the terminator needs to be set.

### Analogue Inputs:

Orange cable = 5V output

black cable = ground out

4x green cable = analogue inputs 1-4

### 4-terminal plug

to connect your original MFA lever

### Encoder

To change settings/views within the display

Press = Select the particular menu item

Turn left/right = up/down in the menu or change the particular value

### Micro-USB connection with update module

For direct connection to your PC/laptop for software updates.

## Startup

You need to connect the power supply to start the display. In addition, you need to connect the display to your CAN-Bus or to your analogue inputs. Both are optional. You can also run the display with analogue inputs only.

After powering up the display, you can see the start logo and the display will change to the last selected view.

If you press the encoder, the menu will show up. Turning the knob will select the other views or lead you to the setup ("stp"), after confirm with e second press.

First of all you should go tot he Setup („stp“) => „options“ => „CAN type“ and select the desired protocol: tirjekt, AIMRev6Typ2, Megasquirt2, Ecumaster, KMS, VAG. If the appropriate protocol is not included, please drop as an email ([info@canchecked.de](mailto:info@canchecked.de) ). The CAN-Bus speed is set to 500kbps. Protocol and speed need to match to get the display working.

All other settings can be left default for now.

Behind the menu "sensors" are all sensors which have been implemented. Here you can change all minimum and maximum vales. When exceeding these limits an alarm can be generated – either by popup or just a small yellow triangle at the top right of the screen.

"Update" is for firmware updates of the display.

„Reset“ puts all settings of the display back to default.

In the gauge on the top right you can find a tiny RED pixel. If the display receives data from the CAN-Bus it starts flickering red/green. If no messages are received it's steady red. This can be due to no CAN-Bus connection, Can-Bus within your ECU has not been activated or CAN-Bus termination (see chapter electrical connection) is wrong.

## Operation

The operation of the display is done with the encoder – see chapter startup.

Sensors and views are changed with your original MFA lever. The switch selects the lower or upper area of the screen. The lateral switch does the changes.

## Analogue Inputs

Additional four 0-5V sensors can be connected to the display. On our homepage at [Downloads](#) is a list of tested sensors. Of course all other sensors with 0-5V output can be connected as well.

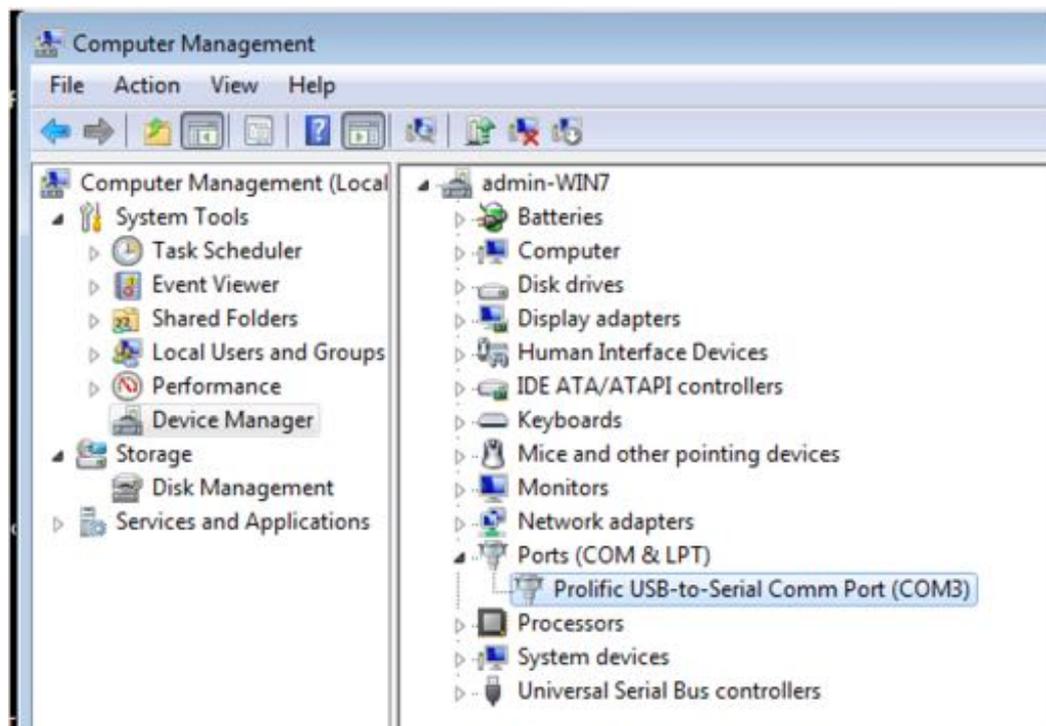
In the “sensors” section of the display the sensor can be mapped to its real values. Please use the datasheet of your sensor to get the 0V and 5V values to enter them into the display.

## Updates

If new updates are available the customer receives them from CANchecked directly.

To update the display please use these steps::

- 1) Install driver: [http://canchecked.de/updater/PL2303\\_1181.zip](http://canchecked.de/updater/PL2303_1181.zip)  
Download software: [http://canchecked.de/updater/CANchecked-52mm-updater\\_basic.zip](http://canchecked.de/updater/CANchecked-52mm-updater_basic.zip)
- 2) Disconnect display from car
- 3) Connect display to USB port of your PC/laptop
- 4) Make sure a COM port is found (see screenshot)



- 5) Start Update software, choose the COM port and leave baud rate at 115200
- 6) Use the encoder to go to menu „update“ and choose it
- 7) Click „Start Bootloader“ on your PC/laptop => the button turns green after successful connection – may be you need several retries.



- 8) „Select Hexfile“ => choose HEX Datei (received from CANchecked)
- 9) flash the display with „program flash“
- 10) „Exit Bootloader“
- 11) disconnect display and reconnect it – the new software has been loaded