Introduction

Thanks for purchasing PolarFIS, along this manual you will learn all functions of your new PolarFIS device.

PolarFIS **will register itself automatically** into the Gateway module, so it is not necessary to do it with any diagnostics tool. Due to some parameters are read using diagnostics communication, please do not connect any diagnostics tool or gauge to the vehicle OBD-II port while FIS screen is displaying PolarFIS menu. In case that you want to use OBD-II port, please prior to do that exit from PolarFIS screen in example to MFD screen, if you do not do that, it will resume in communication faults in diagnostics tool as well as in PolarFIS, and a reset can be necessary, also diagnostics tool will be unable to connect to vehicle. If you equipped PolarFIS in a MQB vehicle (PolarFIS PF05 model), before use any diagnostics tool, switch off your device or will generate communication faults too.

Due to hardware requisites, PolarFIS is placed between gateway and Infortainment bus, so if you want to remove PolarFIS from your vehicle, be sure to remove its cable as well, or it can cause battery drainages.

First of all, you must know that **exists different versions of PolarFIS** (PF03, PF04 and PF05 units), so it will be possible that you see in this manuals some options or menus that can not be available for your PolarFIS model.

Depending of which PolarFIS model and cluster type, PolarFIS menu will appear in different places:

- **PolarFIS PF04** (Red cluster) - New menu called "POLAR FIS" will be created
- **PolarFIS PF04** (White and Color cluster) - PolarFIS screen will be shown in the telephone menu
- **PolarFIS PF04** (Audi 8P and 8J) - PolarFIS screen will be shown in the audio menu
- **PolarFIS PF05** (FIS and Virtual Cockpit cluster) - PolarFIS screen will be shown in the audio menu

If you want to Access to the OEM hands free unit menu, from the Telephone menu displaying PolarFIS, press and hold the OK button of the multifunction steering wheel or wiper stalk until the Main menu screen appears, from this screen choose the Bluetooth option, and you will be in the OEM Hands free menu, to go back to PolarFIS menu, exit as normal from OEM Hands free menu, and you will go back in Polar FIS. At last, if you make or receive a call, the OEM Hands free menu will automatically prompt as before install PolarFIS.

In this image you can see how appears PolarFIS device in different FIS clusters (displays)

Red dot FIS | White dot FIS | Color dot FIS | Red dot FIS (A3 8P) | White dot FIS (A3 8P)

Configuration menu

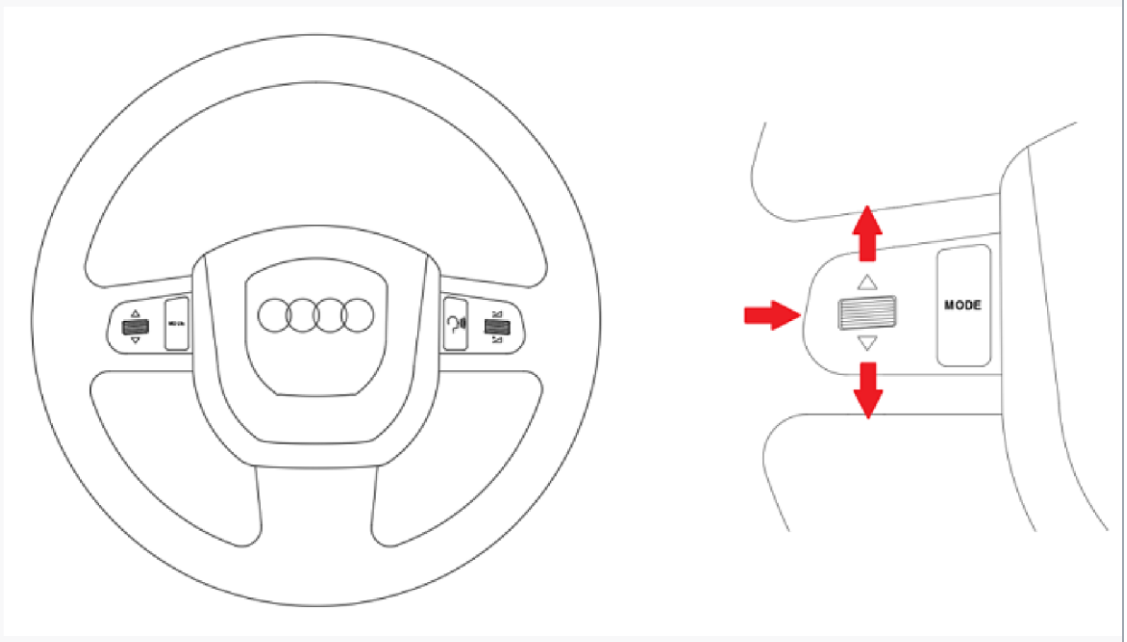
To access PolarFIS configuration menu, press and hold the OK button in the multifunction steering wheel or wiper stalk, and after a few seconds, the next screen will be displayed in your FIS:

In the top of the screen is always signalized the menu name, in this example, you can read Main menu, this means we are in the main screen of the PolarFIS configuration menu. The main menu screen has the next options:

- **Screen:** Use it to configure your Polar FIS.

- **Tvfree:** Access to enable or disable the video in motion activation function.
  Stopwatch: Access to the stopwatch functions.
- **Comfort:** Comfort functions.
- **Diagnosis:** Access to the diagnostic coding functions.
- **Version:** Shows Hardware and Software version number as well as of your PolarFIS serial number.
- **Diagnostics:** Show the information about you vehicle Electronic Control Units.
- **Update:** Enter PolarFIS into update mode.
- **Reset:** Perform a reset of Polar FIS.
- **Switch off:** Switch off Polar FIS.
- **Fact. settings:** Restore PolarFIS settings to factory.
- **Bluetooth:** To Access OEM Telephone menu in the FIS screen.
- **Back:** Exit from menu screen to the PolarFIS main screen.

In the case you vehicle model be Audi, you will need to use this buttons for access to the configuration menu and move it inside (check image)



You can scroll in the Polar FIS configuration menu turning the wheel up/down. If you press the wheel you will choose the selected option. Along this manual, OK button will be mentioned, this refers always to press that wheel.

Screen

Inside this screen you can configure the options of PolarFIS, this screen consist in the next options:

- Visualization
- Buttons

Choose the option Visualization to select the parameters that you desire to show in the PolarFIS main screen, as well as to access advanced configuration or change the PolarFIS menu name. Choose Polar keys to switch the function of each key while FIS is displaying the PolarFIS screen.

Visualization

In this screen, you will find the next options:

- Parameters
- Advanced
- Language

Choose Parameters to select the parameters that you desire to show in the PolarFIS main screen. Select Advanced to access advanced configuration of Polar FIS. Language allows you to select the desire language for Polar FIS.

Parameters

Inside this menu, you can configure each parameter displayed in each PolarFIS desktop, as well as set the number of desired desktops. To a better understanding of it, PolarFIS has from 1 to 10 configurable desktops, each one with a configurable parameter set, once configured desktop parameters, number of desktops, and a button to switch between them, you can switch quickly from one desktop to another from the PolarFIS menu using the programmed button.

In the parameters screen, you will have the next options:

- Screen 1
- Screen 2
- Screen 3
- Screen ...

The number of Screen … options depends on how many desktops you have configured. To configure the desired number of desktops, enter in Screen qty. and select the desired number of desktops. To modify the parameter set of one desktop, select the option Screen followed by the number of desktop that you want to configure, in example, to modify the desktop 1, choose Screen 1.

Screen X

Inside this menu, you can configure the desired parameters to show in the selected desktop. The next options will be available:

- Parameter 1
- Parameter 2
- Parameter 3
- Parameter 4

If you want to modify the displayed parameter of one position, simply choose the selected position (parameter 1, parameter 2, …) and the available parameters list will be displayed to select the desired value.

IMPORTANT : When a desktop is configured to show 5 parameters, the top parameter cannot be configured and always be set to vehicle speed, only the other 4 parameters can be configurable. In some values, the parameter text starts with the ! Character, this means that this is a requested or calculated value. Not all parameters are available for all engine ecus, to know which parameters will be available for your engine ecu, please contact with us

Advanced

From this screen, you can access to the advance characteristics of PolarFIS, the next options are available:

- Boost options.
- !Boost options.
- Oil options.
- Tank capacity.
- Gallon type.
- Press. units. □ Torque adj.
- Emul. BT □ Lambda opt.
- Screen info.

Boost options: From this screen you can select the desired bus to read the boost pressure, there are 4 options available:

- Automatic: PolarFIS will switch the optimal bus to read it.
- Infort. x1: PolarFIS will use the infortainment bus for read boost pressure.
- Infort. x2:PolarFIS will use the infortainment bus, but reading will be multiplied by 2.
- Diagnostic: Reading will be done from the diagnostics bus.

!Boost options: Configures the reading of the engine ecu demanded boost pressure, there are 2 options:

- Absolute: Reading will not be altered..
- Relative: Atmospheric pressure will be subtracted from the read value.

Oil options: Configures the bus from which the oil temperature will be read, there are 3 options:

- Automatic: PolarFIS will switch the optimal bus to read it.
- Infort x1: PolarFIS will use the infortainment bus for read.
- Diagnostic: Reading will be done from the diagnostics bus.

Tank capacity: Use it to obtain the best accuracy in the remaining fuel liters parameter. Due to the vehicle does not indicate readings of more than 52 liters, it is recommended that if your fuel tank exceed of 52 liters, you configure it. Prior to make this adjustment, it is requested that fuel tank is full and you know the capacity of it in liters, due to this will be required in screen.

Gallon type: Use this menu for select which type of gallon uses your vehicle (Gallon UK or Gallon US).

Press. units: From this screen you can choose the desired units for pressure readings from:

- Mbar (Millibars)
- Bar
- PSI

Torque adj.: Used in engine tuned vehicles in which the torque is rescaled and this results in wrong torque or power readings in Polar FIS. If you see that your vehicle does not show the maximum torque or power values indicated by your engine tuner, use that option to introduce your stock and actual (tuned) torque in order to a get a more exact reading of torque and power.

Emul. BT: Here, you can enable or disable the function of White dot FIS hands free unit compatibility. If your vehicle has a BT hands free unit for red dot FIS, you can see the Telephone menu in the FIS screen, but if you install a BT hands free unit for withe dot FIS, this menu will not be available anymore, enabling that function, Polar FIS will make the needed conversions, to show the Telephone menu, with a White dot FIS unit installed.

Lambda opt.: Configure the mode of Lambda value, there are 3 options available:

- Standard: The value is represented like read from engine ecu.
- AFR: The value showed is the result of multiply the engine ecu reading by 14,7.

Screen info: Activating it, every time you change the active desktop shown in the PolarFIS main screen, a message indicating the selected desktop will be shown in screen.

Name

Select this option to choose the desired PolarFIS screen name in the FIS display (cluster).

Inside this screen, using the UP and DOWN buttons, you can modify each letter of the text, modify the first character, and after that make a short press of OK button, this will allow you to modify the next character, and each OK short press will change the character to edit. Once you have finished editing the text, press and holding OK button until a screen prompts asking you to change the name.

The maximum character number is 10, so once you are modifying the character number 10, a short press of the OK button will return to the first character.

```
IMPORTANT : This option will be only available for RED COLOR
diplays (clusters)
```

Buttons

Access to this screen to modify the buttons functions while FIS screen is displaying PolarFIS. Once you enter in that screen, you will see the list of configurable buttons, select which you desire to configure:

- Up button
- Down button

- Ok button

After select the desired button, a list with all available functions for this button will be displayed:

- Off: No function for this button.
- Screen -: Switch desktop -.
- Screen +: Switch desktop +.
- Voice control: Voice control.
- Volume -:Decrease audio volume.
- Volume +: Increase audio volume.
- Track -: Previous audio track.
- Track +: Next audio track.

```
IMPORTANT : Due to there are several models and possible coding for
Radio/Navigation units, it's not possible to guarantee the VOLUME,
TRACK and VOICE CONTROL functions will work in all vehicles.
However, it will work in most of the vehicles.
```

TV Free

Enable it to activate the video in motion playback. Please note that if you do not go to play video, it is recommended to have Tvfree disabled, due to what this function do is disable the messages from the vehicle to the navigation unit indicating the vehicle speed. This means that it can affect to the navigation accuracy (in low satellite visibility areas). Due to that reason, every time ignition is switched off, TVfree option is disabled.

StopWatch

From this screen you will access to the available stopwatch modes.

- Acceleration: To measure time between 2 desired speeds.
- Lap: To measure lap times.

Acceleration stopwatch: This stopwatch has the next configuration options:

- Start speed: Introduce here the speed at which stopwatch start.
- End speed: Introduce here the speed at which stopwatch stops.
- Start: Start stopwatch.

Once the stopwatch is started, the next screen will be shown, and the stopwatch would not start until the Start speed is not rebased, if you desire to make measurements from car stopped, choose 0 as Start speed, the stopwatch will stop once the vehicle reach the End speed.

As you can see in the picture, in the top of the screen, the first 3 parameter of the active desktop are shown, and in the bottom of screen it is shown the stopwatch time. If you have any button configured for desktop change, pressing it, desktop will be changed as in the PolarFIS main screen.
If after a measure you want to do another one, it is not necessary to exit from stopwatch screen, simply press and hold the OK button unit stopwatch time resets to 00.00.000. To exit from stopwatch screen, press and hold the UP or DOWN button.

Lap stopwatch: In this stopwatch mode, the same screen as in Acceleration stopwatch will be displayed. There is one difference in that stopwatch, pressing up or down button; the screen will switch to the lap time screen.

The next data is displayed in that screen:

- B: 00.00.00 – Indicates the best lap time.
- L1: 00.00.000 – Indicate the antepenultimate lap time.
- L2: 00.00.000 – Indicate the penultimate lap time. L3: 00.00.000 – Indicate the last lap time.

At last, in the bottom of the screen, the stopwatchtime is shown.

To start the stopwatch, press the OK button, and time will start, after that, every OK button press will mean a lap. If you want to restart the stopwatch, like in acceleration mode, simply press and hold the OK button, and also to exit from stopwatchpress and hold the UP or DOWN button.

Comfort

Inside this screen, you can configure the comfort options of PolarFIS, depending on your vehicle configuration, the next functions will be available:

- Mirrors: Configure the automatic mirror dipping function when parking.
- Turn signals: Configure the number of blinks for comfort turn signals.
- Parktronic FIS: Enable or disable the Parktronic sensor representation in FIS screen.
- Windows: Configure all Windows related functions.
- Parktronic RNS: Enable or disable the Parktronic OPS emulation.
- Climatronic: Enable or disable the Climatronic information in RNS screen.

Mirrors

Access this screen to configure the automatic mirror dipping function. Inside this screen, you will find the next options:

- **Mode:** You can configure the mode of mirror dipping feature. It will be not possible to configure the mode until you do not configure the mirror Driving and Parking positions. There are 3 possible configurations:

    1. Off: Deactivated
    2. Manual: Enabled only when mirror switch is in R position. It is required the mirrors switch in R position, in that case, when you engage the reverse

gear, passenger mirror will goes down to Parking position, and when reverse gear is disengaged, mirror will go up to the Driving position.

3. Auto: Available only when manoeuvre is signalized with the passenger side blinker, independently of the mirror switch position. Is similar to Manual mode, but, to enable it is required to signalize the manoeuvre of parking with the passenger side blinker, once you signalize with the blinker, the passenger mirror will go down to Parking position when reverse gear is engaged, and goes up to driving position when reverse gear is disengaged. This will be done automatically until the vehicle doesn't exceed 20 Km/h speeds, if you drive above that speed, PolarFIS will understand that the Parking manoeuvre is finished and you are on the road, and for the next Parking manoeuvre, you must signalize the manoeuvre with the blinker again.

- **Position adjust:** Configure the mirror Driving and Parking position. To do it, enter in this screen and follow the next steps requested on screen.

- Select the R position in the mirror switch.
- Place the passenger mirror into Driving position (this is the mirror position that you use to drive).
- Place the passenger mirror into the Parking position (this is the desired position when you go to park your vehicle).
- Switch desired Mode: The previously described modes.

- **Offset:** Positioning fine adjustment. Due to vehicles that has no factory fitted the automatic mirror dipping feature does not have encoder to indicate the mirror position, PolarFIS use time base to positioning the mirror. Unfortunately this is not the best mode for positioning, so this means that in some vehicles after an up and down mirror cycle it does not return to its original position. If you note that after some up and down mirror cycles mirror goes more and more lower, you must switch a positive offset value. If you note that the mirror goes more and more higher, the offset value must be negative. Unfortunately, there is not an exact value for all vehicles, so the best way is try to modify offset value one by one and test with some up and down cycles until you find the correct adjustment.

- **Offset mult.:** Positioning vast adjustment. In the rare case that you have reached the offset maximum value and the mirror still does not reach the original position, this value must be modified. This value is a multiplier for the offset value, which means, that in example if you have set the Offset value to 5, and Offset mult. Value to 1, the final offset value will be 5x1 = 5. If you change Offset mult. to 2, the final offset value will be 5x2 = 10.

IMPORTANT : There is a minimum ecu numbers that are not compatible with the mirror dipping feature. This can result in **automatic mode would not work** if R position is not selected in the mirror switch, or in **full malfunctioning of mirror** dipping feature.

Turn Signals

From this screen you can select the number of blinks for the Comfort turn signals, the available configuration values are:

- 3 Blinks
- 4 Blinks
- 5 Blinks
- 6 Blinks
- 7 Blinks
- 8 Blinks
- 9 Blinks
- 10 Blinks

```
IMPORTANT : When more than 3 blinks are selected, Polar FIS
disable the comfort turn signals option in the Bordnetz ecu and
start to manage the blinks by itself. If you remove PolarFIS
from the vehicle with more than 3 blinks configured, this will
result that comfort turn signals is deactivated and you will
only have one blink, so if you want to remove PolarFIS from your
vehicle, we recommend to select 3 Blinks prior to remove
PolarFIS.
```

Parktronic FIS

From this screen you can activate or deactivate the function to show the Parktronic sensor measurement in FIS screen. With that feature activated, every time you switch on Parktronic and FIS is displaying the PolarFIS main screen, it will turn to the Parktronic visualization screen with some numbers (distances)

In that screen, are shown all distances expressed in millimetres that are measured by each Parktronic sensor. The first text line (top) shows the value for left and right front centre sensors. The next line shows the left and right front sensors. Next line shows left and right rear sensors, and the last one (bottom) shows the left and right centre rear sensors. If distance is set to 255mm which is the maximum value measured by the Parktronic sensors, means that no obstacles are detected.

Windows

From this screen, you can enable or disable al functions related with vehicle windows, there are two features:

- One touch open.
- Auto. closing.

One touch open: When you unlock your car using the remote, if hold pressed the open button, after a time, the windows will start to go down, but if you release the open button, windows will stop. Enabling this feature, windows will reach the full open position even if you release the button.

Auto. closing: If you activate this featured, all Windows will be closed automatically after a period of preprogrammed time, once you closet he car with the remote. That time will be requested you to configure after enable the feature.

Parktronic RNS

In vehicles equipped with Parktronic PDC and RNS navigation unit, Parktronic screen cannot be visualized in RNS screen. Activating this feature, Polar FIS will emulate the Parktronic OPS ecu to enable the display of Parktronic in RNS screen.

```
IMPORTANT : This feature requires a diagnostics communication
active in all non-Skoda Brand vehicles. Because that, it is not
recommended to use any diagnostic tool in the vehicle OBD-II
port, such as VCDS during Parktronic screen is shown in the RNS
display or this will cause communication issues and a PolarFIS
reset can be necessary.
```

Climatronic

In vehicles with RNS fitted, the Climatronic adjustments are not displayed in the RNS display, enabling this feature, Climatronic adjustments will be displayed in RNS navigation unit screen.

```
IMPORTANT : This feature is only compatible with Skoda Brand
vehicles.
```

Due to Climatronic ecu technical limitations, the next adjustments cannot be displayed:

- Heated seats.
- Deactivation of clappers

Diagnostics

From this screen, you can do the most common coding tasks, like with a diagnostics tool. Please note that only thing that PolarFIS do is modify the ecu coding and if function is not supported by your ecu, it will be not possible to enable the feature. Available options are these:

- **Rain sensor:** Modify the automatic rain sensor sensibility percentage.
- **Lights sensor:** Modify the automatic lights sensor percentage.
- **DRL lights:** Enable or disable the Daytime Running Lights, depending on the vehicle configuration, may be up to 4 available options:

    1. Off: Deactivated.
    2. Position lights: Position lights are used.
    3. Fog lights: Front fog lights are used.
    4. On w/turn sign.: Indicate if lights can be active with turn signals active.

- **Turn lights:** enable or disable the cornering lights, depending on vehicle configuration, may be up to 3 options;

    1. Off: Deactivated.
    2. Fog lights: Front fog lights are used.
    3. Off w/reverse: Indicate if lights can be active while reverse gear is engaged.

- **American DRL.:** Activate and deactivate American Daytime Running Lights and modify its brightness.

- **2nd Fog light:** Activate or deactivate second rear fog light if car has it equipped.
- **Warning lights:** activate or deactivate the warning lights in case of hard braking:

    1. Off: Deactivated.
    2. Brake: Active using rear braking lights.
    3. Turn signals: Active using turn signal lights.

- **Rain closing:** Activate or deactivate the automatic rain closing feature
    1. Off: Deactivated.
    2. Single: Feature is active, but must be confirmed from the FIS configuration menu in each ignition switch on.
    3. Permanent: Feature permanently activated.

- **10Kmh closing:** Activate or deactivate the automatic door closing when vehicle reach 20 Km/h of speed:

    1. Auto-Lock: When vehicle reach 20 Km/h door locks will be automatically closed.
    2. Auto-Unlock: When vehicle key is removed from the key fob, door lock will be automatically opened.

- **One touch closing:** Activate or deactivate the automatic window closing with the remote.
- **RNS510 menu:** Activate or deactivate the RNS-510 navigation unit hidden menu.

```
IMPORTANT : The features described on this section are not
available on all ecus, it depend on the vehicle ecu versions.
```

Version

Inside this screen you will be able to check the Hardware and Software version numbers, and the serial of the PolarFIS device. For go out of this screen, just press any key to exit.

Diagnostics

In this screen, you can see information about car ecus:

- Engine ECU: Shows the information about the Engine ecu.
- Bordnetz ECU: Shows the information about the Bordnetz ecu.
- Comfort ECU: Shows the information about the Comfort ecu.
- Gateway ECU: Shows the information about the Gateway ecu.

- Debug: Internal box debug information only useless in case of technical assistance needed.

Update

Use that option to update you PolarFIS firmware, using a USB cable and then select Update from the PolarFIS configuration menu. Once you have finished updating the box, simply disconnecting the USB cable and Polar FIS menu will be available again in the FIS screen.

Reset

Inside this screen, you can configure the comfort options of PolarFIS, depending on your vehicle configuration, the next functions will be available:

Switch off

Use that option to switch off your PolarFIS device and remove the menu from the FIS screen (display). After choose it, a message requesting confirmation will be shown, choose Yes, and then switch off the ignition and remove the key from the key fob. At last, close the car with the remote and wait for approximately 2 minutes. After that, you can switch ignition on again and PolarFIS menu will disappear from your FIS screen.

To recover the PolarFIS menu, simply switch on ignition and press OK button and hold it during 20 seconds in any menu of your display. After this, PolarFIS menu will be available again.

Factory settings

Use that option to restore all PolarFIS settings to factory defaults. Please, have in mind that this function will reset all adjustments that you have done in you PolarFIS.

TroubleShooting

PolarFIS is not detected, what must I do?

First of all, please verify all this points, for check if you are doing properly.

1. Verify that your PolarFIS device have the correct firmware installed

2. Verify if all connectors are properly pluged
3. Check that you not have nothing plugged in your OBD2 port (like gauges or diagnostic software)
4. Check that your box is not connected to any computer via USB datacable

My vehicle not show all available parameters, Why?

Exists 3 main reasons for this :

1. Some parameters are only exclusive for diesel engines and others for gasoline engines. So, have in mind that is possible you not will see all parameters available in your vehicle (depends on your engine type).
2. Your ECU not support all parameters. Some ECUs not give the values of some parameters and this is the reason why we not show on your cluster (FIS display).
3. For last, another possibility is that you not have some “sensors” and obviously PolarFIS not will read it (for example oil sensor in SEAT vehicles). In this case, the value will be shown at zero (0).

With engine at idle, boost pressure reading must be negative (vacuum), and value is positive, Why?

What the PolarFIS does is to read the boost pressure from the engine control unit, and then read the atmospheric pressure also from the engine control unit, then subtract both readings (turbo pressure minus atmospheric pressure), and the value is displayed. If the atmospheric pressure is higher than turbo one, the value will be negative. If reversed, the value is positive.

In other words, we do not design the engine, or your ECU or even the pressure sensor, we just simply read those values that are being updated each moment in the CANBUS (written by constant telegrams by the engine control unit into the CAN BUS). These are the values that the engine control unit gives us, we do not interpret at all. PolarFIS hardware has no external sensor or similar, so if the values are “wrong” is why the unit gives them bad.

If you use any 3rd party software such as VCDS (or even the original VAG diagnosis stuff) and perform the same operation, with the engine idling, read atmospheric and turbo pressure, and then subtract them, you will see how much gives you, it will be also positive even we all insists whole time on having a negative value that will be more real.

VAGCOM not works with PolarFIS connected, Why ?

PolarFIS and VAGCOM (VCDS) uses the same diagnosis port for communicate with your vehicle. This means that can appear conflicts in case you try to use both tools at same time.

- **For PolarFIS PF03 and PF04 units**, you only need to put in your vehicle any other menu (screen) outside of PolarFIS. Is not necesary to disconnect your unit, simply move to a screen where not appear any of the PolarFIS menus.
- **For PolarFIS PF05 units**, just enter in the PolarFIS configuration menu and not move from here. Later, connect VAGCOM software.

Parameter list

This is the complete list of parameters currently available for the PolarFIS devices. This not means that your vehicle will show all of them. There are exclusive parameters only available for diesel engines, and others for gasoline engines.

It is very important understand that PolarFIS will show only parameters available for your engine type (gas or diesel) and parameters that are supported by your engine ECU. Resuming, PolarFIS will check and detect which parameters are available for read it and will show it in your device.

Parameters currently supported (164)	
Description of parameter	**Name shown in display**
(1) Vehicle Real speed	Km/h
(2) External temperature	Out. °C
(3) RPM motor	RPM
(4) Petrol tank litres	Fuel Lit.
(5) Engine current power (CV)	Power CV
(6) Vehicle lateral G force	Side G
(7) Vehicle longitudinal G force	Long. G
(8) Battery voltage	Batt. V.
(9) Calculated engine oil temperature	!Oil °C
(10) Measured engine oil temperature	Oil °C

(11) Ambient (engine bay) temperature	Amb. °C
(12) Air intake temperature	Intake °C
(13) Coolant temperature	Coolant °C
(14) Coolant temperature at the engine outlet (-47ºC = no sensor)	Motor °C
(15) Coolant temperature at the radiator outlet	Radiat. °C
(16) Fuel temperature	Fuel °C

(17) Exhaust gas temperature	EGT °C
(18) DPF temperature bank 1	DPF1 °C
(19) DPF temperature bank 2	DPF2 °C
(20) DPF input temperature	DPF in °C
(21) DPF output temperature	DPF out °C
(22) Catalyzer input temperature	Catal. °C
(23) Exhaust gas temperature bank 1	Exh. 1 °C
(24) Exhaust gas temperature bank 2	Exh. 2 °C
(25) Exhaust gas temperature EGT1 (sensor before the turbo compressor)	EGT S1 °C

(26) Exhaust gas temperature EGT2 (sensor before the catalyst)	EGT S2 °C
(27) Exhaust gas temperature EGT3 (sensor after the catalyst)	EGT S3 °C
(28) Exhaust gas temperature EGT4 (sensor after particle filter)	EGT S4 °C
(29) Requested boost pressure	!Boost mb
(30) Measured boost pressure	Boost mb
(31) Atmospheric pressure	Atm. mb

(32) Intake manifold absolute pressure	Intake mb
(33) Requested rear fuel pump pressure (Low fuel pressure)	!R.Fuel mb
(34) Measured rear fuel pump pressure (Low fuel pressure)	R.Fuel mb
(35) Requested front fuel pump pressure (High fuel pressure)	!Fuel bar
(36) Measured front fuel pump pressure (High fuel pressure)	Fuel bar
(37) Requested fuel rail pressure	!F. rail bar
(38) Measured fuel rail pressure	F. rail bar
(39) Brake pedal pressure	Brake bar

(40) Brake pump pressure	Brake b. bar
(41) HVAC refrigerant pressure	HVAC bar
(42) Oil pressure	Oil bar
(43) Calculated engine load	!Load %
(44) Measured engine load	Load %
(45) Generator load (%)	Gen. load
(46) Mass Air Flow Bank 1	M.A.F. 1

(47) Mass Air Flow Bank 2	M.A.F. 2
(48) Acelerator pedal sensor 1	Pedal 1
(49) Acelerator pedal sensor 2	Pedal 2
(50) Acelerator valve sensor 1	Valve 1
(51) Acelerator valve sensor 2	Valve 2
(52) Calculated engine actual torque	!Torq. nm
(53) Measured Engine torque	Torq. nm
(54) DSG Torque reduction	DSG nm
(55) Torque reduction active	T. red.

(56) HVAC compressor torque	HVAC nm
(57) Engine oil level in mm. above alarm level	Oil level
(58) Engine minimum oil level reached in mm. above alarm level	M. oil lev.
(59) Injection timing	Inj. tim.
(60) Ignition angle	A. °BTDC
(61) Misfire sum in all cylinder	Mis.
(62) Misfire cylinder 1	Mis. 1

(63) Misfire cylinder 2	Mis. 2
(64) Misfire cylinder 3	Mis. 3
(65) Misfire cylinder 4	Mis. 4
(66) Misfire cylinder 5	Mis. 5
(67) Misfire cylinder 6	Mis. 6
(68) Misfire cylinder 7	Mis. 7
(69) Misfire cylinder 8	Mis. 8
(70) Misfire cylinder 9	Mis. 9

(71) Misfire cylinder 10	Mis. 10
(72) Misfire cylinder 11	Mis. 11
(73) Misfire cylinder 12	Mis. 12
(74) Misfire cylinder 1	Mis. x1
(75) Misfire cylinder 2	Mis. x2
(76) Misfire cylinder 3	Mis. x3
(77) Misfire cylinder 4	Mis. x4
(78) Misfire cylinder 5	Mis. x5

(79) Misfire cylinder 6	Mis. x6
(80) Misfire cylinder 7	Mis. x7
(81) Misfire cylinder 8	Mis. x8
(82) Misfire cylinder 9	Mis. x9
(83) Misfire cylinder 10	Mis. x10
(84) Misfire cylinder 11	Mis. x11
(85) Misfire cylinder 12	Mis. x12
(86) Angle delay cylinder 1	D. 1 °KW

(87) Angle delay cylinder 2	D. 2 °KW
(88) Angle delay cylinder 3	D. 3 °KW
(89) Angle delay cylinder 4	D. 4 °KW
(90) Angle delay cylinder 5	D. 5 °KW
(91) Angle delay cylinder 6	D. 6 °KW
(92) Angle delay cylinder 7	D. 7 °KW
(93) Angle delay cylinder 8	D. 8 °KW
(94) Angle delay cylinder 9	D. 9 °KW

(95) Angle delay cylinder 10	D. 10 °KW
(96) Angle delay cylinder 11	D. 11 °KW
(97) Angle delay cylinder 12	D. 12 °KW
(98) Calculated lambda factor	!Lambda
(99) AFR (air / flow ratio) Lambda 1	Lambda 1
(100) AFR (air / flow ratio) Lambda 2	Lambda 2
(101) Lambda adaptation at idle bank 1 (%)	Lambda I 1
(102) Lambda adaptation at idle bank 2 (%)	Lambda I 2

(103) Lambda adaptation partial bank 1 (%)	Lambda P 1
(104) Lambda adaptation partial bank 2 (%)	Lambda P 2
(105) Rear fuel pump duty cycle	Fuel DC
(106) Fuel trim bank 1/3	LTFT1-3
(107) Fuel trim bank 2/4	LTFT2-4
(108) Requested N75/V465 valve duty cycle	!N75 %
(109) Measured N75/V465 valve duty cycle	N75 %
(110) Injection quantity	Inj. m/str

(111) Requested injection start	!St. °BTDC
(112) Injection start	St. °BTDC
(113) Requested injection duration	!Dur. °KW
(114) Injection duration	Dur. °KW
(115) Injection start quantity	St. q. nm
(116) Injection quantity 1	D.1 m/str
(117) Injection quantity 2	D.2 m/str
(118) Injection quantity 3	D.3 m/str

(119) Injection quantity 4	D.4 m/str
(120) Injection quantity 5	D.5 m/str
(121) Injection quantity 6	D.6 m/str
(122) Injection quantity 7	D.7 m/str
(123) Injection quantity 8	D.8 m/str
(124) EGR valve duty cycle bank 1	EGR1m/str
(125) EGR valve duty cycle bank 2	EGR2m/str
(126) Requested charge pressure control	!Control %

(127) Measured charge pressure control	Control %
(128) DPF oil Ash Volume bank 1	DPF1 L.
(129) DPF oil Ash Volume bank 2	DPF2 L.
(130) Particle filter calculated soot mass	!Soot m 1 gr.
(131) Particle filter calculated soot mass	!Soot m 2 gr.
(132) Particle filter measured soot mass	Soot m 1 gr.
(133) Particle filter measured soot mass	Soot m 2 gr.
(134) Particle oil ash mass	DPF g.

(135) DPF calculated filling	!DPF g.
(136) DPF filling level	DPF %
(137) DPF Diferential pressure	DPF mb
(138) DPF regeneration counter	Regen.
(139) Requested regenerations	Req. regen
(140) DPF Regen status (0000 : No regeneration in course, 0001 : In course, 0002 : Finished)	DPF st.
(141) DPF Kms. since last regeneration	DPF Km.
(142) DPF Hours since last regeneration	DPF H.

(143) AD-BLUE Filling level (%)	AdB tank
(144) AD-BLUE Kilograms used	AdB used
(145) Alternator power (Watt)	Alt. power W
(146) Alcohol percentage in fuel	Alcohol %
(147) DSG ECU Temperature	DSG M. °C
(148) DSG Transmission fluid Temperature	Trans °C
(149) DSG Oil Clutch Temperature	Cl. Oil °C

(150) DSG Clutch 1 Temperature	Cl.1 °C
(151) DSG Clutch 2 Temperature	Cl.2 °C
(152) DSG Clutch 1 Pressure	Cl.1 mb
(153) DSG Clutch 2 Pressure	Cl.2 mb
(154) DSG Oil Pressure	MF mb
(155) DSG Clutch 1 Friction Coeficient	Cl.1 FC
(156) DSG Clutch 2 Friction Coeficient	Cl.2 FC
(157) DSG Clutch 1 Curve	Cl.1 C
(158) DSG Clutch 2 Curve	Cl.2 C
(159) DSG Clutch 1 Torque	Cl.1 nm
(160) DSG Clutch 2 Torque	Cl.2 nm
(161) DSG Driving Position (P, D, M ...)	DSG P.
(162) DSG Driving Gear (1, 2, 3 ...)	DSG G.
(163) DSG Preselected Gear	DSG P.G.
(164) DSG Input Speed Shaft 1	DSG S.1
(165) DSG Input Speed Shaft 2	DSG S.2