

## SPS PRO USER MANUAL FOR RED DOT CLUSTERS



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### 1. INTRODUCTION

Thank you for purchasing Revo SPS Pro, this manual will show you how to configure and use your SPS Pro with your Revo Tuned Vehicle.

#### NOTE: We recommend your Revo SPS Pro is installed by an authorised Revo dealer.

On first use after installation, you see Revo as a new menu entry in the instrument cluster display screen.



This is the Revo SPS Pro main screen, where you can see data parameter readings. This screen can be setup to display between 1 and 10 desktops, each one with a configurable parameter set allowing you to choose the engine data you want to display and monitor, once configured you can switch quickly from one desktop to another from the SPS Pro menu using the programmed button. The number 1 you can see in the middle/bottom of the above screen indicates which desktop you are viewing.

### 2. <u>CONFIGURATION MENU</u>

To Access the SPS Pro configuration menu, press and hold the OK button in the multifunction steering Wheel (or wiper stalk), after a few seconds the next screen will be displayed in the display:



The current menu name (in this case *Main menu*) is always displayed at the top of the screen.

The main menu screen has the following options:

- **Revo SPS:** Acquire Revo performance settings from the ECU, adjust and set performance modes. Lets the user enable Anti-Theft mode and set unique PIN code.
- Screen: Alter the number of data screens, data displayed and button configuration.
- **Stopwatch:** Set start/stop speeds and activate stopwatch and lap-timer.
- **Comfort:** Setup comfort options for turn signals, mirrors, etc.
- Diagnosis: Access Coding options to enable/adjust automatic lock, light, wiper and DRL settings
- Version: Displays Revo SPS Pro version details
- Info: Displays factory control module identification numbers and information.
- **Update:** Put SPS Pro into Firmware update mode.
- **Reset:** Reboots the SPS Pro.
- Switch off: Switch off SPS Pro.
- Fact. settings: Restore SPS Pro to factory settings.
- **Bluetooth:** Access OEM Telephone menu in the display screen.
- Back: Exit menu screen to the SPS Pro main screen.

### 2.1. <u>Revo SPS</u>

Within this menu you can alter your Revo performance software by configuring, acquiring, and setting the Revo performance modes.

**2.1.1.** Acquire settings > Shows Revo performance mode or specific boost, fuelling and timing settings currently set in the engine control module.

**2.1.2.** Set Mode > Set Stock mode, Performance mode A, B, or C

2.1.3. Anti theft > Set ON or OFF > Select 4 digit pass code

**2.1.4. Configure mode** > Select Performance mode A/B/C > Select and change boost/timing/fuelling settings. NOTE: only applicable if the vehicles has adjustable settings.

### 2.2. <u>Screen</u>

Within this menu you can configure the screen display and button options of the SPS Pro.

#### 2.2.1. SCREEN-VISUALIZATION.

#### 2.2.1.1. SCREEN->VISUALIZATION->PARAMETERS

Within this menu, you can configure the individual parameters displayed in each SPS Pro desktop, as well as the number of desired desktops.

The Revo SPS Pro can be setup to display between 1 and 10 configurable desktops.

Within this menu you will be able to select the screen you want to alter the parameters for:

- Screen 1
- Screen 2
- Screen....
- Screen qty.

The number of *Screen* options depends on how many desktops you have configured. To configure the desired number of desktops, enter in *Screen qty. a*nd select between 1 and 10 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*.

#### 2.2.1.1.1. SCREEN->VISUALIZATION->PARAMETERS->SCREENX

Within this menu, you can set the parameters you want to display in the selected desktop.

Select the parameter you want to alter (*parameter 1, parameter 2, …*) and the available engine data parameters list will be displayed. You can click on the engine data parameter you want to use and click the OK button to confirm your selection.

You will see the option for *parameter qty.* at the bottom of the menu, within here you can set the number of data parameters you want to view on each dashboard. This can be set to 4, 5, or 6 as the below images:



NOTE: Please see the parameter list in section #4 of this manual for full details of available parameters.



#### 2.2.1.2. SCREEN->VISUALIZATION->ADVANCED

Within this menu, you can access to the advanced options of the SPS Pro:

#### 2.2.1.2.1. SCREEN->VISUALIZATION->ADVANCED->BOOST OPTIONS

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

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

### 2.2.1.2.2. SCREEN->VISUALIZATION->ADVANCED->!BOOST OPTIONS

Configures the requested engine ECU boost pressure value, there are 2 options:

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

#### 2.2.1.2.3. SCREEN->VISUALIZATION->ADVANCED->OIL OPTIONS

Configures the bus used to read the oil temperature from, there are 3 options:

- **Automatic:** SPS Pro will switch the optimal bus to read the value.
- **Infort x1:** SPS Pro will use the infortainment bus for read.
- **Diagnostic:** Value will be read from the diagnostics bus.

#### 2.2.1.2.4. SCREEN->VISUALIZATION->ADVANCED->TANK CAPACITY

This menu option lets you setup the SPS Pro to give the best accuracy in the fuel litres remaining data parameter. The vehicle does not indicate readings of more than 52 litres, if you can put in more than 52 litres it is recommended you configure.

Before making any adjustments within this screen the fuel tank must be full and you know how many litres have been put in.

You can +/- the amount of litres displayed.

#### 2.2.1.2.5. SCREEN->VISUALIZATION->ADVANCED->PRESS. UNITS

From this screen you can choose the desired units to read pressure in. Options are:

- Mbar (Millibar).
- Bar.
- PSI.

#### 2.2.1.2.6. SCREEN->VISUALIZATION->ADVANCED->TORQUE ADJ.

Power and Torque readings from the ECU are often calculated and not always accurate. If you see that your vehicle does not show the maximum torque or power values expected, this option can be used to input the stock and actual (tuned) torque in order to a get a more accurate reading of torque and power.

#### 2.2.1.2.7. SCREEN->VISUALIZATION->ADVANCED->LAMBDA OPT.

Within this menu you can choose whether the 'Lambda' data parameter reads a Lambda or AFR value:

- **Standard:** The value is represented as read from engine ECU.
- AFR: The value showed is the result of multiplying the engine ECU reading by 14,7.

#### 2.2.1.3. SCREEN->VISUALIZATION->LANGUAGE

Within this menu you can select the desired language of SPS Pro.

NOTE: there are 2 Revo SPS Pro firmware versions for white/colour dot FIS, depending on language:

- 1: Contains the languages:
  - o English.
  - o French.
  - Spanish.
  - o Italian.
  - Portuguese.
  - o Russian.
- 2: Contains the languages:
  - German.
  - Czech.
  - o Danish.
  - Romanian.
  - o Slovak.
  - Polish.

Once you enter to the language selection screen, you will see first the option **Automatic**, followed by the languages available for your firmware version. If **Automatic** is selected, SPS Pro language will be the same as configured in the FIS screen. If you choose an option other than **Automatic**, that option overrides the FIS language and switches the SPS Pro language to the selected one.

#### 2.2.2. SCREEN->REVO BUTTONS

Within this menu, you can alter the function of each button while FIS is displaying the SPS Pro screen.

The configurable button options are:

- Up button.
- Down button.
- Ok button.

The available functions for each button are:

- *Off:* No function for this button.
- 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 INFORMATION:**

Due to model differences 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.

### 2.3. <u>STOPWATCH</u>

Within this meny you can access and setup the available stopwatch modes:

#### 2.3.1 Acceleration stopwatch:

- Start speed: Set the speed you want the stopwatch to start.
- **End speed:** Set the speed you want the stopwatch to stop.
- Start: Start stopwatch.

Once the stopwatch is started, the display will switch back to the last used data parameter screen with the stopwatch counter displayed at the bottom. The stopwatch will start as soon as the *Start* speed is reached, if you desire to make measurements from car stopped, choose 0 as *Start speed*. The stopwatch will stop once the vehicle reaches the set *End speed*.



NOTE: As you can see in the picture, the counter displays instead of the 5<sup>th</sup> and 6<sup>th</sup> data parameter when the stopwatch function is activated. You can still switch between the set number of data parameter screens.

To RESET the stopwatch counter press and hold the OK button until the counter resets to 00.00.000

To exit from stopwatch screen, press and hold the UP or DOWN button

#### 2.3.2 Lap stopwatch

In Lap mode, the same screen as in *Acceleration stopwatch* will be displayed once the stopwatch has been started. You manually click on the OK button to record a new lap.

If you press the up or down button; the screen will switch to the lap time screen:



The data displayed in this screen will show the first two data parameters along with:

- B: 00.00.00 Displays the best lap time.
- L1: 00.00.000 Displays the antepenultimate lap time.
- L2: 00.00.000 Displays the penultimate lap time.
- L3: 00.00.000 Displays the last lap time.
- Current stopwatch time

### 2.4. <u>COMFORT.</u>

Within this menu, you can configure the comfort options enabled by the SPS Pro. Specific options will depend on your vehicle:

#### 2.4.1. COMFORT->MIRRORS

Configure the automatic mirror dipping function:

#### 2.4.1.1 Mode:

- 2.4.1.1.1 Off: Deactivated.
- **2.4.1.1.2 Manual:** When mirror switch is in R position passenger mirror will go into the *Parking* position, and when reverse gear is engaged. Mirror will return to the *Driving* position when reverse is disengaged.
- 2.4.1.1.3 Auto: When passenger indicator is on and reverse gear selected the passenger mirror will go into the *Parking* position. Mirror will return to the *Driving* position when reverse is disengaged. If indicator is switched off this mode will remain active until the vehicle exceeds 20Kph.
- **2.4.1.2 Position adjust:** Follow the on screen instructions to configure the mirror *Driving* and *Parking* position.
- 2.4.1.3 Offset: Positioning fine adjustment. Some vehicles do not have factory automatic mirror dipping or mirror position sensors. SPS Pro uses a timer to position the mirror which is not 100% accurate. If your mirror sits in a lower position after using the SPS Pro mirror dipping feature then select a positive offset value. If the mirror sits higher then use a negative offset value.
- 2.4.1.4 Offset mult.: In the rare case that you have reached the maximum offset value and the mirror still does not reach the original position, 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 INFORMATION:**

There are some ECUs are not compatible with the mirror dipping feature which can result in: - Automatic mode would not work if R position is not selected in the mirror switch. - Full malfunctioning of mirror dipping feature.

#### 2.4.2. COMFORT->TURN SIGNALS.

Within this menu you can select the number of flashes for the Comfort turn signals, the available configuration values are:

- 3 flashes.
- 4 flashes.
- 5 flashes.
- 6 flashes.
- 7 flashes.
- 8 flashes.
- 9 flashes.
- 10 flashes.

**IMPORTANT INFORMATION:** 

If 3+ flashes are selected the SPS Pro takes control over the factory comfort module. If you remove the device without setting to 3 flashes the factory comfort turn signal will deactivate.

### 2.4.3. COMFORT->PARKTRONIC FIS.

Within this menu you can activate or deactivate the function to show the Parktronic sensor measurement in FIS screen.

With this feature activated, each time you switch on Parktronic and FIS is displaying the SPS Pro main screen, it will turn to the Parktronic visualization screen which is as follows:



In this screen, the values shown are all distances in millimetres 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 rear sensors, and the last one (bottom) shows the left and right centre rear sensors. In this picture you can see the distance set to 255mm. which is the maximum value measured by the Parktronic sensors, this means that no obstacles are seen.

#### 2.4.4. COMFORT->WINDOWS.

Within this menu you can activate or deactivate comfort functions for your vehicles windows:

**One touch opening** If you press and hold the open button on your remote when opening the vehicle the windows will start to go down, in factory mode the windows will stop at the point you release the open button. If you enable this feature the windows will full open regardless of when you release the open button.

*Auto Closing* When activated the windows will close after a set amount of time once you lock the vehicle. The time delay can be set once you enable this feature within SPS Pro.

#### 2.5. DIAGNOSTICS

Within this menu, you can alter the most common coding tasks supported by your ecu.

The available options are:

- *Rain sensor:* Modify the automatic rain sensor sensitivity.
- Lights sensor: Modify the automatic lights sensor.
- **DRL lights:** Enable or disable the Daytime Running Lights, depending on the vehicle there could be up to 4 available options:
  - Off: Deactivated.
  - **Position lights:** Position lights are used.
  - Fog lights: Front fog lights are used.
  - **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 there could be up to 3 options;
  - Off: Deactivated.
  - Fog lights: Front fog lights are used.
  - **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:
  - Off: Deactivated.
  - **Brake:** Active using rear braking lights.
  - Turn signals: Active using turn signal lights.
- Rain closing: Activate or deactivate the automatic rain closing feature
  - Off: Deactivated.

- *Single:* Feature is active, but must be confirmed from the FIS configuration menu in each ignition switch on.
- *Permanent:* Feature permanently activated.
- 10Kmh closing: Activate or deactivate the automatic door closing when vehicle reach 20 Km/h of speed:
  - Auto-Lock: When vehicle reach 20 Km/h door locks will be automatically closed.
  - 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.

#### 2.6. VERSION.

Inside this screen, you will see the Hardware and Software version numbers as well as the box serial number are displayed. Similar to:



Press any key to exit to main menu

#### 2.7. INFO.

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

- Engine ECU: Shows the Engine Control Unit ID.
- **BCM ECU:** Shows the Body Control Module ID.
- Gateway ECU: Shows the Gateway ID.
- **Debug:** Internal box debug information only required in case of technical assistance.

#### 2.8. UPDATE.

Use this option to update your SPS Pro firmware, prior to selecting this option, connect your SPS Pro to a computer using a USB cable and then select **Update** from the configuration menu. The SPS Pro menu will then disappear from the screen.

Open Internet Explorer x86 (x64 version is not compatible), enter in the next link:

#### http://www.auto-polar.com/revo/

Follow instructions online to configure Internet Explorer in the case that you experience issues updating.

Once you have finished updating the box, simply disconnecting the USB cable and SPS Pro menu will be available again in the FIS screen.

#### 2.9. RESET.

Use this option to reset your SPS Pro in case of any issue, or if it instructed by our technical support team. Do not worry about your adjustments, they will be re-loaded as they are stored in the units internal memory.

#### 2.10. SWITCH OFF.

Select Yes to switch off the SPS Pro. You will see a message requesting confirmation, choose **Yes**, and then switch off the ignition and remove the key from the ignition. Close the car with the remote and wait for approximately 2 minutes. When you switch back on you will see the normal factory display options.

To switch your Revo SPS Pro back on press and hold the OK button for 20 seconds with the ignition on, the SPS Pro menu will then display.

#### 2.11. FACTORY SETTINGS.

Use this option to restore all settings to Factory defaults, please note that this will reset all adjustments that you have made within your SPS Pro.

#### 3. <u>NOTES</u>

The Revo SPS Pro will register itself automatically into the Gateway module, so it is not necessary to use any diagnostics tool.

As some parameters are read using diagnostics communication, please exit the SPS Pro screen before connecting any diagnostics tool or gauge to the vehicle OBD-II port. If you do not do this the OBD device will not communicate and the SPS Pro might need to be reset.

### 4. **PARAMETER LIST.**

TEXT	MEANING
Km/h	Vehicle real speed
Out. °C	Vehicle outside temperature
RPM	Engine rpms
Batt. V.	Battery voltage
Fuel Lit.	Fuel litters in fuel tank
!Oil °C	Calculated engine oil temperature
Oil °C	Measured engine oil temperature
Amb. °C	Ambient (engine bay) temperature
Intake °C	Intake temperature
Coolant °C	Engine coolant temperature
Motor °C	Coolant temperature at the engine outlet
Radiat. °C	Coolant temperature at the radiator outlet
Fuel °C	Fuel temperature
!Boost mb	Requested boost pressure
Boost mb	Measured boost pressure
Atm. mb	Atmospheric pressure
Intake mb	Intake manifold pressure
!Fuel bar	Requested fuel pressure
Fuel bar	Measured fuel pressure
F. rail bar	Fuel rail pressure
Brake bar	Brake pressure
Brake b. bar	Brake booster pressure
!Load %	Calculated engine load
Load %	Measured engine load
M.A.F. 1	Mass Air Flow Bank 1
M.A.F. 2	Mass Air Flow Bank 2
Pedal 1	Accelerator pedal sensor 1
Pedal 2	Accelerator pedal sensor 2
Valve 1	Accelerator valve sensor 1
Valve 2	Accelerator valve sensor 1
Torq. nm	Engine actual torque
Power CV	Engine actual power
Oil level	Engine oil level in mm. above alarm level
M. oil lev.	Engine minimum oil level reached in mm. above alarm level
Inj. tim.	Injection timing
A. °BTDC	Ignition angle+B52
Mis.	Misfire sum in all cylinder
Mis. 1	Misfire sum cylinder 1
Mis. 2	Misfire sum cylinder 2
TEXT	MEANING
Mis. 3	Misfire sum cylinder 3

Mis. 4	Misfire sum cylinder 4
Mis. 5	Misfire sum cylinder 5
Mis. 6	Misfire sum cylinder 6
Mis. 7	Misfire sum cylinder 7
Mis. 8	Misfire sum cylinder 8
Mis. 9	Misfire sum cylinder 9
Mis. 10	Misfire sum cylinder 10
Mis. 11	Misfire sum cylinder 11
Mis. 12	Misfire sum cylinder 12
D. 1 °KW	Angle delay cylinder 1
D. 2 °KW	Angle delay cylinder 2
D. 3 °KW	Angle delay cylinder 3
D. 4 °KW	Angle delay cylinder 4
D. 5 °KW	Angle delay cylinder 5
D. 6 °KW	Angle delay cylinder 6
D. 7 °KW	Angle delay cylinder 7
D. 8 °KW	Angle delay cylinder 8
D. 9 °KW	Angle delay cylinder 9
D. 10 °KW	Angle delay cylinder 10
D. 11 °KW	Angle delay cylinder 11
D. 12 °KW	Angle delay cylinder 12
Exh. 1 °C	Exhaust gas temperature bank 1
Exh.2 °C	Exhaust gas temperature bank 2
Catal. °C	Catalyst temperature
Lambda 1	Lambda factor bank 1
Lambda 2	Lambda factor bank 2
LTFT1-3	Fuel trim bank 1
LTFT2-4	Fuel trim bank 2
!N75 %	Requested N75 valve duty cycle
N75 %	Measured N75 valve duty cycle
Inj. m/str	Injection quantity
St. °BTDC	Injection start
Dur. °KW	Injection duration
St. q. nm	Injection Start quantity
D.1 m/str	Injection quantity cylinder 1
D.2 m/str	Injection quantity cylinder 2
D.3 m/str	Injection quantity cylinder 3
D.4 m/str	Injection quantity cylinder 4
D.5 m/str	Injection quantity cylinder 5
D.6 m/str	Injection quantity cylinder 6
D.7 m/str	Injection quantity cylinder 7
TEXT	MEANING
D.8 m/str	Injection quantity cylinder 8
D.9 m/str	Injection quantity cylinder 9
D.10 m/str	Injection quantity cylinder 10
D.11 m/str	Injection quantity cylinder 11

D.12 m/str	Injection quantity cylinder 12
EGR1m/str	EGR valve duty cycle bank 1
EGR2m/str	EGR valve duty cycle bank 2
!Control %	Requested charge pressure control
Control %	Measured charge pressure control
EGT °C	Exhaust gas temperature
DPF1 °C	Diesel particle filter temperature bank 1
DPF2 °C	Diesel particle filter temperature bank 2
DPF1 Ash L.	Diesel particle filter oil ash volume bank 1
DPF2 Ash L.	Diesel particle filter oil ash volume bank 2
DPF %	Diesel particle filter filling level
Regen.	Diesel particle filer regeneration counter
DPF in °C	Diesel particle filter input temperature
DPF out °C	Diesel particle filter output temperature
Side G	Vehicle side G force
DPF Km.	Distance driven since last DPF regeneration
AdB tank	AD-BLUE Filling level
AdB used	AD-BLUE grams used
!F. rail bar	Requested fuel rail pressure
!Dur. °KW	Requested injection duration
!St. °BTDC	Requested injection start
!Lambda	Calculated lambda factor
!DPF g.	calculated DPF filling
DPF status	DPF regeneration status
DPF mb	DPF differential pressure
Lambda I 1	Lambda adaptation at idle bank 1
Lambda I 2	Lambda adaptation at idle bank 2
Lambda P 1	Lambda adaptation partial bank 1
Lambda P 2	Lambda adaptation partial bank 2
!Torq. nm	calculated engine actual torque
Torque DSG nm	DSG torque reduction
Torque red.	Torque reduction
EGT S1 °C	Exhaust gas temperature sensor 1
EGT S2 °C	Exhaust gas temperature sensor 2
EGT S3 °C	Exhaust gas temperature sensor 3
EGT S4 °C	Exhaust gas temperature sensor 4
Gen. load	Generator load
Alt. power W	Alternator power
TEXT	MEANING
HVAC nm	HVAC compressor torque