



Manual

PPC[®] Tuning System



READ THIS BEFORE TUNING YOUR CAR

Thank you for choosing BSR PPC Tuning System

Today's most sophisticated tuning product. You are about to bring new life to your engine and while doing this we would like to give you some advice based on years of experience and we hope that you will find them helpful.

Today, many tuning and styling products are found on the market with promises of huge power and performance increase and we would like to take this moment to share our view on some of these items as you are about to tune your car with the BSR PPC.

The advices on next page are a quick guide in what you should consider before changing or adding hardware to your vehicle.

All of BSR's tuning kits are developed using stock engine configuration (Stage 1) or using BSR 3" downpipe with sports catalyst in combination with BSR Sportflow exhaust system (Stage3). Using other hardware will affect power, drivability and durability.

In all tuning kits found at www.bsr.se, all necessary hardware is listed that will ensure claimed power levels. Using other hardware will result in BSR not being able to anticipate the results of the tuning procedure.

Changing air filters

When changing air filter, make sure that the filter has a filtration level and flow rate suited for the power of the engine. All BSR air filters are qualified accordingly.

Changing exhaust system

Changing the exhaust system (cat-back) will improve performance if the back pressure levels are lower than for stock system. Most modern cat-back systems branded as "sport exhaust" will provide this. As a consequence, feel free to fit a cat-back system in combination with the BSR PPC.

Changing down pipe

Changing the downpipe to a larger diameter version generally gives a lower back pressure and as such it should always be combined with proper software. BSR Stage 3 tuning kits are calibrated using BSR 3" downpipes and as a result of this, BSR's downpipe is recommended for best performance.

Changing BOV (Blow off valve)

Stock valves in modern cars are of high quality and function, thus there is no need to change them. Many of the aftermarket BOV's actually offers less performance in comparison. "Open air" BOV's are not to be used in cars with air mass meters, i.e. all cars younger than 10 years. BSR PPC software is calibrated for stock valves only.

Changing catalyst

The term "race catalyst" is sometimes used to describe a catalyst with high flow rates and low back pressure. The majority of these catalysts achieve this by having inadequate catalyst function which affects our environment in a negative way. Furthermore, it also might cause problems with the cars internal diagnostic features. As a consequence, BSR will advice you not to use such a catalyst.

Changing sparkplugs

Our recommendation is to use stock spark plugs. This is in particular for Saab engines as they use the plugs for misfire detection. Driving under hard conditions (track days, high speed highway driving), we recommend you to change the plugs at a more frequent rate than what is described in the owners manual.

Changing intercooler

In tuning kits where the stock intercooler has been found inadequate, an upgraded version is offered. This also requires a re-calibration of the software and is therefore not recommended for other cars than the ones having an IC in the tuning kit.



VERY IMPORTANT!

Once the programming or reading has started it must not be interrupted!

Don't turn ignition off before display shows **"Turn ign. off and remove key->"!**

Don't disconnect OBDII cable from the car before display shows **"Done, please unplug PPC"!**

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Product information

PPC® Tuning System

Thank you for choosing BSR and the PPC® Tuning System! You'll notice that PPC increases the performance of your car considerably. With the unique PPC concept you can tune your own car in minutes without any mechanical operation! The technology behind PPC is highly advanced, but the management is very easy. BSR's tuning software is loaded via the car's diagnostic outlet (OBDII). You can change between tuning and the manufacturer's original software as often as you want. PPC® Tuning System gives you an opportunity to update the tuning and original software via the Internet. This tuning concept is developed by BSR and it's world unique. We hope you'll enjoy PPC® Tuning System!

Enclosed equipment

PPC comes with all necessary accessories. The MMC card is blocked, so you can't store any other information on it. It can only be used with your PPC and shall always be put in the PPC unit.



PPC®



MMC card



OBDII cable



USB cable

Storage

PPC® Tuning System must not be exposed to water, moisture or condensation. Store it in a place free from dust and vibrations. Do not store it near strong magnetic fields.



Fuel

Petrol cars: BSR recommends you to use at least EU 98 octane (≈US 93 octane), no matter if the car is tuned or not, or what tuning stage you have.

- Cars with BSR Stage 3 or more require EU 98 (≈US 93) minimum.
- Cars with BSR Stage 1-2 can be run on EU 95 (≈US 90) if it's permitted (see instruction book), but the result is increased fuel consumption and less power than indicated.

Diesel cars: use high quality diesel.

E85: drive carefully first 5 minutes after refuelling, when system is adapting.

Management

USB cable is used when connecting PPC to the computer's USB connector. Don't connect PPC to the computer and car at the same time!



OBDII cable is used when connecting PPC to the car. Press till it clicks when connecting the cable to PPC.



CLICK!

Press the **Menu** button to change function in the display (browse through the menu functions).



Press the **Enter** button to select the displayed function.



MMC card shall always be inserted in the card holder. Never pull it out! The card is blocked and it works only with your PPC.

The diagnostic outlet

The car's diagnostic outlet (OBDII) is often located in the panel under the steering wheel. You might also find it in front of or behind the gear stick.



Volvo



Saab



Audi, VW, Skoda, Seat



Ford



Opel Vectra (under the ashtray)

Please, notice this!

- Don't connect PPC to the computer and car at the same time!

- Once the programming has started you must not disconnect PPC before display shows **"Done, please unplug PPC"**.

- Don't have PPC connected to the car while driving. Disconnect PPC from the car when the programming is finished.

Loading time

How long time does it take?

Here you see the time needed to tune your car or reinstall original settings (Tune/Orig) and reading the software of your car (Read car). Time is stated in minutes and is approximate.

Car model	Tune/Orig	Read car
Cadillac BLS 2.0T	4	30
Cadillac BLS 2.8T	1	3
Daewoo G2X 2.0T	1	3
Ford Focus ST 2.5T	6	50
Ford Mondeo 2.5T	1	3
Ford S-MAX 2.5T	1	3
Saab 9-5 1.9TiD	55	-
Saab 9-5/9-3 (T7)	27	50
Saab 9-3 SS 150/175/210Hp (T8)	4	30
Saab 9-3 SS 2.8T	1	3
Saab 9-3 SS 1.9TiD	2-12	2-12
Saturn Sky Red Line 2.0T	1	3
Opel Astra/Zafira 2.0T 170/200Hp	7	9
Opel Corsa 1.6T OPC	7	9
Opel GT 2.0T	1	3
Opel Vectra/Signum 2.0T	4	30
Opel Vectra 2.8T	1	3
Opel Vectra/Zafira/Signum 1.9CDTI	2-12	2-12
Pontiac Solstice 2.0T	1	3
VAG 1.8T	12-13	60
VAG 2.0T FSI	20-60	40-90
VAG 1.9TDI	3-5	5-70
VAG 2.0TDI	5	5-70
VAG 3.0TDI	5-12	5-70
Volvo 2.4 140Hp	3	3
Volvo turbo petrol	3-7	20-30
Volvo turbo diesel	2-5	7-10
Volvo D/2.4D/D5 126/163/180/185Hp	5	5

How to tune your car!



VERY IMPORTANT!



Once the programming or reading has started it must not be interrupted!

- Don't turn ignition off before display shows "**Turn ign. off and remove key->**"!
- Don't disconnect OBDII cable from the car before display shows "**Done, please unplug PPC**"!

Leave the car untouched during the programming. Don't open/close doors, don't turn the steering wheel, don't turn on radio, AC etc.

If the car doesn't start after the programming, please perform the programming (Tune car) once again. If the problem remains then contact BSR support.

1. Preparation (before the tuning)

- Check that the car is properly serviced and that no warning lamps are lit. If anything is wrong with the car it should first be taken to a car repair shop.
- **Make sure car battery is fully charged, if any doubt connect an electronic (not analog) battery charger.**
- Only use fuel according to the instructions on page 4, headline "Fuel".
- Cell phone might cause interference. Please remove or turn it off.
- Go for a drive so that the engine reaches normal temperature before tuning.
- For automatic gearboxes, gear selector shall be in position "P" before tuning.

2. Connect PPC to the diagnostic outlet

- Connect PPC to the diagnostic outlet, located under the steering wheel (see page 6).
- Then turn the ignition on. Ignition is in the 2:nd position, when all control lamps are lit and before the starter motor gets activated. (pos 0= OFF, pos 1= radio, pos 2= ignition, pos 3= engine starts)
- Turn off current consumers such as: radio, AC, headlight, defroster, seat heating etc.

3. Follow the diagram on next page

Saab T7: Orange squares only apply to Saab 9-5 and Saab 9-3 of previous generation. These have a control system called Trionic 7, or T7. See special instructions on page 10.

Saab 9-5 1.9TiD: Disconnect the low beams by removing the fuse shown on page 10. Please, do this *before* you start the programming (no reminder is shown in PPC's display).

Note! On some cars with magnetic ignition lock (e.g. Audi A6/Q7, Ford S-MAX, Volvo S80/V70) it's impossible to remove the key after the programming. When PPC shows "**Turn ign. off and remove key->**" you shall just turn ignition off, press Enter and unplug PPC, then start the car and drive for some minutes. After this you can remove the key.

VAG 1.8T/1.9TDI: On some VAG models the cooling fan is activated when you turn the ignition on. The cooling fan must be disconnected before you start programming with PPC.

8 See more details and pictures of how to disconnect the cooling fan on page 11.

- ENTER** *press Enter*
- MENU** *press Menu*
- Saab T7** *orange squares only apply to Saab T7, see page 10*

(sometimes you must choose car model)

ENTER

Main menu
Program car ->

ENTER

Turn ignition OFF, press enter

ENTER

Turn ignition ON, press enter

ENTER

Please wait...

Note! If you get the message "Read car?", then read the instructions on page 12-13. Don't press Enter unnecessarily!

MENU

Programmi ng menu
Tune car?

ENTER

Please wait...

Programmi ng menu
Return to orig?

ENTER

Please wait...

Programmi ng menu
Read car?

ENTER

Please wait...

Saab T7

Di sconnect fan,
enter when ready

ENTER

Programmi ng...
00: 00: 00

Di sconnect fan,
enter when ready

ENTER

Programmi ng...
00: 00: 00

Di sconnect fan,
enter when ready

ENTER

Readi ng...
00: 00: 00

Saab T7

Saab T7

Reconnect fan,
enter when ready

ENTER

Turn ign. off
and remove key->

ENTER

Done, please
unpl ug PPC.

Reconnect fan,
enter when ready

ENTER

Turn ign. off
and remove key->

ENTER

Done, please
unpl ug PPC.

Reconnect fan,
enter when ready

ENTER

Turn ign. off
and remove key->

ENTER

Done, please
unpl ug PPC.

Saab T7

Please, synchronize PPC via the Internet after you have tuned your car. This is so we can offer you the best and quickest support.

Low beams & cooling fan Saab T7

When programming Saab 9-5 and Saab 9-3 of the previous generation (Trionic 7 control system) the low beams and cooling fan must be disconnected. Do this when PPC shows “Disconnect fan, enter when ready” (see page 9). Remove the two fuses, then press Enter. When PPC shows “Reconnect fan, enter when ready” put the fuses back, then press Enter. The pictures show which fuses, and where they are located.

Saab 9-3

low beams



Remove fuse no. 15, Located at driver's side, at the left, inside the panel.

cooling fan



Remove fuse no. 3, located in the engine house.

Saab 9-5

low beams



Remove fuse no. 35, located at driver's side, at the left, inside the panel.

(either it looks like this...) cooling fan variant A



(...or this.) cooling fan variant B



Variant A: Remove fuse no. 15 in the engine house.

Variant B: Remove this fuse in the engine house.

Cooling fan VAG 1.8T/1.9TDI

On some VAG models 1.8T/1.9TDI (e.g. A4/Passat yearmodel 2001 and Sharan) the cooling fan is activated when you turn the ignition on. The cooling fan must be disconnected before you start programming with PPC! This is to prevent that the car battery loses all power, which would interrupt the programming. Restore it after the programming. The pictures below show how to disconnect the cooling fan.

VAG 1.8T



1. Remove the cover.



2. Separate the lower electric connector.



3. When the connector is separated the fan will not start. It's done to save power. Restore connector and cover after the programming.

VW Sharan



1. Remove the cover.



2. Disconnect this cable and protect it from touching other cables around it. Restore cable and cover after the programming.

Read car

Why do I get the "Read car?" message?

Nothing is wrong with your PPC when this happens! PPC® Tuning System has an advanced safety system that guarantees that your car always gets the right software installed. If PPC discovers that the tuning software and the car's original software are not compatible, the safety system steps in and the message "Read car?" appears. With the Read car function PPC stores the car's original software so that you can send it to BSR via the Internet. On the basis of that BSR customizes a new tuning software.



How to do:

1. Don't read the car, update PPC via the Internet first

When PPC shows "Read car?" don't press Enter. Turn ignition off and disconnect PPC from the car. Now you shall update PPC via the Internet. Install the program PPC Sync (page 16-18), then connect PPC to the computer via the USB cable and press "Synchronize" in the PPC Sync program to update PPC.

2. Connect PPC to the car

(follow instructions on page 8-9) If "Tune car?" appears in the programming menu the update worked! You can now tune your car, and you don't have to continue with item 3-7 below. If "Read car?" still appears you have to go to item 3 below.

3. Read the car's software

(follow instructions on page 8-9) When "Read car?" appears in the programming menu you shall complete the procedure by pressing Enter on PPC. Turn off current consumers such as radio, AC, headlight, defroster, seat heating etc. Make sure that car battery is fully charged, if any doubt connect a battery charger (reading can take up to 1½ hour). Reading must not be interrupted! Do not turn ignition off or disconnect OBDII cable from the car before display shows "Turn ign. off and remove key->" and "Done, please unplug PPC"!

4. Send your car's original software to BSR

Connect PPC to your computer. Press "Synchronize" in PPC Sync to send your car's original software to BSR. You don't have to inform BSR about this!

5. BSR produces a customized tuning software

When BSR's technicians has received the software, a tuning software customized for your car will be produced. This normally takes 1-5 working days. You'll get an e-mail when the new tuning software is ready, then you can download it.

6. Download the new tuning software to PPC

Connect PPC to your computer. Press "Synchronize" in PPC Sync to automatically download the new customized tuning software to your PPC.

7. Tune your car

(follow instructions on page 8-9) Now "Tune car?" appears instead of "Read car?".

PPC's functions

"Program car" menu

Main menu
Program car ->

In this menu you can 1) tune your car, 2) return your car to original settings and 3) read the software of the car.

Turn ignition
OFF, press enter

Turn ignition off (without removing the key). Then press Enter.

Turn ignition
ON, press enter

Turn ignition on. Then press Enter.

Please wait...

Wait a few seconds. PPC communicates with the car and checks a lot of information, among others that tuning and original software match.

Programming menu
Tune car?

Choose "Tune car?" when you want to tune your car. The time required depends on the car model, see page 7.

Programming menu
Return to orig?

Choose "Return to orig?" when you want to return to original settings. The time required depends on the car model, see page 7.

Programming menu
Read car?

"Read car?" is automatically displayed when you need to update PPC (page 12-13). The time required depends on the car model, see page 7.

Programming...
00:00:00

When you press Enter at "Tune car?" or "Return to orig?" the programming starts. You can see for how long time the programming has been going on (hours, minutes and seconds). **Once the programming has started it must not be interrupted! Do not disconnect OBDII cable from the car before the display shows "Done, please unplug PPC"!**

Reading...
00:00:00

When you press Enter at "Read car?" the reading starts. Time is showed in hours, minutes and seconds. **Once the programming has started it must not be interrupted! Do not disconnect OBDII cable from the car before display shows "Done, please unplug PPC"!**

Turn ign. off
and remove key->

Turn the ignition off and remove the key from the ignition lock, then press Enter. **Note! On some cars with magnetic ignition lock it's impossible to remove the key after programming. How to do: turn ign off, press Enter and unplug PPC, start the car and drive for some minutes.**

Done, please
unplug PPC.

When you see this message you can disconnect PPC from the car.

Disconnect fan,
enter when ready

Only for Saab T7 (9-5 and previous 9-3). Disconnect low beams and cooling fan according to the instructions on page 10. Then press Enter.

Reconnect fan,
enter when ready

Only for Saab T7 (9-5 and previous 9-3). Reconnect low beams and cooling fan according to the instructions on page 10. Then press Enter.

“Show settings” menu

Main menu Show settings ->	This menu shows information that is specific for your PPC.	
Settings menu Show VIN	Show what VIN (vehicle identification number) PPC is locked to. PPC only works with this VIN.	VIN no. =
Settings menu Show software no	Show the car's software number.	Software no. =
Settings menu Show box HW no.	Show the hardware number (ECU number) of the engine control unit.	Box HW no. =
Settings menu Show OPS no.	Show the OPS number, which is your customer number. Necessary information about you and your car is connected to this number (tel.no., address, car model, transmission etc...).	OPS no. =
Settings menu Show PPC version	Show your PPC's hardware and firmware number.	HW ver = FW ver =

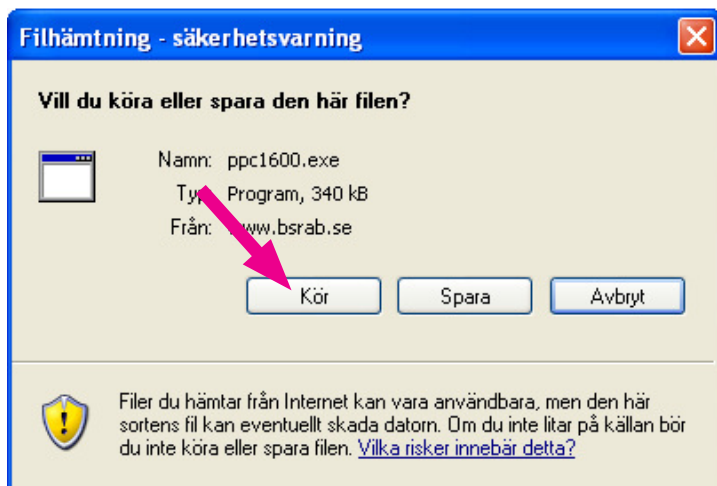
Other messages

ECU is not responding.	No contact with the ECU. Probably because you forgot to turn ignition on. (To turn ignition on, you turn the key to the second position when all control lamps are lit, before the starter motor gets activated)
This PPC is not for this car.	PPC is locked to your car, and it will only work with your car. If you connect PPC to any other car you'll get this message. Contact BSR support.
Please update PPC firmware.	Update PPC's firmware. Start the program PPC Sync, connect PPC to the computer and press "Synchronize".
ERROR: MMC card failure, please check your MMC card.	MMC card is missing or it's not properly inserted in PPC. Check that the MMC card is properly inserted. Never pull the MMC card from the holder.
Locked, please synchronize again	To make the PPC work you have to synchronize it via the program PPC Sync (see page 20-21).
No programs match this car.	Contact your BSR dealer.
Unknown ECU	Disconnect PPC from the car. Synchronize PPC via the Internet (page 20-21). BSR sends an e-mail to you. Synchronize again. Tune the car.
Security access failure	Disconnect PPC from the car. Synchronize PPC via the Internet (page 20-21). Then contact BSR support.

Install PPC Sync

It's very easy to install PPC Sync. We don't show all possible messages that can appear on your computer, but the most important ones are showed below.

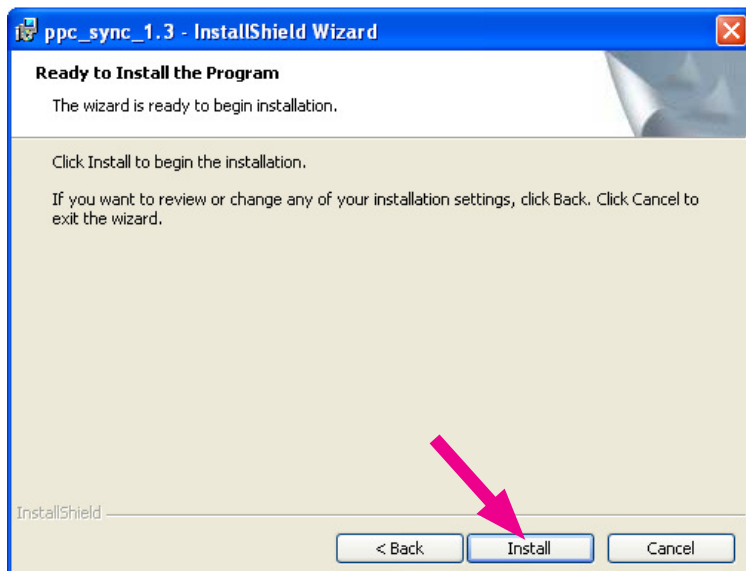
Enter this site <http://www.bsr.se/ppc/>. Fill in the username and password that was sent to your e-mail when you ordered PPC (if you miss this information contact your BSR dealer). Log in and press the link to PPC Sync. Follow the instructions below.



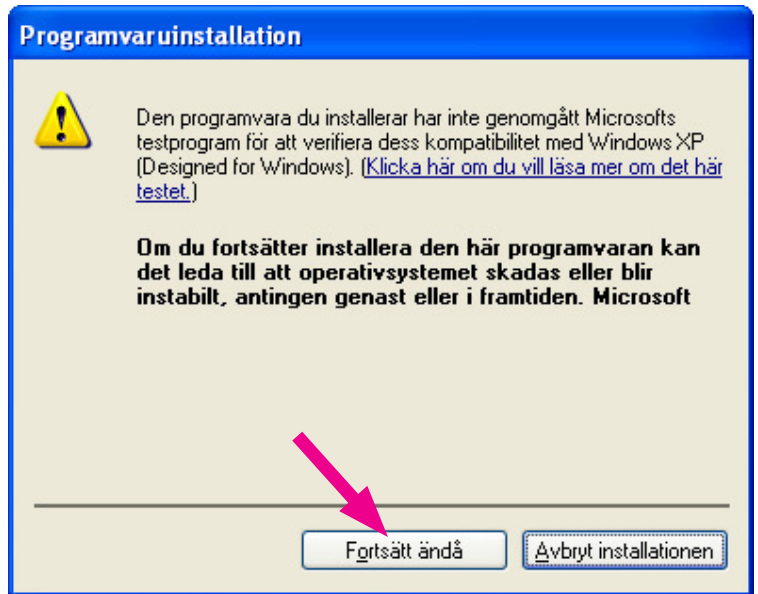
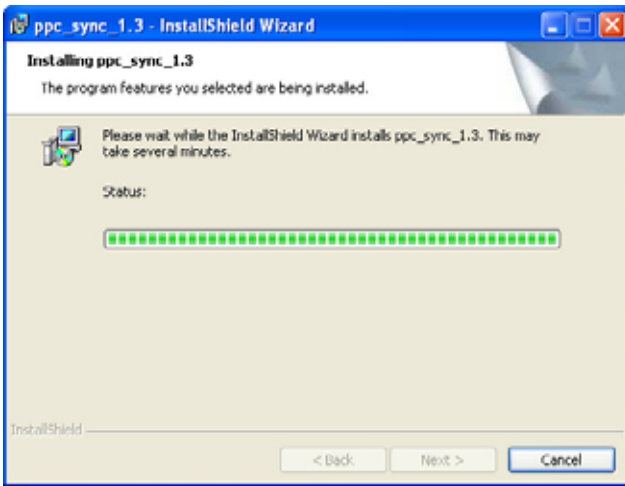
Press Run



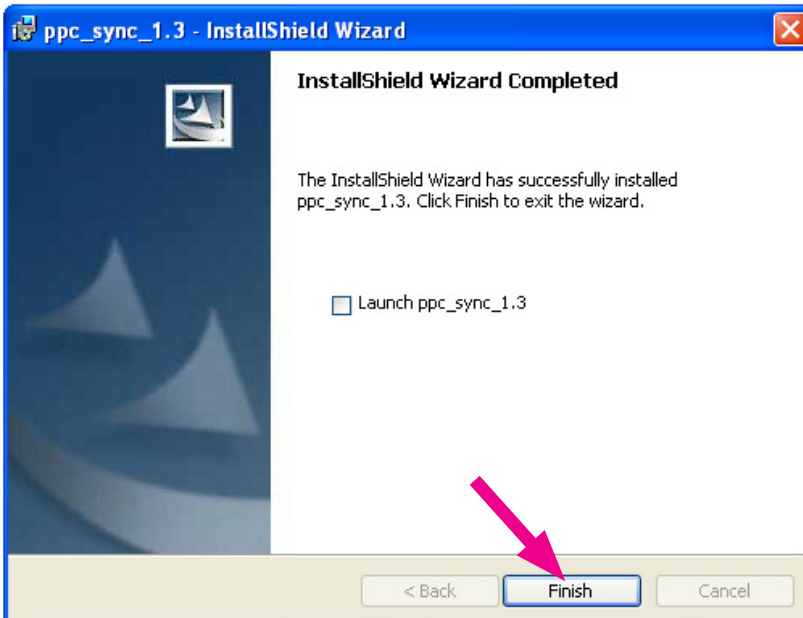
Press Run



Press Install



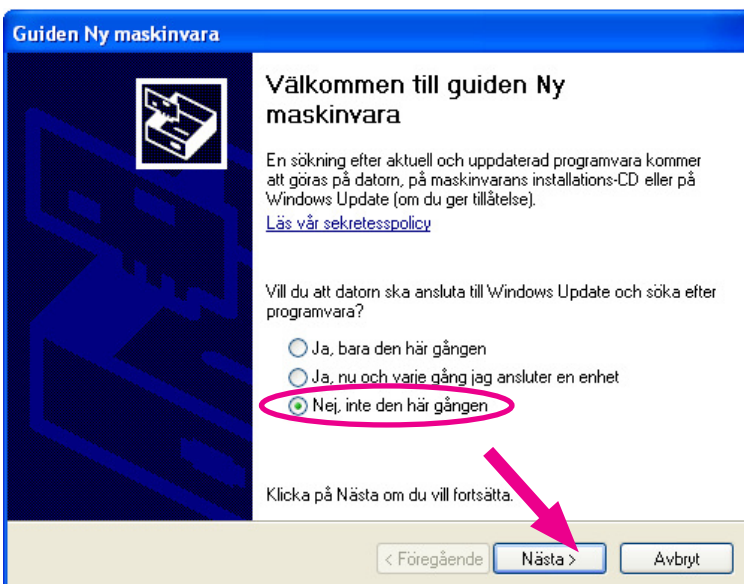
Press Continue anyway



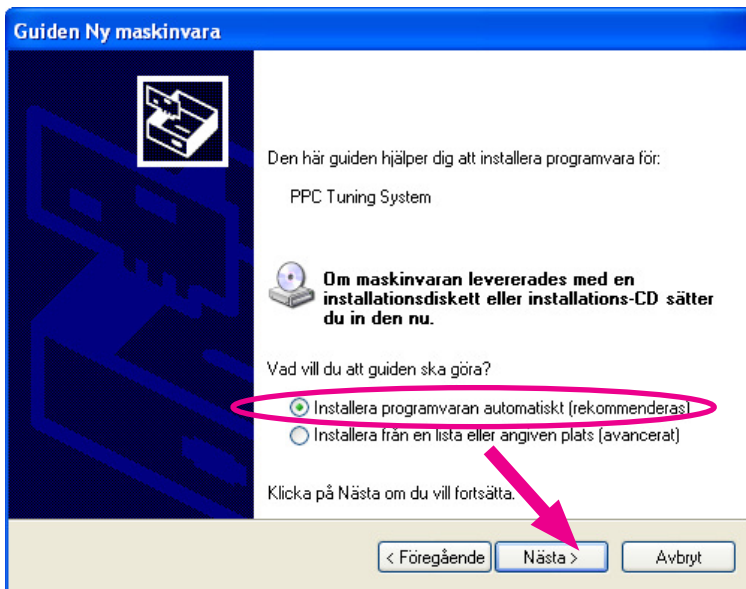
It is not possible to run PPC Sync before you have connected PPC to the computer!

Press Finish

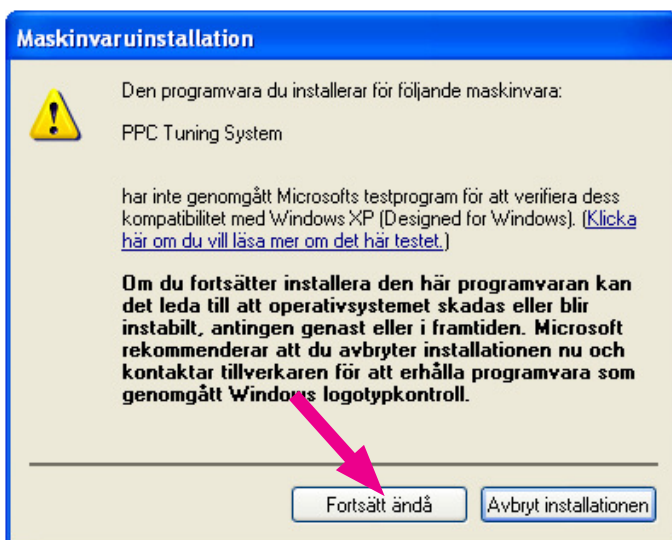
Now connect PPC to your computer via the USB cable.



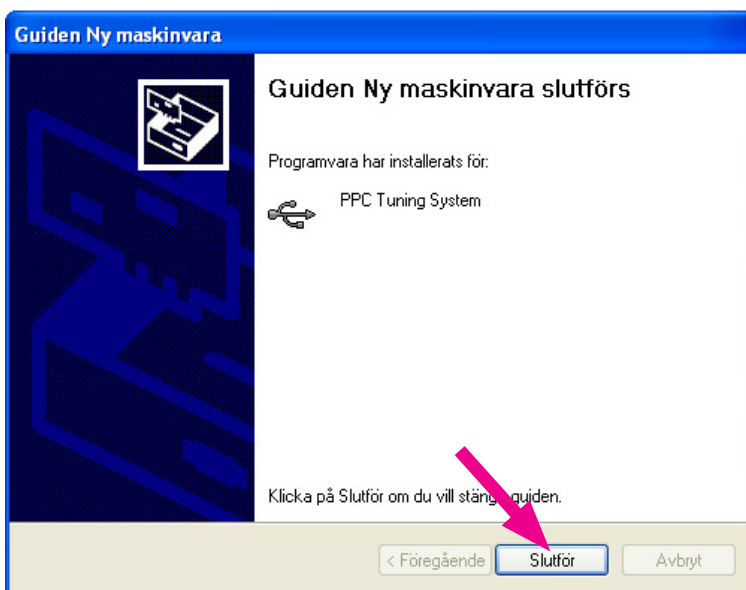
Press Next



Press Next



Press Continue anyway



Press Finish

The installation is now completed and you can use PPC Sync.

Update PPC via the Internet

PPC Sync

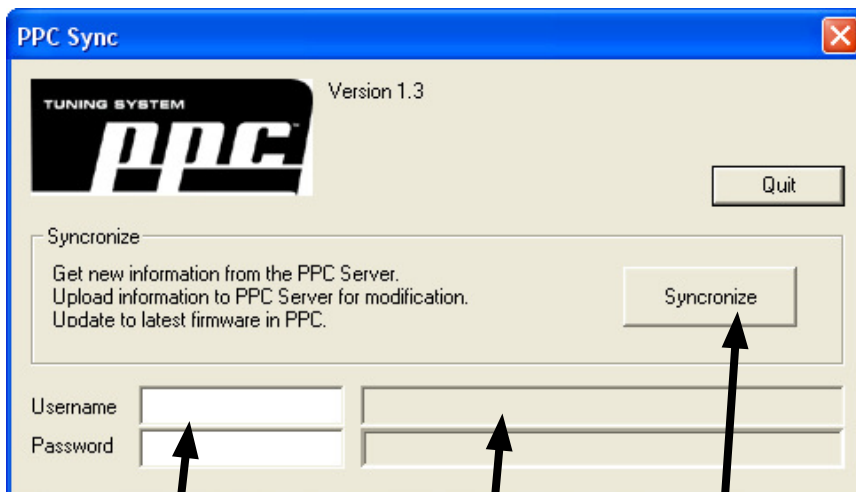
PPC Sync is the program you need when you want to download updated software to your PPC or send your car's original software from your PPC to BSR via the Internet. To update your PPC you connect it to the computer and press "Synchronize". Then you get access to the latest software adapted for your car model.

How to use PPC Sync

Before you can use PPC Sync the PPC must first have been connected to your car.

- 1 Start the program PPC Sync.
(if you haven't installed PPC Sync read page 16-18)
- 2 Fill in the username and password that was sent to your e-mail. Be careful with capital letters and extra space.
- 3 Connect PPC to the computer with the USB cable.
(don't connect PPC to the car and computer at the same time)
- 4 Don't touch the buttons on PPC while it's connected to the computer!
- 5 Press "Synchronize" to update PPC with the latest software. Besides, if you have stored the car's original software (Read car) it will be sent automatically to BSR for analysis. The message "Update done..." shows that the update is completed.

Possible fault messages are showed on page 22.



Fill in your username and password here.

See status and fault messages here.

Press Synchronize to...

- **Update PPC**

Updated software customized for your car will be downloaded to PPC when you press "Synchronize".

- **Send the original software to BSR**

If you also have stored the car's original software (Read car) it will be sent automatically to BSR. On the basis of that BSR will customize a tuning software for your car.

(When you press "Synchronize" the menus in your PPC will also be updated to the latest version. New functions may be added that aren't described in this manual. Latest updated version of this manual is available on www.bsr.se.)

Specifications for PPC Sync

Compatible with:

Windows Vista / XP / 2000 / ME / 98 / NT.
(Vista or XP is recommended)

Internet protocol:

TCP/IP port 1246.

If you are uncertain we recommend you to turn off any firewalls before using PPC Sync.

Fault finding

Problem	Cause	Measure
I can't find "Tune car?" in the programming menu.	Tuning software doesn't match original software (see page 12-13)	Complete items on page 13. Often item 1-2 are necessary.
Impossible to remove key from ignition lock after programming.	Nothing is wrong, even the brand garages have this "problem".	Turn ignition off, press Enter and unplug PPC from the car, start the car and drive for some minutes.
It takes a long time to tune the car.	See "Loading time" page 7.	Wait. Don't disconnect cable and don't turn ignition off!
It takes a long time to read the car's original software.	See "Loading time" page 7.	Wait. Don't disconnect cable and don't turn ignition off!
The car has been serviced and now I can't find "Tune car?" in the programming menu.	Maybe the manufacturer has updated the car's software. PPC will not tune the car as long as the tuning software doesn't match the original software perfectly.	Complete items on page 13. Often item 1-2 are necessary.
PPC shows a fault message.	Fault messages can appear for various reasons.	Did you really turn ignition on? Is the OBDII cable propely connected to both car and PPC? Unscrew the battery pole for 2-3min and restart. If nothing of this helps you should write down the fault message and contact BSR Support.

Fault messages in PPC Sync

"Unable to find PPC device"	PPC isn't connected to computer.	Connect PPC to the computer.
"Unable to communicate with PPC"	The communication between your computer and PPC is not working.	Check that USB cable is connected. If you pressed Enter on PPC while it's connected to the computer communication fails. Disconnect USB cable and then reconnect it again.
"ERROR Connecting to server"	No Internet connection.	Check your Internet connection. Then try again.
"ERROR Wrong username"	Wrong username.	Check your username. Capital letters matter!
"ERROR Incorrect password"	Wrong password.	Check your password. Capital letters matter!
"ERROR VIN does not match existing VIN"	PPC must first have been locked (connected) to your car.	Connect PPC to the car, but don't start the programming or reading. If the message remains contact BSR.
"ERROR Please update PPC Sync"	There is a newer version of the program PPC Sync.	Download the latest version of PPC Sync from www.bsr.se/ppc . (this is not the same thing as updating the PPC)

PPC Terms of agreement

1. It is not allowed to open the unit, or in any form try to make a copy of the software or hardware related to the PPC itself or the PPC Tuning System, including the PPC Sync program.
2. It is not allowed to disassemble or reverse the PPC unit functions or PPC Sync functions.
3. It is not allowed to use BSR software or coming software updates for reversed engineering of an ECU.
4. It is not allowed to use the PPC, or its software that is acquired from BSR, in any other way than as described by BSR and/or the BSR staff.
5. It is not allowed to read out the information in a tuned ECU, or the PPC, and by this try to modify, copy, distribute or reproduce the BSR tuning software.
6. If the ECU software is overwritten with any other tool than PPC, BSR cannot guarantee the function with PPC later on.

If PPC has been exposed to anything set out above, BSR claims the right to expel the PPC and its owner from all support, updates and access to BSR servers; The warranty will be void and any refund will be denied. BSR can and will take legal actions against anyone who does not follow this agreement.

The PPC must be used as instructed by BSR.



Support

If you have questions or need some help with your PPC, please contact your BSR dealer in the first place. You can also contact BSR via the question form on the home page www.bsr.se/support. Your question is top priority and will be answered as soon as possible.

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