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PROGRAMMING MANUAL
ZeelProg PDCI-44V

Supported control units: **PDCI-44V**

ZeelProg is PC application for programming ZEELTRONIC engine *control units*. For programming special PC-USB programmer is needed.

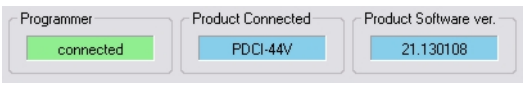
➲ ***ZeelProg*** automatically detects PC-USB programmer connection and enables all functions (without PC-USB programmer, ***ZeelProg*** application is locked).
➲ ***ZeelProg*** automatically detects type of engine *control unit* connected to PC-USB programmer.

ZeelProg USER INTERFACE

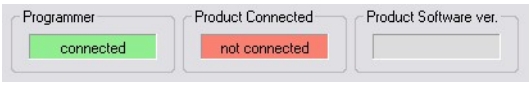
Auto detection

Zeelprog automatically detects USB-Programmer and type of *control unit*.

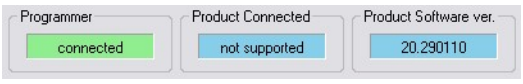
⇨ Programmer connected, product (*control unit*) connected:



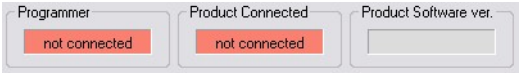
⇨ Programmer connected, product (*control unit*) not connected:



⇨ Programmer connected, product (*control unit*) not supported:



⇨ Programmer not connected, product (*control unit*) not connected:

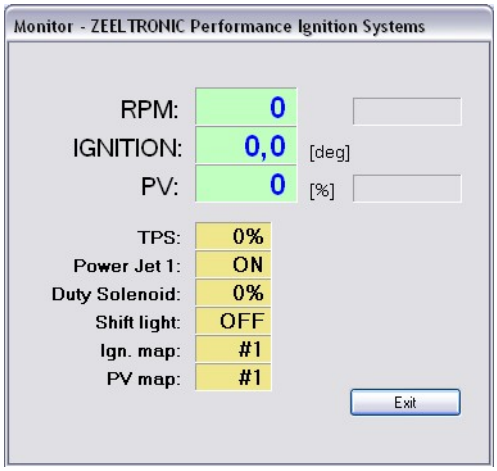


Menu structure

⇨ **File menu** is active when PC-USB programmer is connected

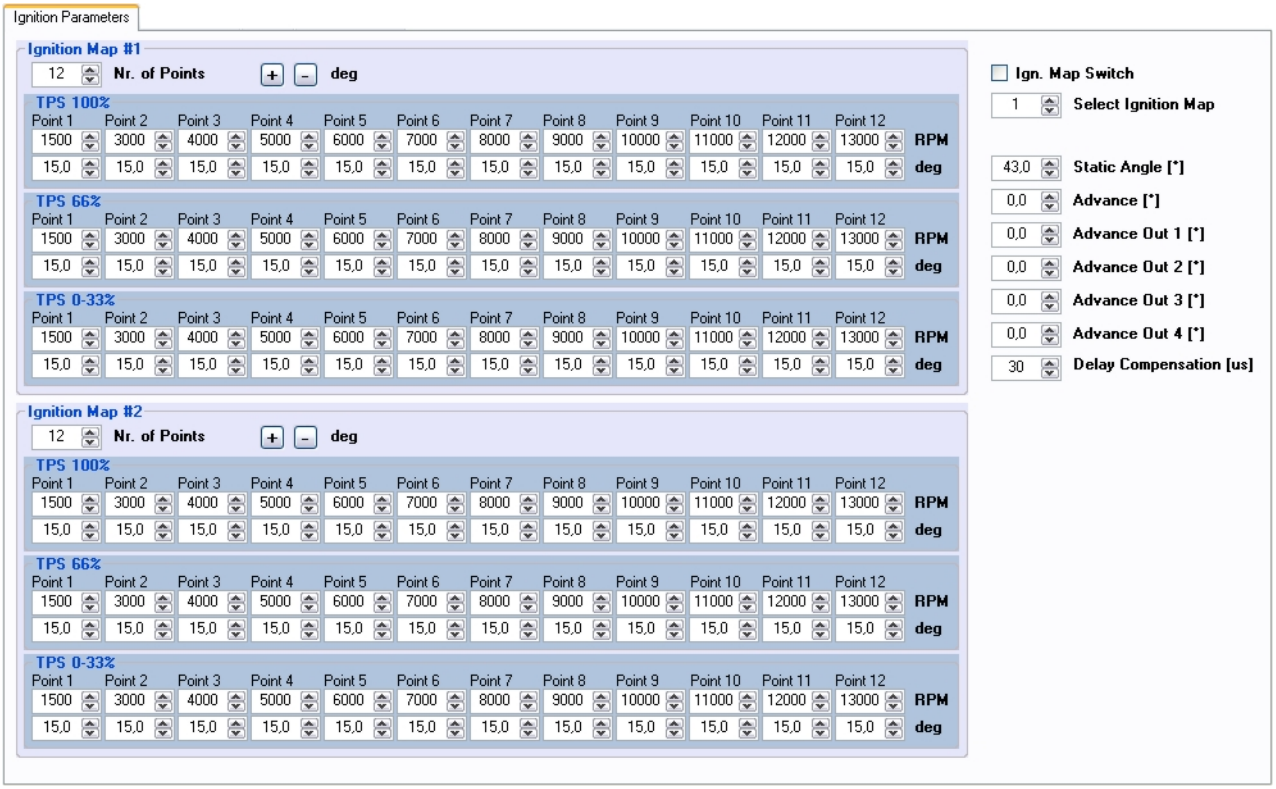
Open → Open an existing *.zee file
Save As → Save all parameters to *.zee file

⇨ **Monitor** is active when *control unit* is connected to PC-USB programmer. Clicking on the **Monitor** opens Monitor window.



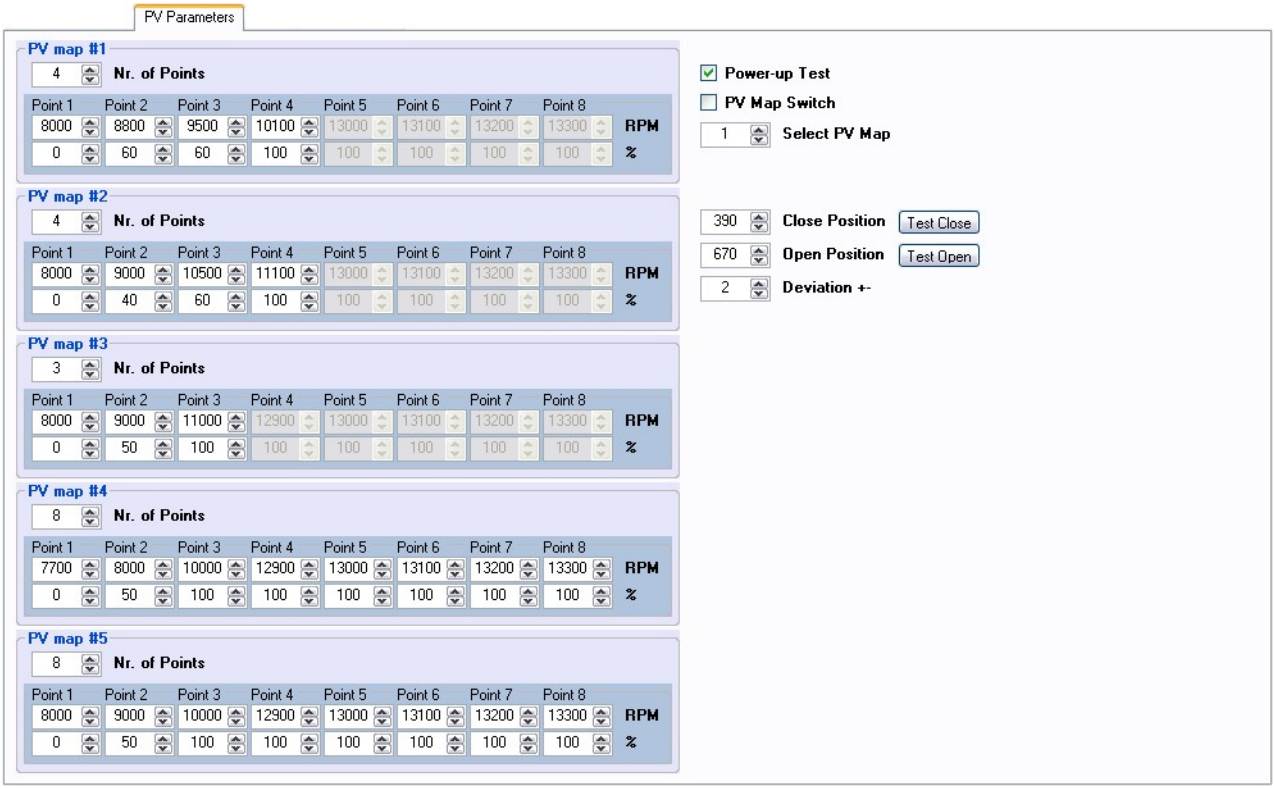
⇨ Clicking on **About** opens About window and show some basic information about ***ZeelProg*** application.

Ignition Parameters



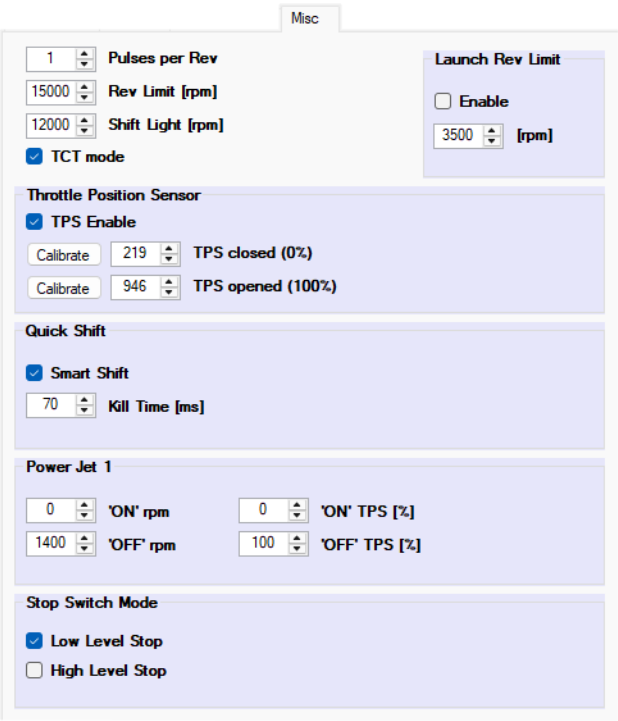
- ⇨ **Nr. of Points** for each ignition map can be set from 4 to 12.
- ⇨ **RPM** of each ignition point can be set from 100rpm to 20000rpm in 100rpm steps.
- ⇨ **deg**...advance of each ignition point can be set from 0deg to 85deg in 0,1deg steps
- ⇨ **Static Angle** is pickup advance position from TDC (Top Dead Centre)
- ⇨ **Advance**...advances, or retards whole ignition map from -10deg to 10deg in 0,1deg steps. Positive value advances and negative value retards.
- ⇨ **Advance out 1**...advances, or retards ignition output 1 for -10deg to 10deg in 0,1deg steps. Positive value advances and negative value retards.
- ⇨ **Advance out 2**...advances, or retards ignition output 2 for -10deg to 10deg in 0,1deg steps. Positive value advances and negative value retards.
- ⇨ **Advance out 3**...advances, or retards ignition output 3 for -10deg to 10deg in 0,1deg steps. Positive value advances and negative value retards.
- ⇨ **Advance out 4**...advances, or retards ignition output 4 for -10deg to 10deg in 0,1deg steps. Positive value advances and negative value retards.
- ⇨ **Delay Compensation**...ensure correct ignition angle through whole revs. Default value is 30us.
- ⇨ **Ignition Map Switch**...enables, or disables ignition map switch. Ignition map can be selected with switch, when function is enabled.
- ⇨ **Select Ignition Map**...selection is active only when **Ignition Map Switch** is not enabled.
- ⇨ **'+', '-' deg**... increase, or decrease advance of all ignition points in whole ignition map

PV Parameters



⇨ **Nr. of Points** for each PV map can be set from 2 to 8.
⇨ **RPM** of each PV point can be set from 100rpm to 20000rpm in 100rpm steps.
⇨ **%**...PV position of each PV point can be set from 0% to 100% in 1% steps.
⇨ **Power-up Test**...enables, or disables PV test at switching on power supply.
⇨ **Select PV Map**...selecting active PV map.
⇨ **Deviation**...prevents 'hunting' of PV servo.
⇨ **Close Position** of PV servo. Close position is 0% on PV map.
⇨ **Open Position** of PV servo. Open position is 100% on PV map.
⇨ **Test Close**...clicking on **Test Close** button, opens Test Close window. Function is active when PC-USB programmer and *control unit* are connected.
⇨ **Test Open**...clicking on **Test Open** button, opens Test Open window. Function is active when PC-USB programmer and *control unit* are connected.
⇨ **PV Map Switch**...enables, or disables PV map switch. PV map can be selected with switch, when function is enabled.

Misc Parameters

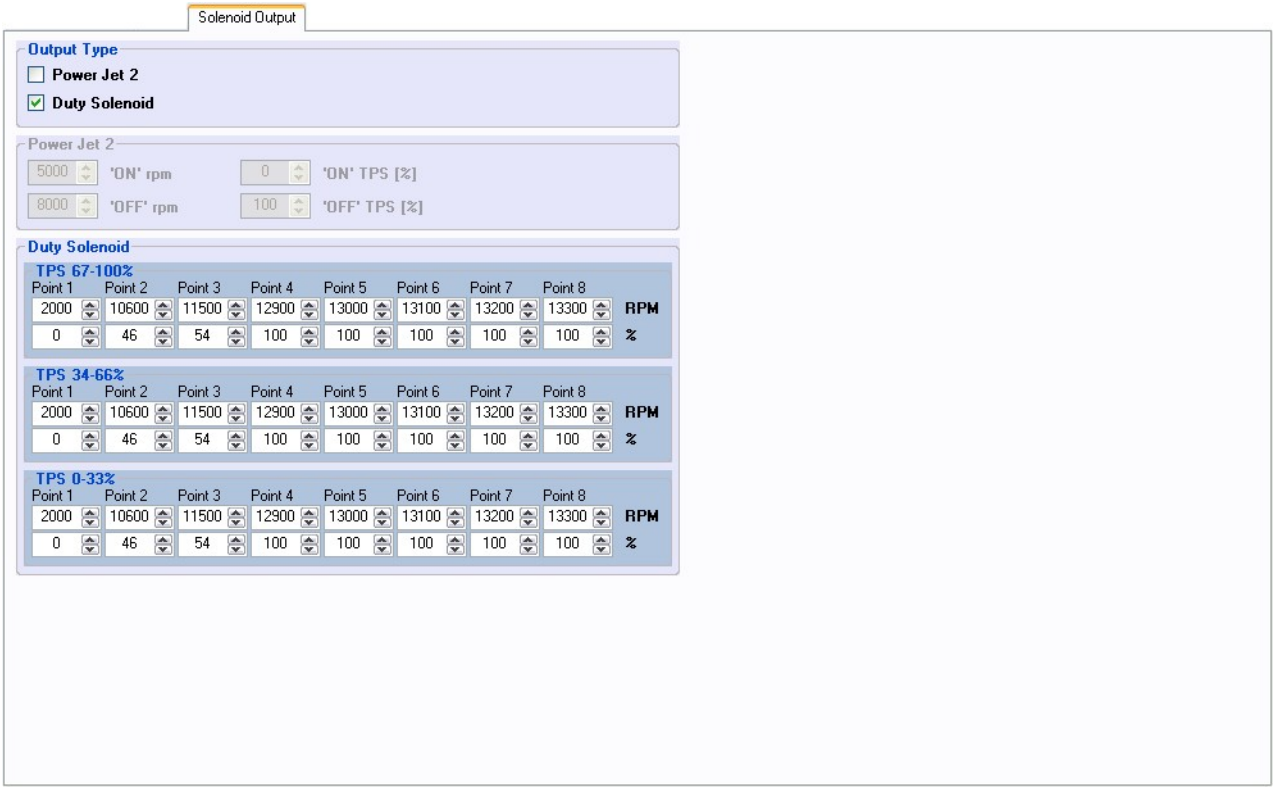


- ⇨ **Pulses per Rev**...set to 1 for twin cylinder with 2 pickups and single cylinder, set to 2 for wasted spark twin cylinder with 1 pickup.
- ⇨ **Rev limit**...limits maximum revolutions. Set to maximum 20000rpm in 100rpm steps.
- ⇨ **Shift light**...activate shift light output above programmed revs. Set to maximum 20000rpm in 100rpm steps.
- ⇨ **TCT mode**... Throttle Close spark Termination mode, reduces number of sparks above 8000rpm (spark is active every third revolution), when throttle is closed. TCT mode ensure better engine cooling. This setting is primarily for race use, for normal road use the recommended setting is 'DISABLED'. If you have errors on the rev counter 'DISABLE' this setting.
- ⇨ **TPS Enable**... enable, or disable TPS (Throttle Position Sensor).
- ⇨ **TPS closed [0%]**... for correct TPS operation, TPS close position must be calibrated!
- ⇨ **TPS opened [100%]**... for correct TPS operation, TPS open position must be calibrated!
- ⇨ **Smart Shift**... enable, or disable Smart Shift. Smart shift function automatically adjusts kill time for different revs. Shift kill time must be always set, as basic kill time.
- ⇨ **Kill Time**... for shifting without using clutch - shift sensor is required. Function is disabled with setting to 0ms.
- ⇨ **Stop Switch Mode: Low Level Stop**... engine stops when low level signal (when stop switch connected to the ground)
- ⇨ **Stop Switch Mode: High Level Stop**... engine stops when high level signal (when stop switch is opened)
- ⇨ **Power Jet 1 'ON' rpm**... revs for activating Power Jet 1
- ⇨ **Power Jet 1 'OFF' rpm**... revs for deactivating Power Jet 1
- ⇨ **Power Jet 1 'ON' TPS**... throttle position for activating Power Jet 1
- ⇨ **Power Jet 1 'OFF' TPS**... throttle position for deactivating Power Jet 1

Power Jet 1 example:
Power jet 1 ON (RPM) = 8000rpm
Power jet 1 OFF (RPM) = 10000rpm
Power jet 1 ON (TPS) = 70%TPS
power jet 1 OFF (TPS) = 90%TPS

Power jet is switched on when revs are between 8000-10000rpm and throttle position is between 70-90%, otherwise power jet is switched off.

Solenoid parameters



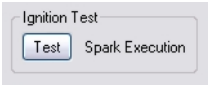
⇨ **Solenoid Output Type**... Solenoid output function can be configured as Power Jet 2, or Duty Solenoid. Duty solenoid is used for adjusting A/F ratio on some carburettors.
⇨ **Power Jet 2 'ON' rpm**... revs for activating Power Jet 2
⇨ **Power Jet 2 'OFF' rpm**... revs for deactivating Power Jet 2
⇨ **Power Jet 2 'ON' TPS**... throttle position for activating Power Jet 2
⇨ **Power Jet 2 'OFF' TPS**... throttle position for deactivating Power Jet 2
⇨ **RPM** of each Duty Solenoid point can be set from 100rpm to 20000rpm in 100rpm steps.
⇨ **%** of each Duty Solenoid point can be set from 0% to 100%.

Power Jet 2 example:
Power jet 2 ON (RPM) = 8000rpm
Power jet 2 OFF (RPM) = 10000rpm
Power jet 2 ON (TPS) = 70%TPS
power jet 2 OFF (TPS) = 90%TPS

Power jet is switched on when revs are between 8000-10000rpm and throttle position is between 70-90%, otherwise power jet is switched off.

Ignition Test

Ignition test is available only when engine not running.



⇨ With pressing **Test** button, multiple sparks will be generated at sparkplug 1 and after about second at sparkplug 2 and after at spark plug 3 and after at spark plug 4.

PROGRAMMING AND SETTING NEW PARAMETERS

➲ While programming or reading, *control unit* does not need to be connected to power supply, because it is supplied through PC-USB programmer.

Changing control unit parameters

① Read parameters from connected *control unit*, by pressing **Read** button.

Progress bar indicate read and verify process.

Successful reading is indicated as: 

Error while reading is indicated as: 

If error occurs, then repeat reading.

② Change parameters

③ Program parameters to connected *control unit*, by pressing **Program** button.

Progress bar indicate program and verify process.

Successful programming is indicated as: 

Error while programming is indicated as: 

If error occurs, then repeat programming.

Make new *.zee file without connecting control unit

① Connect PC-USB programmer to PC.

② Set parameters

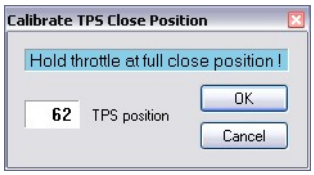
③ Save parameters by clicking **Save As** from **File menu**.

TPS Close Position [0%]

For correct operation of TPS function, TPS close position must be calibrated!

TPS close position can be set manually by entering number, or calibrated by clicking on **Calibrate** button.
Using **Calibrate** function is more recommended.

Clicking on **Calibrate** button opens **Calibrate TPS Close Position** window.



⇨ to finish calibration: hold throttle at full close position and press **OK** button
⇨ to cancel calibration: press **Cancel** button

TPS Open Position [100%]

For correct operation of TPS function, TPS open position must be calibrated!

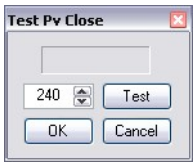
TPS open position can be set manually by entering number, or calibrated by clicking on **Calibrate** button.
Using **Calibrate** function is more recommended.

Clicking on **Calibrate** button opens **Calibrate TPS Open Position** window.

⇨ to finish calibration: hold throttle at fully open position and press **OK** button
⇨ to cancel calibration: press **Cancel** button

Set PV close position

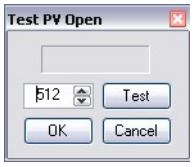
⇨ Clicking on **Test Close** button opens Test Close window.
Function is active when PC-USB programmer and *control unit* are connected.



⇨ PV servo close position can be tested before confirming... PV servo moves to close position, after clicking on **Test** button.
⇨ If PV servo can't move to close position then **error 1** will occur. To clear **error 1** change close position and click on **Test** button.
⇨ Click on **OK** button to confirm close position, or **Cancel** to keep old close position.

Set PV open position

⇨ Clicking on **Test Open** button opens Test Open window.
Function is active when PC-USB programmer and *control unit* are connected.

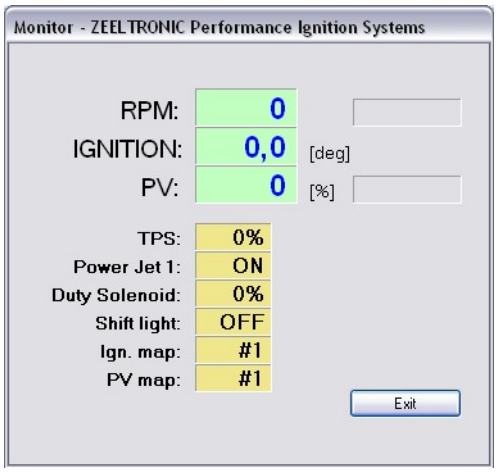


⇨ PV servo open position can be tested before confirming... PV servo moves to open position, after clicking on **Test** button.
⇨ If PV servo can't move to open position then **error 1** will occur. To clear **error 1** change open position and click on **Test** button.
⇨ Click on **OK** button to confirm open position, or **Cancel** button to keep old open position.

MONITOR FUNCTION

⇨ **Monitor** function is active when *control unit* is connected to PC-USB programmer.

Clicking on **Monitor** opens Monitor window.



⇨ Monitor show engine revolution, ignition advance angle, PV position, TPS position, selected ignition map, selected PV map, shift light operation, rev limit operation, power jet 1 operation, duty solenoid operation, PV error
⇨ PV error 1...when PV servo can't move to position.
⇨ PV error 2...when too high current on PV servo output.