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application version: 00.130424

PROGRAMMING MANUAL ZeelProg PCDI-10T(VT)

Supported control units: **PCDI-10VT, PCDI-10T**

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.

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ZeelProg SOFTWARE INSTALLATION GUIDE

CD content:

- driver (USB programmer driver)
- NET Framework
- ZeelProg

Software can be also downloaded from web site:

<http://www.zeeltronic.com/page/zeelprog.php>

ZeelProg application can be installed on Windows XP/Vista.
"NET Framework 3.5" needs to be installed.

Installation:

- ① Insert CD-ROM and browse content.
- ② Install USB programmer driver with running "CDM20600.exe" from CD-ROM "driver" directory.
- ③ Install **ZeelProg** with running "setup ZeelProg.exe" from CD-ROM "ZeelProg" directory.

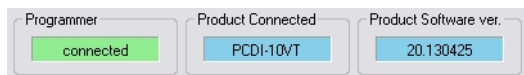
If **ZeelProg** does not start, install "NET Framework" from CD-ROM "NET Framework" directory.

ZeelProg USER INTERFACE

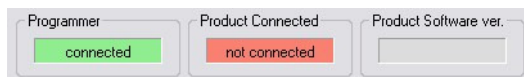
Auto detection

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

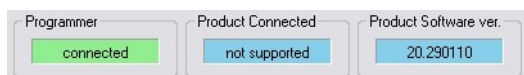
⇒ Programmer connected, product (*control unit*) connected:



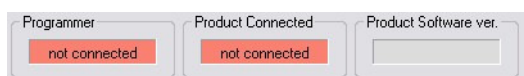
⇒ Programmer connected, product (*control unit*) not connected:



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



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



Menu structure

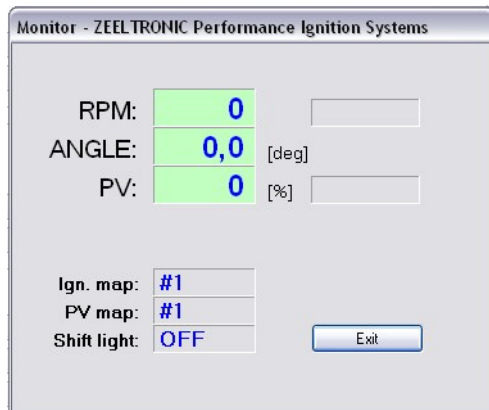


⇒ **File menu** is active when PC-USB programmer is connected

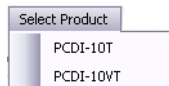


- Open** → Open an existing *.zee file
- Save As** → Save all parameters to *.zee file

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



⇒ **Select Product** menu is active when PC-USB programmer is connected and *control unit* is not connected.



Product selection is necessary before preparing new settings, while *control unit* is not connected.

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



Ignition Parameters

Ignition Parameters

Ignition Map #1

| | | | | | | | | | |
|---------|---------|---------------|---------|---------|---------|---------|---------|---------|----------|
| 5 | | Nr. of Points | | + - | | deg | | | |
| Point 1 | Point 2 | Point 3 | Point 4 | Point 5 | Point 6 | Point 7 | Point 8 | Point 9 | Point 10 |
| 2000 | 3500 | 9000 | 9900 | 11000 | 12000 | 13000 | 14000 | 15000 | 16000 |
| 17,0 | 27,0 | 17,0 | 9,0 | 9,0 | 9,0 | 9,0 | 9,0 | 9,0 | 9,0 |
| | | | | | | | | | RPM |
| | | | | | | | | | deg |

Ignition Map #2

| | | | | | | | | | |
|---------|---------|---------------|---------|---------|---------|---------|---------|---------|----------|
| 5 | | Nr. of Points | | + - | | deg | | | |
| Point 1 | Point 2 | Point 3 | Point 4 | Point 5 | Point 6 | Point 7 | Point 8 | Point 9 | Point 10 |
| 2000 | 4500 | 6000 | 9000 | 12500 | 12800 | 13000 | 14000 | 15000 | 16000 |
| 17,0 | 29,0 | 29,0 | 20,0 | 4,5 | 5,1 | 5,1 | 5,1 | 5,1 | 5,1 |
| | | | | | | | | | RPM |
| | | | | | | | | | deg |

| | | | | | |
|------|-------------------------|-------|----------------------|--------------------------|---------------------|
| 34,0 | Static Angle [°] | 13000 | Rev Limit [rpm] | <input type="checkbox"/> | Ignition Map Switch |
| 0,0 | Advance [°] | 12000 | Shift Light [rpm] | 1 | Select Ignition Map |
| 30 | Delay Compensation [us] | 0 | Shift Kill Time [ms] | | |
| 2 | Pulses per Rev | | | | |

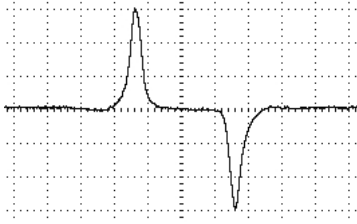
Trigger Mode

only [+] signal

[+] and [-] signal

- ⇒ **Nr. of Points** for each ignition map can be set from 4 to 10.
- ⇒ **RPM** of each ignition point can be set from 1000rpm to 20000rpm in 100rpm steps.
- ⇒ **deg**...advance of each ignition point can be set from 0deg to 85deg in 0,1deg steps
- ⇒ increasing, or decreasing advance of all ignition points in same ignition map
- ⇒ **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.
- ⇒ **Delay Compensation**...ensure correct ignition angle through whole revs. Default value is 30us.
- ⇒ **Pulses per Rev**...set to 1 for single cylinder and set to 2 for wasted spark twin cylinder.
- ⇒ **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.
- ⇒ **Shift Kill Time**...for shifting without using clutch - shift sensor is required. Function is disabled with setting to 0ms.
- ⇒ **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.

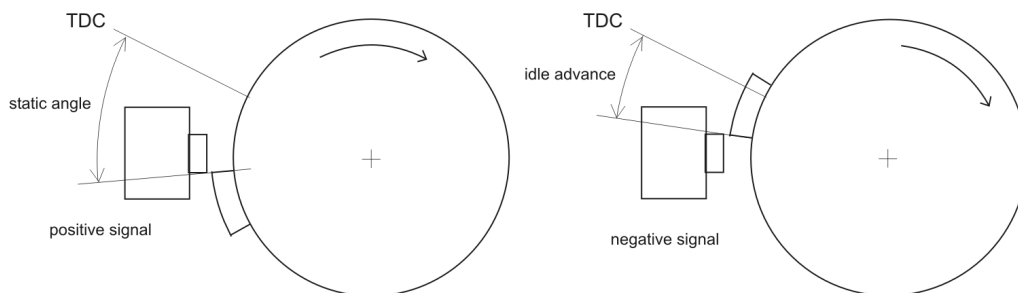
⇒ Trigger Mode



Trigger signal from pickup consist of positive and negative pulse. Positive pulse must be first and is generated by leading edge of trigger bar...negative pulse must be second and is generated by trailing edge of trigger bar.

If trigger signal is opposite (first negative and second positive), then wires from the pickup need to be switched...that changes polarity of signal from pickup.

Positive pulse defines static angle position and negative pulse defines idle running timing position.



⇒ When "**only [+] signal**" is checked, then only positive signal is detected and ignition timing is calculated with all revs as programmed with ignition map.

⇒ When "**[+] and [-] signal**" is checked, then both signals are detected. Revs of first ignition point define switching point between, programmed ignition map and idle running timing position.

- Ignition timing is defined with trailing edge of trigger bar, at revs lower then first ignition point (idle advance...se drawing above).

- Ignition timing is defined with programmed map, at revs higher then first ignition point.

Example: if first ignition point is programmed at 1500rpm, then below 1500rpm, ignition timing is defined with trailing edge of trigger bar (idle advance...se drawing above) and above 1500rpm, ignition timing is defined by programmed ignition map.

Set "**only [+] signal**" when using custom, or modified trigger rotor, or upgrade from static ignition timing CDI.

Set "**[+] and [-] signal**" when using original trigger rotors, or flywheels. First ignition point should be programmed somewhere between 1000-2000rpm.

PV Parameters

PV Parameters

PV Map #1

| | | | | | | | | | |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|-----|
| | Point 1 | Point 2 | Point 3 | Point 4 | Point 5 | Point 6 | Point 7 | Point 8 | |
| Nr. of Points | 500 | 1500 | 3000 | 4000 | 5000 | 7000 | 8000 | 9000 | RPM |
| | 8 | 0 | 0 | 0 | 0 | 30 | 70 | 100 | % |

PV Map #2

| | | | | | | | | | |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|-----|
| | Point 1 | Point 2 | Point 3 | Point 4 | Point 5 | Point 6 | Point 7 | Point 8 | |
| Nr. of Points | 500 | 1500 | 3000 | 4000 | 5000 | 7000 | 8000 | 9000 | RPM |
| | 8 | 0 | 0 | 0 | 0 | 30 | 70 | 100 | % |

PV Map #3

| | | | | | | | | | |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|-----|
| | Point 1 | Point 2 | Point 3 | Point 4 | Point 5 | Point 6 | Point 7 | Point 8 | |
| Nr. of Points | 500 | 1500 | 3000 | 4000 | 5000 | 7000 | 8000 | 9000 | RPM |
| | 8 | 0 | 0 | 0 | 0 | 30 | 70 | 100 | % |

PV Map #4

| | | | | | | | | | |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|-----|
| | Point 1 | Point 2 | Point 3 | Point 4 | Point 5 | Point 6 | Point 7 | Point 8 | |
| Nr. of Points | 500 | 1500 | 3000 | 4000 | 5000 | 7000 | 8000 | 9000 | RPM |
| | 8 | 0 | 0 | 0 | 0 | 30 | 70 | 100 | % |

PV Map #5

| | | | | | | | | | |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|-----|
| | Point 1 | Point 2 | Point 3 | Point 4 | Point 5 | Point 6 | Point 7 | Point 8 | |
| Nr. of Points | 500 | 1500 | 3000 | 4000 | 5000 | 7000 | 8000 | 9000 | RPM |
| | 8 | 0 | 0 | 0 | 0 | 30 | 70 | 100 | % |

Power-up Test

1
Select PV Map
240
Close Position
Test Close

5
Deviation +-
512
Open Position
Test Open

- ① **Nr. of Points** for each PV map can be set from 2 to 8.
- ② **RPM** of each PV point can be set from 100rpm to 20000rpm in 100rpm steps.
- ③ **%...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.

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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.

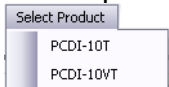
Successful programming is indicated as: 

Error while programming is indicated as: 

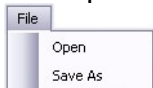
If error occurs, then repeat programming.

Make new *.zee file without connecting control unit

- ① Connect PC-USB programmer to PC.
- ② Select product from **Select Product** menu.



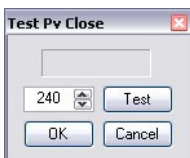
- ③ Set parameters
- ④ Save parameters by clicking **Save As** from **File** menu.



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.



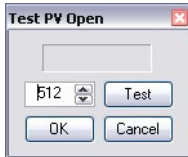
- ⇒ PV servo close position can be tested before confirming... PV servo moves to close position, after clicking on **Test** button.

- ⇒ 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.



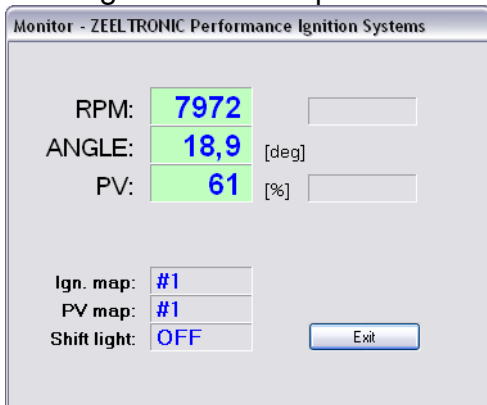
- ⇒ PV servo open position can be tested before confirming... PV servo moves to open position, after clicking on **Test** button.
- ⇒ If PV servo can't move to open position then **error 1** will occur. To clear **error 1** change open position and click on **Test** button.
- ⇒ Click on **OK** button 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 servo position, selected ignition map, selected PV map, shift light status, rev limit activation and PV error.
- ⇒ PV error 1...when PV servo can't move to position.
- ⇒ PV error 2...when too high current on PV servo output.