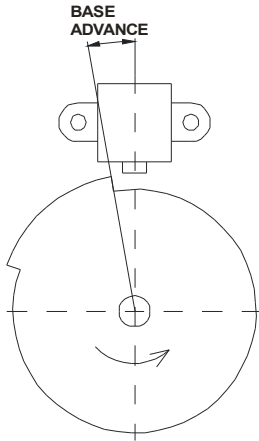# SPARKER DC-CDI-P

- capacitive ignition for bikes - detailed description

SPARKER DC-CDI-P is programmable capacitive ignition. It is designed for pick-up system, that is on next figure (drawing in TOP position). It can also be used by some motorbike with different pick-up system, for example XT600 (older model), KLR600 (older model), CBF250 etc.

1. Hardware

Ignition is suffused by PU plastic into plastic box. The ignition is terminated with harness of wires with connectors (2 + 3 + 4 pins connectors 2,8).

yellow	inlet for crankshaft position sensor (CKPS)
blue	ground (for CKPS)
green	multifunctional input 1 (INPUT 1)
black	multifunctional input 2 (INPUT 2)
violet	output for Gear shift light (GEAR SHIFT LIGHT)
rot	supply +12 V
blue	ground
orange	output to inductive coil IC
yellow/green	output to tachometer TACHO

Crankshaft position sensor CKPS.
An input is ready for standard pickup sensors used on motorbikes as CKPS.

Multifunctional input 1 (green)
It possible to choose one of the following functions:
1) OFF – no function.
2) KILL SWITCH – If the input is connected to ground, the ignition is blocked.
3) CLUTCH MASTER - If the input is connected to ground, the ignition is blocked for by software-preset time.
4) CURVE B - If the input is connected to ground, the advance curve B will used.
5) START LIMITER - If the input is connected to ground, the limiter is working with value of start limiter.

Multifunctional input 2 (black)
1) OFF - no function.
2) BLOCKING - If the input is not connected to ground, the ignition is blocked.
3) CLUTCH MASTER - If the input is connected to ground, the ignition is blocked for by software-preset time.
4) CURVE B - If the input is connected to ground, the advance curve B will used.
5) START LIMITER - If the input is connected to ground, the limiter is working with value of starting limiter.

State of inputs is displayed by software DCCDIP.EXE.

Supply +12 V.
Nominal Supply voltage is 14 V. It must be within 8 - 16 V range. In this range the unit is able to provide optimal control of all the processes. If supply is greater than 18 V, ignition is OFF.

Inductive coil IC.
Induction coils outputs are ready for standard types, designed for capacitive ignition and used on motorbikes (primary coil resistance approx. 0.5 Ohm).

Revolution indicator output TACHO.
The tachometer indicator output is compatible with major part of board devices used on motorbikes (1 puls / rev.).

Output for GEAR SHIFT LIGHT (violet)
Maximal current is 5 A (lamp max. 50 W). Revolution for gearshift light is set by software DCCDIP.EXE. This output is also possible to use for driving of solenoid (for example for exhaust valve on Aprilia RS125). In this case is possible decrease current to this solenoid with use of PWM modulation.
One outlet of gearshift light should be connected to connector (violet) and other to switched +12 V.

Connection to PC.
Connection to PC is realized by 9-pin serial port (COM).
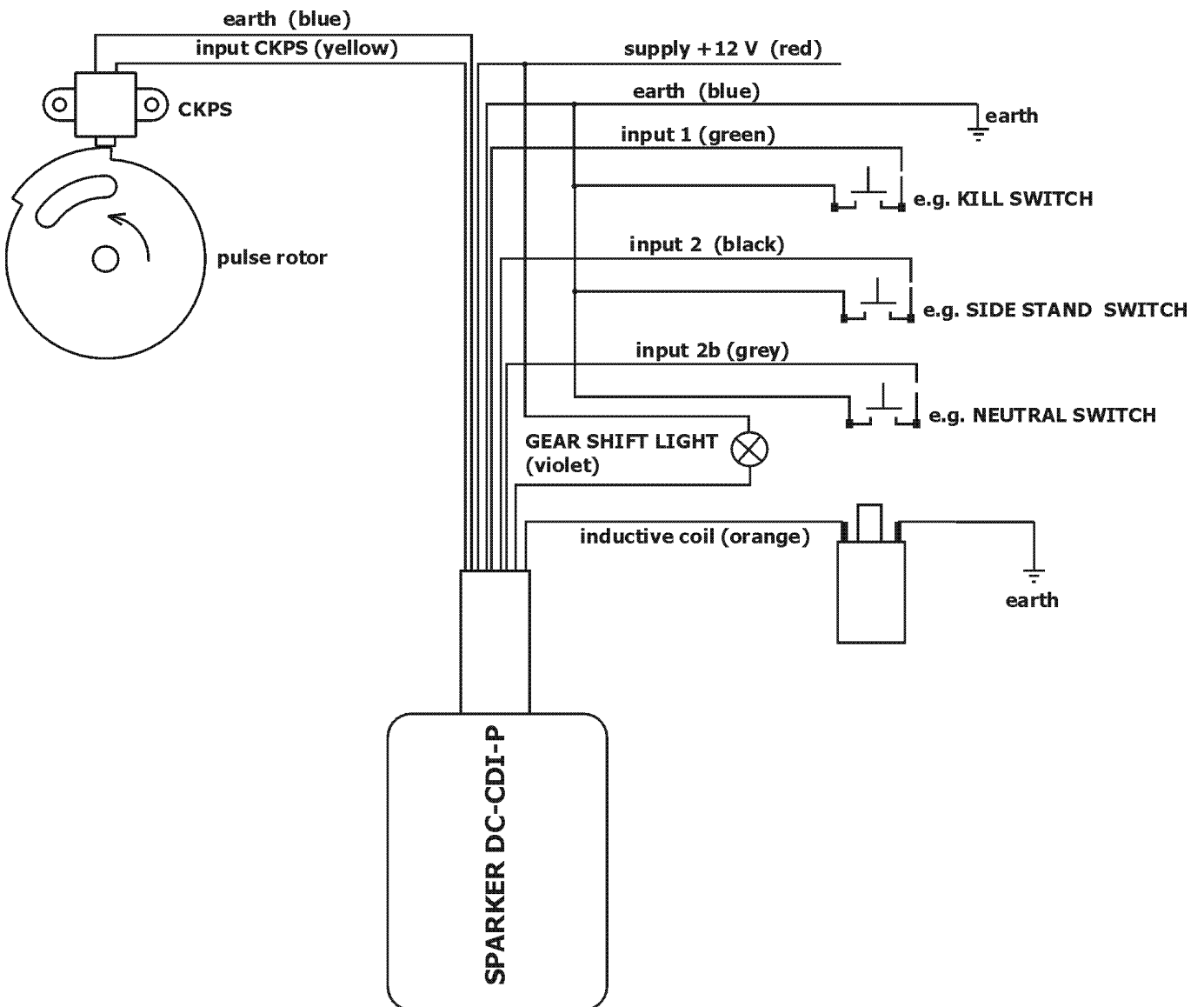
2. Software DCCDIP.EXE

Pull down menus

File - includes items **New**   - default settings
                                         Open   - opens data file
                                         Save   - saves data into file
                                         Print   - prints the current settings
                                         Exit   - exits the program

Port - includes items **Com1 to Com10** - selection of communication line

Device - includes items **Read**   - reads data from the unit
                                         Verify   - compares data in PC with data in the unit
                                         Program - sends data to the unit and conducts verification

Tools – include items of collective settings

Language – language settings: **English, Czech, and German**

Help – includes items   **Help**   - opens assembly guide (this file)
                                         About the program   - data on the software (version, date)

Icons menus

  - Default settings
Warning!!! Clicking this icon results in automatic default settings of all parameters

  - opens data file

  - saves data file

  - prints the current settings

  - see pull down menu **Device**

Setting element

15 adjustable options for revolution/advance
Collective adjustment of the whole advance curve can be done by collective change tool (+ and – buttons with selection **All**)
When the motor is running current segment is highlighted in the advance curve. Use of collective change tool + and – button without selection **All** - just the current segment will be changed.

Number of items   - here is it possible to set number points of advance curve

Base advance   - here is necessary inscribe value of base advance (by figure 1)
Setting of pick up system   - here is need select appropriate pick-up system. Most 1-cyl bikes use "**Standard"**
Ignitions per revolution   - setting of engine configuration
                                         One cylinder, parallel two cylinder, engine with opposed cylinders =1
                                         Two cylinder 2x 180° =2
                                         Three cylinder 3x 120° =3
Start limiter   - setting of maximal revolution for start limiter
Limiter   - setting of maximal revolution.
Clutch master time   - setting of clutch master time
Clutch master pause   - setting of clutch master off time.
No reading   - if you program unit with this option - there will not possible read data from unit.
Programming after a change   - automatic programming settings (after every change)
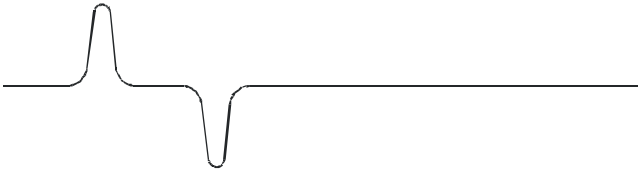**Gear shift light**   - setting of gear shift light RPM
PWM   - setting of duty of Gear shift light current
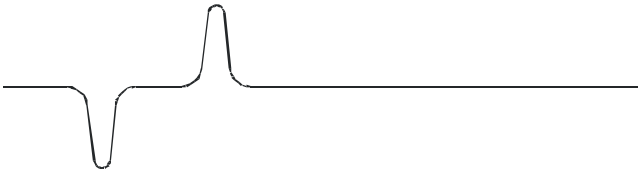**Reverse output polarity**   - setting of reverse polarity of Gear shift light

Option for CKPS polarity.
Ignition can work with both polarities of CKPS (**Positive** or **Negative**). Appropriate polarity can be set by software DCCDIP.EXE.

Positive polarity of CKPS:

Negative polarity of CKPS:

If is impossible to determine polarity, third option **Self search** can be used. This option bat can bring some problems, especially for engines without starter.

Number of programming:	- number of times the unit has been reprogrammed
File:	- full path of using file

Monitor

Monitor is located on the right and lower side of the screen – sensor values and motor operational characteristics can be observed here. If there is **No connection with PC** displayed in the upper right corner, the unit is not connected or the Com is not proper set.

RPM	- engine revolution [1/min]
Advance	- ignition advance [°]
Pick up	- displaying whether pick up is running or stopped
U	- supply voltage [V]
Kill switch	- displaying whether kill switch is on or off
Motor off	- displaying whether blocking is on or off
Used curve	- displaying used ignition advance curve (A or B)
Start limiter	- displaying whether start limiter is on or off
Limiter	- displaying whether limiter is on or off
Gear shift light	- displaying whether gear shift light is on or off
Clutch master	- displaying whether clutch master is on or off
Polarity of CKPS	- displaying polarity CKPS