Tachograph programmer CD400

User manual

CD400 V2.0

Last update : 04/12/2009

Tachograph programmer CD400 - User Manual (EN)

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Pdf version

1. Introduction

1.1. What is a tachograph ?

Basically, a tachograph is a device that measures and records the speed and distance driven by a vehicle.

The informations are recorded in the form of graphics on a paper disk.
The new digital tachographs record those informations on its embedded memory and also on the smartcard of the driver.

2. Description

2.1. Technical specifications

- Graphic FSTF LCD Display: (100 x 32 pix. / 4 lines x 20 char) White LED backlight

- Size: 150 x 100 x 45 mm

- Supply voltage: 9 to 30 VDC

- Supply current: 12mA

- Case: green-blue ABS (IP40)

- Operating temp: -20…+70°C

- Weight: 155g

2.2. Keyboard

- Alternate function keys 'F1', 'F2' & 'F3' are active when a function in inverted video appears on the bottom line of the display.

F1= MODIFY, F3=OK

- Alernate function key '↑' & '↓' are used for example to navigate the menus.

- Alernate function key '←' & '→' are used to select the digit in some parameters.

- 'Ent' (=Enter) is used to select a function or enter a value.

- 'Esc' key is used to go back in the menu, leave a function, to erase the last digit entered and to switch the programmer ON & OFF when powered by the battery.

2.3. Connections

- Left connector:
Serial port for software upgrade (upgrade cable).

- Center connector:
Connection for crocodile clip cable (K13xx/K1318).

- Right connector:
Connection for tachograph cable.

3. Operation

3.1. Power supply and tachograph type detection

For all tachograph types, except for the K13xx/1318 and the FTCO1319, the programmer is powered by the tachograph itself. An automatic tachograph type detection is executed on power ON, so don't switch the programmer ON, simply connect it to the tachograph with the appropriate cable. The programmer will switch ON and detect the tachograph type.

In the case of the K13xx/1318 and the FTCO1319, switch the programmer ON pressing the 'I/O' key.
If the FTCO1319 is connected, the programmer will detect it.
To switch the programmer OFF, press and hold the 'I/O' key.

If no tachograph is detected, the K13xx/1318 will be selected by default.

On power ON, the programmer will display the product information (Software version, Serial number, etc...), then the menu for the tachograph type detected.

3.3. Functions available

3.3.1. Main menu

The functions available in the main menu depend on tachograph model detected (or selected manually).
The tachograph model appears on the top line.

```
  KTCO 13xx/1318

→1.Measure W
 2.Measure K
 3.Speed test
 4.Odometer test
 5.Clock test
 6.Select Tacho.
 7.Product info.
 8.Language
```

```
  MTCO 1324/1390

→1.Measure W
 2.Parameters
 3.Speed test
 4.Odometer test
 5.Erase DTCs
 6.Sensor pairing
 7.Clock test
 8.Select Tacho.
 9.Product info.
10.Language
```

```
  Motomet.EGK100

→1.Measure W
 2.Parameters
 3.Speed test
 4.Odometer test
 5.Select Tacho.
 6.Product info.
 7.Language
```

```
  Kienzle K1319

→1.Measure W
 2.Measure K
 3.Parameters
 4.Speed test
 5.Odometer test
 6.Clock test
 7.Select Tacho.
 8.Product info.
 9.Language.
```

```
  V-Root VR2400

→1.Measure W
 2.Parameters
 3.Speed test
 4.Odometer test
 5.Erase DTCS
 6.Sensor pairing
 7.Clock test
 8.Select Tacho.
 9.Product info.
10.Language
```

Same menu for:
-DIGITAL VDO
-DIGITAL ACTIA
-DIGITAL SE5000
-DIGITAL EFAS

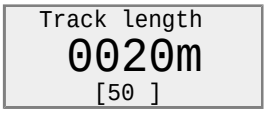
```
  DIGITAL xxxx

→1.Measure W
 2.Parameters
 3.Speed test
 4.Odometer test.
 5.Read DTCS
 5.Erase DTCS
 6.Sensor pairing
 7.Clock test
 8.Select Tacho.
 8.Product info.
 8.Language.
```

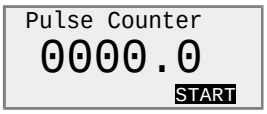
3.3.2. Measure W

3.3.2.1 Manual

1. Check the track length.
Press F3 (OK) to go on, or press F1(MODIFY) to change the track length.

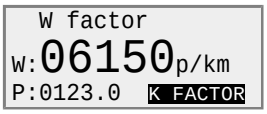


(optional)
to set the 'Track length', enter the new value and press 'Ent'.

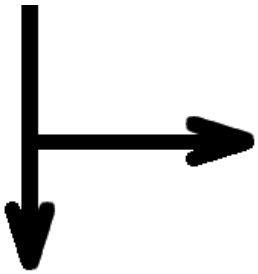


2. Press F3 (START) and drive the vehicule along the track.
The pulse count will start.

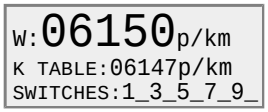
3. At the end of the track, press F3 (STOP).
The W factor will be calculated as a function of the pulse count and the track length.



4. Press F3 (K FACTOR) to access K factor setting.

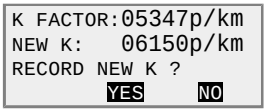


K1318

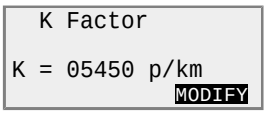


5. The closest value from the K factor table of the 1318 is displayed with the corresponding switches positions.
Press 'Esc' to go back to main menu.

All other tachographs



5. Present K factor will be read from the tachograph and displayed. 'NEW K' is the W factor that has been measured and should be recorded as the new K factor.
Press F2 (YES) to record it or F3 (NO) to leave it unchanged.

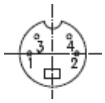


6. If 'YES' has been selected previously, the new K factor will be read back from the tachograph.
This factor can modified manually if required pressing F3 (MODIFY).

3.3.2.1 Photo sensor

The W measure with a photosensor is exactely the same as in manual mode, except that the 'START' and 'STOP' pulses are generated by the sensor. In photo sensor mode, the 'F3' (START & STOP) will not be active.

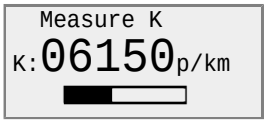
You can connect any photo sensor using a MiniDIN 4-pins connector connected to the left connector of the CD400.



- Shielding: Ground (GND 0V).
- Pin n°2: photo sensor signal (the signal should be low when the reference object/reflector is not detected).

3.3.3. Measure K

This function is available only for the K1314/1318 and the FTCO 1319.

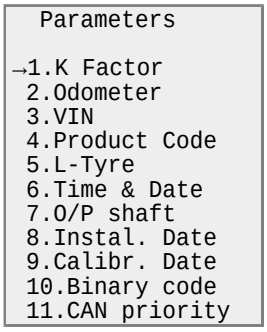


Measuring the K factor takes a few seconds.
The value is updated every time the progress bar is completed.

3.3.4. Parameters

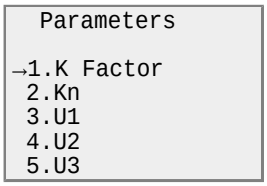
3.3.4.1. MTCO1324/1390

Select the parameter using the '↑' and '↓' keys and press 'Ent'.



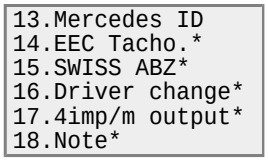
3.3.4.2. Motometer EGK100

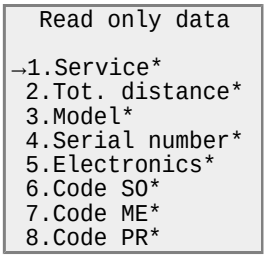
Select the parameter using the '↑' and '↓' keys and press 'Ent'.



3.3.4.3. Kienzle K1319

Select the parameter using the '↑' and '↓' keys and press 'Ent'.





(*) Not implemented yet.

3.3.4.4. VR2400

Select the parameter using the '↑' and '↓' keys and press 'Ent'.

```
  Parameters

→1.K factor
 2.Odometer
 3.Pulse per rev.
 4.Idle rpm
 5.Economy rpm
 6.Poor Econ. rpm
 7.CANBus RPM
 8.RPM Display
 9.Dist displ.0s
10.DTCs Display
11.Overspd Flash
12.Overspeed
```

```
12.Time & Date
13.O/P shaft
14.4th Chart Tr
15.CANBus enable
16.CAN Type
17.Dual Axle
18.D.Axle Ratio
19.D6 pin funct.
20.Speedo.OP fact
21.Serial Comms
22.Ignit.On rec.
23.Driver 2 Duty
24.Reset HeartBt
```

```
25.Eject pin code
26.Sensor type
27.Service Delay
28.Installat.date
29.Calibrat. date
30.Repair Shop ID
31.Vehicle ID n°
```

Note: The odometer value can be modified upwards and downwards

3.3.4.5. DIGITAL TACHOGRAPHS (VDO/Actia/SE5000/EFAS)

The parameters for digital tachographs are split in different categories
Select the category using the '↑' and '↓' keys and press 'Ent'.

```
  Parameters

→1.Calibration
 2.Other param.
 3.Specific
 4.Information
```

Select the parameter using the '↑' and '↓' keys.
The '←' and '→' keys can be used go to previous/next parameter page.
Press 'Ent' to access the parameter value.

When viewing a parameter value, you can go directly to next/previous parameter using the '↓' / '↑' keys.

- Calibration parameters.

```
  Calibration

→1.W factor
 2.K factor
 3.L (Tyre Circ.)
 4.Tyre Size
 5.Max.Auth.Speed
 6.Odometer
 7.Time & Date
 8.Next Cal. Date
 9.Veh.Reg.Nation
10.Veh.Reg.Number
11.Veh.Id.Number
12.O/P shaft
```

- Other parameters (common to all manufacturers).

```
  Other param.

→1.ResetHeartbeat
 2.TCO1 priority
 3.O/P shaft
 4.CAN rep.rate
 5.Part number
```

- Specific parameters (specific to the manufacturer).

DIGITAL VDO (DTCO1381)

```
  Specific

→1.Drv1 ign.ON
 2.Drv2 ign.ON
 3.Drv1 ign.OFF
 4.Drv2 ign.OFF
 5.D1D2 Record
 6.RPM Record
 7.Speed Record
 8.Install. date
```

Stoneridge SE5000

```
  Specific

→1.CanBus activat.
 2.Speed Corr.
 3.D6
 4.D4
 5.Light input
 6.RPM input
 7.Default lang.
 8.Serial Output
 9.D1D2 Record
10.RPM Record
11.Speed Record
12.Kn factor
13.Install. date
```

Actia SmarTach

```
  Specific

→1.Default Lang
 2.Card Language
 3.Backlight conf.
 4.Drv1 ign.ON
 5.Drv2 ign.ON
 6.Drv1 ign.OFF
 7.Drv2 ign.OFF
 8.Install. date
```

EFKON EFAS

```
  Specific

→1.CAN-A activat.
 2.CAN-A tr.rate
 3.CAN-A ID mode
 4.CAN-A sample
 5.CAN-A pro.tach
 6.CAN-A pro.diag
 7.Trip Reset
 8.ExtSerial act.
 9.ExtSerial prot
10.Illumination
11.Engine Speed
12.N Factor
13.EngSpdThreshold
14.SpeedThresholds
15.Lang.Handling
16.PrtLocalTimeEn
17.CAN-C activat.
18.CAN-C tr.rate
19.CAN-C ID mode
20.CAN-C sample
21.RemoteDataTrans
```

- Info parameters.

```
  Information

→1.Supplier Id
 2.Manufact. Date
 3.Serial number
 4.Hardware number
 5.Hardware vers.
 6.Software number
 7.Software vers.
 8.License number
 9.Vehicle speed
```

3.3.5. Speed test

3.3.5.1 Manual

```
  Speed test

 K = 08000 p/km
 MODIFY       OK
```

For the K1314/1318 the K reference is set to the last K measured if available, otherwize it is set to 8000.
For the other tachographs the K reference is set to the K factor programmed in the tachograph.

If required, the K reference can be adjusted manually pressing 'F1' (MODIFY).

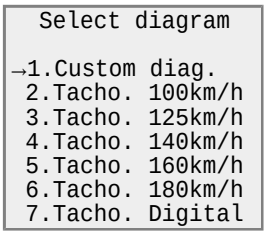
```
   060.0km/h
   K:08000 p/km
 MODIFY       ON
```

By default the speed is set to 60 km/h.
Press F1 (ON/OFF) to start/stop speed simulation.
The text "km/h" is blinking when the speed is currently simulated.

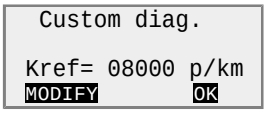
```
   060.0km/h
   K:08000 p/km
 MODIFY       OFF
```

Pressing the '↑' and '↓' keys, will increase/decrease the speed by 1km/h steps.
Pressing the '←' and '→' keys, will increase/decrease the speed by 0.1km/h steps.
Press F1(MODIFY) to insert a new speed value.

3.3.5.2 Automatic



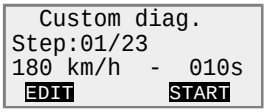
Select the speed diagram to be executed and press 'Ent'.



For the K1314/1318 the K reference is set to the last K measured if available, otherwize it is set to 8000.
For the other tachographs the K reference is set to the K factor programmed in the tachograph.

If required, the K reference can be adjusted manually pressing 'F1' (MODIFY).

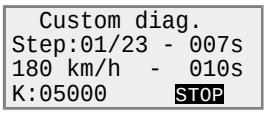
Press 'F3' (OK) if you agree with the K factor value.



Using the '↑' and '↓' keys, you can check the speed and duration of each step of the automatic test.

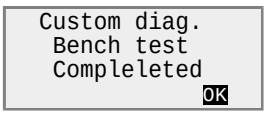
Press 'F3' (START) to start the test.

The 'EDIT' funtion (F1) is available only for the custom diagram to edit the speed and duration of current step of the automatic test. The automatic test will end at the first step at which the duration is set to zero.



A count down will show the time left for present step.

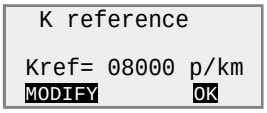
Press 'F3' (STOP) to stop the bench test



Bench test completed.
Press 'F3' (OK) to go back to the menu.

3.3.6. Odometer test

The programmer will automatically simulate a speed of 50km/h on 1000m distance and check if the odometer as been incremented by 1000m.

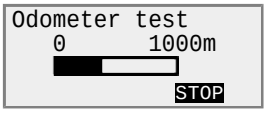


For the K1314/1318 the K reference is set to the last K measured if available, otherwize it is set to 8000.
For the other tachographs the K reference is set to the K factor programmed in the tachograph.

If required, the K reference can be adjusted manually pressing 'F1' (MODIFY).

KTCO1318/FTCO1319/EGK100

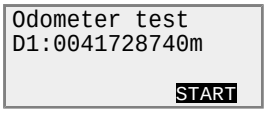
Press 'F2' to adjust the position of the start point.
Press 'F3' (START) to start the test.



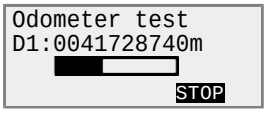
Wait until the progress bar is completed.

The test can be aborded pressing 'F3' (STOP).

MTCO/VR2400/DIGITAL

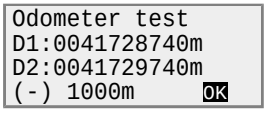


The inital value of the odometer (D1) will be read.
Press 'F3' (START) to start the test.



Wait until the progress bar is completed.

The test can be aborded pressing 'F3' (STOP).

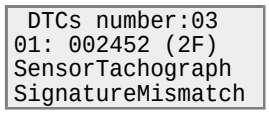


At the end of the test, the final odometer value will be read (D2). The difference between D2 and D1 will be calculated (D2-D1).
If the difference equals 1000m, the test has been successful.

3.3.7. Read DTCs

The function "Read DTCs" is used to read the "Diagnostic Trouble Codes" (DTC) stored in the error memory of the tachograph.

It is available for the following tachographs:
- Digital tachographs (DTCO1381, SE5000, SmarTach & EFAS)



DTCs number is the error number available in memory
Error code
Full error description

Use the '↑' and '↓' keys to select next or previous error.

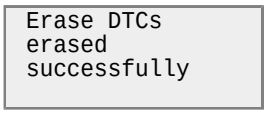
Press 'Esc' to go back to main menu.

3.3.8. Erase DTCs

The function "Erase DTCs" is used to erase the "Diagnostic Trouble Codes" (DTC) stored in the error memory of the tachograph.

It is available for the following tachographs:
- MTCO 1324/1390
- VR2400
- Digital tachographs (DTCO1381, SE5000, SmarTach & EFAS)

The following message is displayed after erasing the error memory.



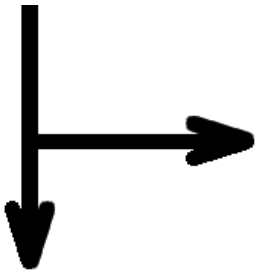
Press 'Esc' to go back to main menu.

3.3.9. Sensor Pairing (Kitas activation)

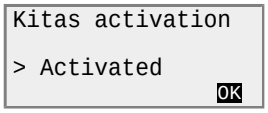
This function is available for the following tachographs:
- MTCO 1324/1390
- VR2400
- Digital tachographs (DTCO1381, SE5000, SmarTach & EFAS)

Sensor pairing is executed automatically after modifying any calibration parameter on digital tachographs.

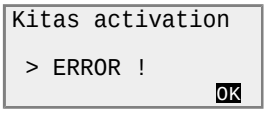
A progress bar indicates the status of KITAS activation.



Kistas sensor is activated with success.



No response received from KITAS.

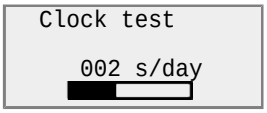


3.3.10. Clock test

The clock test function will check the accuracy of the clock of the tachograph.

For the K1314, the K1318 and the k1319, an external clock sensor has to be used.

The measure is updated every time the progress back is completed.



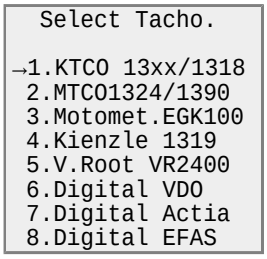
The result represents the clock deviation in seconds/day.

Press 'Esc' to go back to main menu.

3.3.11. Select tachograph

The tachograph type is detected automatically on power ON, but if for any reason, another type has to be selected, this can be done manually.

Select the tachograph type in the menu and press 'Ent'.



3.3.12. Product info

Shows the software version and serial number.

```
CD400 Programmer
Sn: 56000010
SW: V2.0
www.cdconcept.be
```

3.3.13. Language

Select the language in the menu and press 'Ent'.

```
  Language

→1.English
 2.Deutsch
 3.Español
 4.Français
 5.Nederlands
 6.Português
 7.Turkish
 8.Romanian
 9.Russian
```

4. Software upgrade procedure

1. Download and install the CD200-ISP software:

setup-CD200-ISP-V1-2.zip

2. Connect the CD400 to the serial port of your PC using the upgrade cable (CA-RS232-1).

3. Start the CD200-ISP software.

4. Select the COM port.

5. Select the .hex file.

6. Click on the "Program" button.

7. Switch the CD400 power ON using a tachograph, a DC adapter (9V to 30V), or the internal 9V battery.

8. Wait until the progress bar is completed.