



Guideline Installation PikoLoad Version 3

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1	11.04.2011	First version	KeAr
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3	19.12.2012	Change of housing	KeAr

ENGLISH

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1 Introduction

1.1 Global

The intention of this guideline is to help to install / start-up the PikoLoad unit.

Due to the different vehicle brands and models it is not possible to have a global installation guideline. The connectors, if already factory fitted, can be found at different locations in the vehicle.

Some tools and guidelines in this document should assist you to install the PikoLoad in the right way.

2 Check of the vehicle connection

Please check the existing connections of the vehicle.
Try to get the configuration of the vehicle.

2.1 Vehicle ordered with function remote download ?

If yes, the wiring harness to the C-CAN of the tachograph (green connector) should be available in the vehicle and the tachograph is configured to support remote download.

If no, the risk is that the tachograph is not configured to support remote download. The wiring harness to the C-CAN of the tachograph might be missing as well.

Remark:

The configuration of the tachograph to support remote download can only be done by an authorized workshop (with a workshop card) using a workshop toll. For Continental (Siemens VDO) a CTC II is necessary.

2.2 Vehicle ordered with function FMS-Standard ?

If yes, the wiring harness should be available in the vehicle and the FMS gateway is correctly configured.

If no, there might be no FMS data available at PikoLoad.

Remark:

The function must be configured at the workshop of the manufacturer of the vehicle.

The configuration can only be done with the brand specific workshop tool. In most cases it is not necessary to install additional hardware.

Depending on the brand there might be new parameters needed. In some cases it is necessary to install a new wiring harness.

2.3 Look for the „green connector“

If you did not get any information where the connector for FMS/remote download can be found in the vehicle, try to search it near the tachograph in one of the compartments. In most cases the connector can be found in the overhead compartment of the driver. The connector is green and with a wiring harness of about 1m length. If you are not sure that

Check of the vehicle connection

you found the correct connector, please check if the power supply (Pin 12 = clamp 30), ground (Pin 1 = clamp 31) and the ignition (Pin 10 = clamp 15) are available.



Figure 1: „Green connector“ in overhead compartment

3 Installation of PikoLoad

3.1.1 Make up of the FMS wiring (no FMS connector in the vehicle)

Make up the FMS wiring in the vehicle (if no standard FMS connector is available).

This step is not necessary if the vehicle has already a standard FMS connector (green colour).

1. Make up the wiring for the PikoLoad (exact description in the appendix).

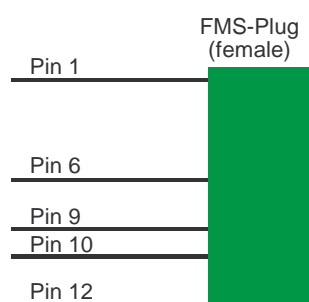


Figure 2: Make up of FMS wiring

2. Connect the wiring to the vehicle:

Pin 1	Clamp 31 (ground)
Pin 6	CAN high (C-CAN Tacho Pin 5 + FMS CAN high)
Pin 9	CAN low (C-CAN Tacho Pin 7 + FMS CAN low)
Pin 10	Clamp 15 (24 V DC UBat - Ignition)
Pin 12	Clamp 30 (24 V DC)

3.1.2 Installation in the Vehicle

3.1.2.1 Standard FMS connector existing or made

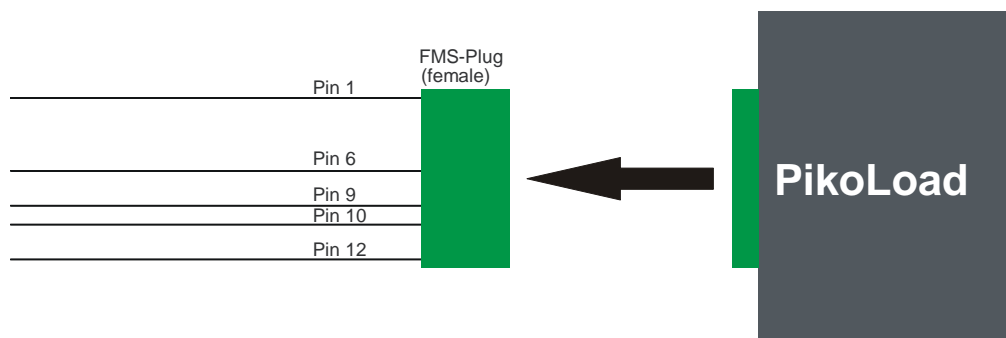


Figure 3: PikoLoad wiring

Connect the wiring harness to PikoLoad

3.1.3 Connection to the Tachograph (change of Tacho only)

Please do this step only if your tachograph has been not factory fitted as remote download (with green connector)

Connecting Tacho (Example is Continental)



Figure 4: Connection to Tachograph

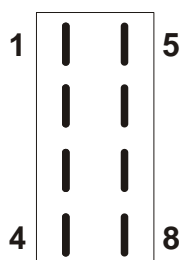


Figure 5: C-CAN Tachograph Pin Assignment

Pin 1	Not used
Pin 2	GND
Pin 3	Not used
Pin 4	Not used
Pin 5	CAN high
Pin 6	Not used
Pin 7	CAN low
Pin 8	Not used

Connect the C-CAN connector (red) to the C-CAN of the tachograph.

Attention: The connectors are coded (fits only to C-CAN)!

Please do not use any other connection to the tachograph! You might disturb the correct function of the tachograph. Please keep in mind that any work at tachographs is only allowed by authorized workshops!

4 Start-up PikoLoad

4.1 Lock data at the tachograph to the company

If the data are not yet locked to the company you have to do it now with a valid company card.

Insert the company card in the slot of the tachograph and lock the data (see description of your tachograph).

Remark:

The data must be locked to the company otherwise you will not get access to your data.

4.2 Do a FMS test (only for vehicles with FMS interface)

This test is only possible by using a FMS-Test card. This card is part of the delivery of the evaluation kit.



Figure 6: FMS-Test card

Insert the FMS-Test card in the PikoLoad and plug in a USB-Stick.

The test starts automatically and runs for 1 minute.

The result are stored on the USB-Stick in the directory "pikotest".
The data format is ASC.

The description of the format can be found on www.fms-test.com.

Each file is stored with a consecutive number:

Name	Größe	Typ	Geändert am
-00000001.asc	4 KB	ASC-Datei	01.01.2000 00:03
-00000002.asc	2 KB	ASC-Datei	01.01.2000 00:06
Vehicle_1 -00000003.asc	48 KB	ASC-Datei	01.01.2000 00:11

Figure 7: Example data FMS test

















The logged data can be evaluated under www.fms-test.com (no fee). The evaluation shows as well which data are available at the fms interface.

4.2.1 LED Display Function „PikoTest“



Figure 8: LED Display

The LED's indicate the following status information (USB interface to the left)
The PikoTest mode is indicated by **flashing** LED's

 off	 off	Ignition off No power supply -> check the wiring harness
 off	 red	Ignition on Initialization and self test is running
 off	 green	Wait for ignition on -> Recording starts by ignition on
 off	 orange	Wait for USB-stick -> Recording starts by plugging the USB-stick
 orange	 green	Recording started, USB-stick is in writing mode -> Do not unplug the USB-Stick, you might loose data
 red	 red	Error, e.g. -> no CAN data -> check wiring -> USB error -> check the USB-stick (Formatting, maybe the USB-stick is full) -> no CAN data received since more than 5 seconds -> internal error -> replace the unit
 green	 green	Recording finished – Data stored on the USB-Stick For further record: unplug USB-Stick and plug USB-stick For PikoLoad mode: remove FMS-Test card and insert a company card
 orange	 orange	„Service-Mode“ (not flashing in any mode)

4.3 Remote Download Test

Please do always a remote download test during installation. This test shows you whether the tachograph is correctly configured and the company data are correctly locked to the company. The successful test report can be archived with the installation information. This gives you the possibility to have always the information about the installed tachograph / vehicle present.

4.3.1 Insertion of the Company Card



Figure 9: Insert Company Card (Chip up / USB left)

Pay attention to the correct position of the chip (chip up / USB left– see picture)!

Push up the company card against the end



Figure 10: Inserted Company Card

Please shut the front lid afterwards.

4.3.2 Start of the Remote Download Tests with a USB-Stick

Be sure that a company card is inserted in the slot of the PikoLoad.

Be sure that the PikoLoad is connected to the tachograph and power supply and the ignition is on. Please make sure that ignition is not switched off during the test run as it might result in an error message.

Insert the USB-stick with the following file in the PikoLoad:

File name: RemDwlTest.PSS

Content File: ACTION:RemDwlTest<CR><LF>

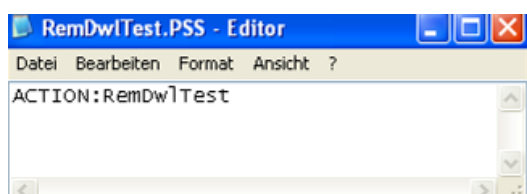


Figure 11: Content of the file for Remote Download Test

Please note that:

- The file must be stored in the root directory of the USB-Stick
- After the remote download test run the file will be deleted automatically at the USB - Stick

The test starts automatically (see LED display) after the plug-in of the USB-Stick containing this file.

After the test run the test result is stored on the USB-stick. The end of the test run is shown by the LED display. Now remove the USB-Stick.

Note:

The test works with all valid company cards. It is not necessary that the data are locked to this company.

4.3.3 LED Display Function PikoTest Remote Download (RDL-Test)



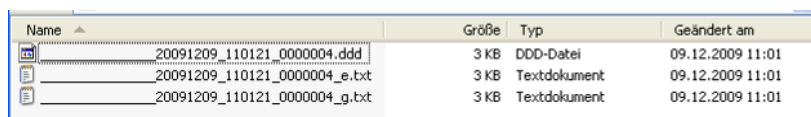
Figure 12: LED Display Function PikoTest Remote Download

The LED's indicate the following status information (USB interface to the left)

<div>●</div> <div>off</div>	<div>●</div> <div>off</div>	Ignition off No Power supply -> check the wiring harness
<div>●</div> <div>off</div>	<div>●</div> <div>red</div>	Ignition on Initialization and self test is running Inserted card is checked
<div>●</div> <div>red</div>	<div>●</div> <div>red</div>	Ignition on, no card inserted → Start PikoLoad Mode with company card → Start PikoTest (FMS-Test) with FMS-Test card → Start RDL Test Mode with workshop card or → By inserting a USB-Stick (with special File)
<div>●</div> <div>off</div>	<div>●</div> <div>green</div>	-> Check of the inserted card successful
<div>●</div> <div>orange</div>	<div>●</div> <div>off</div>	Remove workshop card (if RDL Test has been started with workshop card) Insert company card Plug in a USB-Stick for running the RDL Test
<div>●</div> <div>orange</div>	<div>●</div> <div>Blink orange</div>	Remote Download Test in progress → Duration ca. 2 minutes (max. 4 minutes) !! Do not remove the USB-Stick, do not switch off ignition !!
<div>●</div> <div>orange</div>	<div>●</div> <div>Blink green</div>	Remote Download Test successful finished Remove USB-Stick, report is saved on the USB-Stick Is shown for ca. 3 seconds after having removed the USB-Stick
<div>●</div> <div>orange</div>	<div>●</div> <div>Blink red</div>	Remote Download Test with errors finished <ul style="list-style-type: none"> Remove the USB-Stick and check report Error Codes can be checked in the document: „User guide for remote Download“ Remove the USB-Stick, report is on the USB-Stick Is shown for ca. 3 seconds after having removed the USB-Stick
<div>●</div> <div>red</div>	<div>●</div> <div>red</div>	Stop the Test mode after the RDL test by <ul style="list-style-type: none"> → Removing the card → Removing the USB-Stick → Ignition off

4.3.4 Remote Download (RDL-Test) test report

The test report can be found in the directory "pikotest"



Name	Größe	Typ	Geändert am
20091209_110121_0000004.ddd	3 KB	DDD-Datei	09.12.2009 11:01
20091209_110121_0000004_e.txt	3 KB	Textdokument	09.12.2009 11:01
20091209_110121_0000004_g.txt	3 KB	Textdokument	09.12.2009 11:01

Figure 13: Directory Content remote download test report

File name:

registration no. (if exists)_Date_Time_sequential number.DDD

The „.DDD file“ consists of:

- Overview
- Technical Data

This file can be read by a DDD software.

File name:

registration no. (if exists)_Date_Time_sequential number _language.txt

This file consists of the test report in the indicated language and can be opened with any editor.

g : for German language

e : for English language

Example: report successful test - English

File „_____20091209_110121_0000004_e.txt“:

```

20091209_110121_0000004_e.txt - Editor
Datei Bearbeiten Format Ansicht ?
Result RDL-Test PikoTest/PikoLoad

Date/Time: 09.12.2009 11:01:21
Vehicle Registration Number: <FF>????????????
VIN: ??????????????????
Country of registration: -
Status card slot 1: Driver card
Status card slot 2: No card

1. Total Result
  * Remote Download Test: Successful

2. Detailed Results
  * Diagnostic Session: Successful
  * Authentication: Successful
  * Download
    - Overview: Successful
    - Technical Data: Successful

3. Overview Tacho Informationen
  * Vehicle Unit Data
    - Manufacturer: VDO Automotive AG
    - Address: H.-Hertz-Str.45 78052 VS-villingen
    - Partnumber: 1381.2070000053
    - Serial number: 1255358
    - Firmware / Date: 1328 / 19.06.2008 21:59:56
    - Manufacturing date: 19.06.2008 00:00:00
  * Calibration Data
    - Calibration purpose: Activation
    - Workshop name: Siemens VDO Automotive AG
    - Workshop address: Test Werkstatt 0358
    - Card number: VDO 02 0358 000
    - W / K: 8000 / 8000
    - L: 0
    - Tyre size: ??????????????????
    - Overspeed setting: 0
    - Old odometer value: 0
    - New odometer value: -
    - Old time setting: 07.08.2008 16:08:47
    - New time setting: -
    - Next Calibration date: 01.01.1985 00:00:00
  * Company locks and control activities
    - No. of company locks: 18
    - No. of control activities: 1
    - Locked to company
      Name: Siemens VDO Automotive AG
      Address: Test Unternehmen 0238
    - Company lock from: 29.09.2009 07:31:04
    - Company lock to: -
    - Card Number: VDO 04 0238 000
  * Downloadable Period
    - Start of period: 07.08.2008 00:00:00
    - End of period: 09.12.2009 10:36:00
  * Previous Download
    - Date / Time: 09.12.2009 10:58:20
    - Card number: VDO 04 0238 000

4. Errors
  * Error 1 -
  * Error 2 -
  * Error 3 -
  * Error 4 -

```

Figure 14: File content remote download test report successful

Example: Test report with errors - English

File: „0000005_g.txt“

If the remote authentication fails the file name consists of a sequential number only (registration no, date, time are not known)

```

0000005_e.txt - Editor
Datei Bearbeiten Format Ansicht ?
Result RDL-Test PikoTest/PikoLoad

Date/Time:
Vehicle Registration Number:
VIN:
Country of registration:
Status card slot 1:
Status card slot 2:

1. Total Result
  * Remote Download Test:      Error

2. Detailed Results
  * Diagnostic Session:      Successful
  * Authentication:          Error
  * Download
    - Overview:              Error
    - Technical Data:        Error

3. Overview Tacho Informationen
  * Vehicle Unit Data
    - Manufacturer:
    - Address:
    - Partnumber:
    - Serial number:
    - Firmware / Date:
    - Manufacturing date:
  * Calibration Data
    - Calibration purpose:
    - Workshop name:
    - Workshop address:
    - Card number:
    - W / K:
    - L:
    - Tyre size:
    - Overspeed setting:
    - Old odometer value:
    - New odometer value:
    - Old time setting:
    - New time setting:
    - Next Calibration date:
  * Company locks and control activities
    - No. of company locks:
    - No. of control activities:
    - Locked to company
      Name:
      Address:
    - Company lock from:
    - Company lock to:
    - Card Number:
  * Downloadable Period
    - Start of period:
    - End of period:
  * Previous download
    - Date / Time:
    - Card number:

4. Errors
  * Error 1    8.9246 warning 71 01 01 80 0E
  * Error 2   12.6727 warning 71 01 01 80 0E
  * Error 3   16.4727 warning 71 01 01 80 0E
  * Error 4   20.2248 warning 71 01 01 80 0E

```

Figure 15: File content remote download test report with error

There are up to 4 received error messages listed in point 4.

The test was made with an expired company card in this example. The tachograph tries up to 5 times to read the company card. After these tries the following error message (positive response in the documentation) is sent: „ 71 01 01 80 0E“

In the document „User Guide for Remote Download“ the message is indicated as:

- Company Card expired
- Bad card type (not a company card)
- Company Card corrupted
- Card reader use different T=0/T=1 than the VU is requesting

0x71 01 01 80 0E	The VU informs that the card authentication has failed	Remote Authentication not valid TAuth not valid	Company Card expired	- System should send Close Authentication - Replace the expired company card with a new valid company card and start Remote Authentication again Expired, failed or corrupted company cards must be sent back to the relevant Member State Authority.
			Bad card type (not a Company Card)	- System should send Close Authentication - Replace the bad card with a valid company card and start Remote Authentication again

Remote card authentication and data downloading

Vers. 01.00 dated 15/09/09

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Positive Response Code	Description	Status VU	Possible cause(s)	Recommended system behaviour
			Company Card corrupted (e.g. invalid card public key, invalid card member state public key, failed card certificate verification, failed card member state certificate verification, card type different from 'company', failed card authentication token verification)	- System should send Close Authentication - Replace the bad card with a valid company card and start Remote Authentication again Expired, failed or corrupted company cards must be sent back to the relevant Member State Authority.
			Card reader use different T=0/T=1 than the VU is requesting	Check the application for correct implementation of the communication protocol with the card reader (see Annex 3)

Figure 16: Excerpt from "User Guide for Remote Download"

4.4 Tachograph Settings

The Tachograph must be configured for remote Download on CAN 2 / C-CAN to have the full functions at PikoLoad.

The settings can be changed only by authorised workshops with a valid workshop card

In most cases a CTC II from Continental is used (esp. for the Continental tachographs)

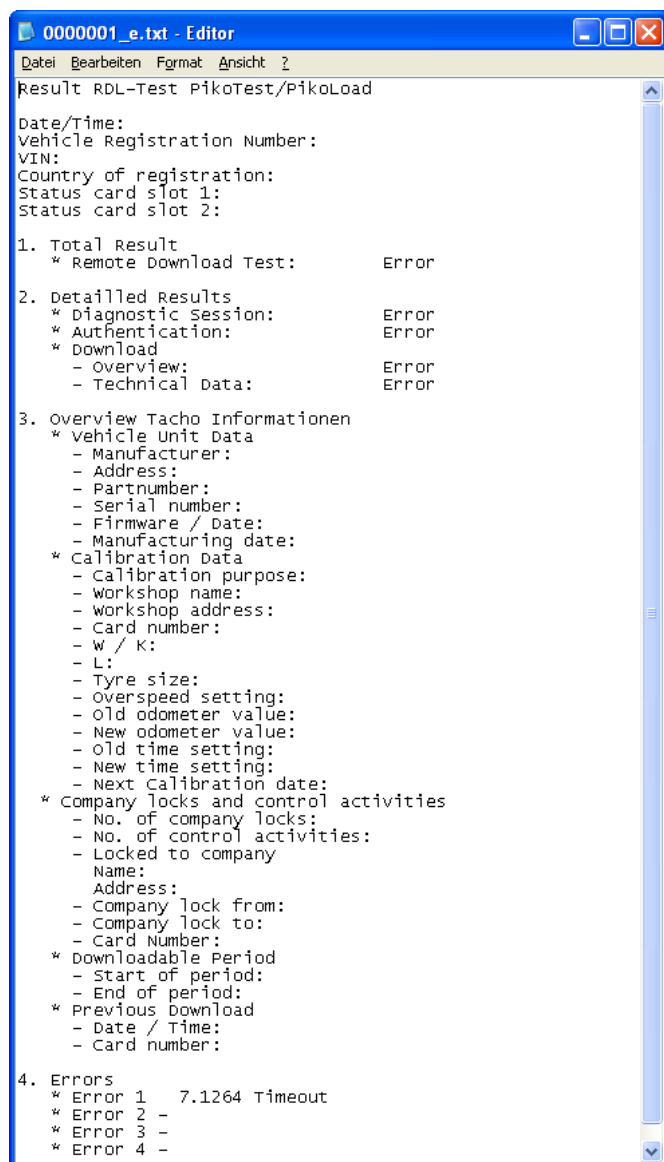
For Stoneridge tachographs the settings can be made direct at the tachograph by using a valid workshop card inserted in slot1.

The tachographs need a second CAN interface for supporting remote Download. This is present at Continental tachographs from vers. 1.3 or higher and at Stoneridge tachographs vers. 7.1 or higher.

A negative RDL test with PikoLoad indicates that either the connection to the tachograph is not correct or the tachograph is not configured for remote Download on C-CAN.

4.4.1 Settings at Continental Tachographs (with CTC II)

You have finished a RDL test with the following result:



```

0000001_e.txt - Editor
Datei Bearbeiten Format Ansicht ?
Result RDL-Test PikoTest/PikoLoad
Date/Time:
Vehicle Registration Number:
VIN:
Country of registration:
Status card slot 1:
Status card slot 2:

1. Total Result
  * Remote Download Test:      Error

2. Detailed Results
  * Diagnostic Session:      Error
  * Authentication:          Error
  * Download:
    - Overview:              Error
    - Technical Data:        Error

3. Overview Tacho Informationen
  * Vehicle Unit Data
    - Manufacturer:
    - Address:
    - Partnumber:
    - Serial number:
    - Firmware / Date:
    - Manufacturing date:
  * Calibration Data
    - Calibration purpose:
    - Workshop name:
    - Workshop address:
    - Card number:
    - W / K:
    - L:
    - Tyre size:
    - Overspeed setting:
    - Old odometer value:
    - New odometer value:
    - Old time setting:
    - New time setting:
    - Next Calibration date:
  * Company locks and control activities
    - No. of company locks:
    - No. of control activities:
    - Locked to company
      Name:
      Address:
    - Company lock from:
    - Company lock to:
    - Card Number:
  * Downloadable Period
    - Start of period:
    - End of period:
  * Previous Download
    - Date / Time:
    - Card number:

4. Errors
  * Error 1 7.1264 Timeout
  * Error 2 -
  * Error 3 -
  * Error 4 -
  
```

Figure 17: result RDL test due to missing configuration for C-CAN at Continental

An error occurs at „Diagnostic Session“ (the connection to the tachograph is correct) which indicates a possible missing configuration for C-CAN.

The configuration can only be done at Continental tachographs by using a CTC II with actual software. Please make sure that the CTC II software is actual.

More information about CTC II can be found in its user manual.



Figure 18: CTC II

The settings have to be done in the menu „TCO Parameter“:

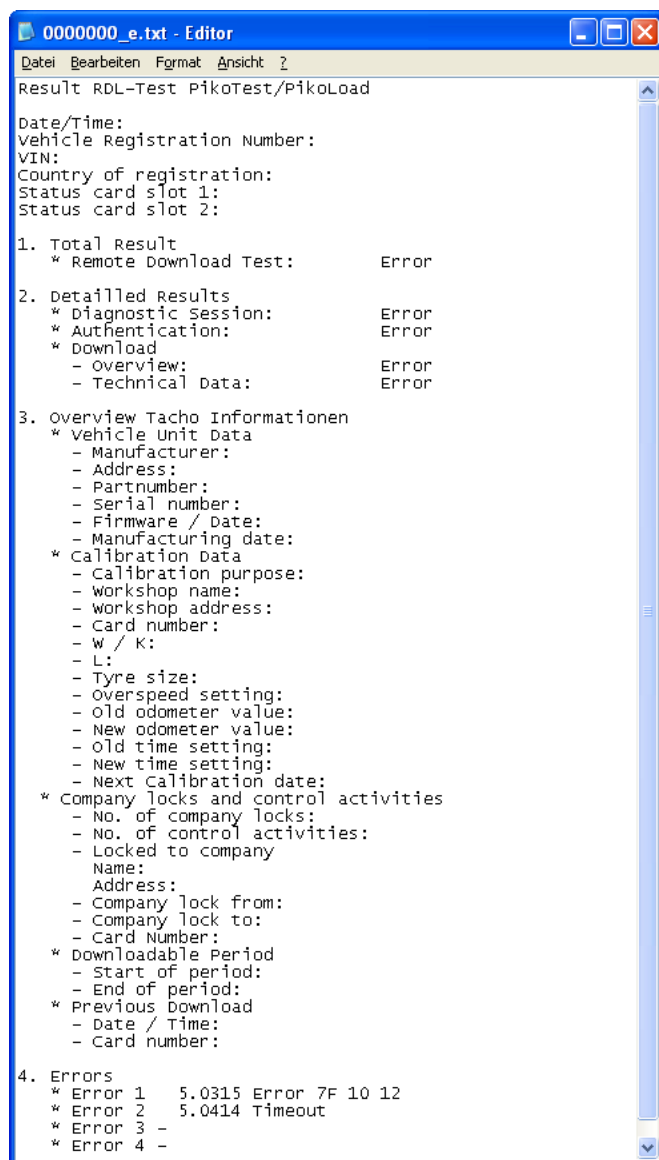
- „CAN2 ON/OFF“ has to be set to „ON“
- „CAN2“ REMOTE DOWNL.“ has to be set to „ON“
- Optional the „CAN2 TCO1“ can be set to „ON“

With these settings for remote Download the tachograph should be able to support the remote Download function on CAN 2 / C-CAN.

We recommend to repeat the RDL test with PikoLoad after finishing the settings

4.4.2 Settings at Stoneridge Tachograph

You have finished a RDL test with the following result:



```

0000000_e.txt - Editor
Datei Bearbeiten Format Ansicht ?
Result RDL-Test PikoTest/PikoLoad
Date/Time:
Vehicle Registration Number:
VIN:
Country of registration:
Status card slot 1:
Status card slot 2:

1. Total Result
  * Remote Download Test:      Error

2. Detailed Results
  * Diagnostic Session:        Error
  * Authentication:            Error
  * Download
    - Overview:                Error
    - Technical Data:          Error

3. Overview Tacho Informationen
  * Vehicle Unit Data
    - Manufacturer:
    - Address:
    - Partnumber:
    - Serial number:
    - Firmware / Date:
    - Manufacturing date:
  * Calibration Data
    - Calibration purpose:
    - Workshop name:
    - Workshop address:
    - Card number:
    - W / K:
    - L:
    - Tyre size:
    - Overspeed setting:
    - Old odometer value:
    - New odometer value:
    - Old time setting:
    - New time setting:
    - Next Calibration date:
  * Company locks and control activities
    - No. of company locks:
    - No. of control activities:
    - Locked to company
      Name:
      Address:
    - Company lock from:
    - Company lock to:
    - Card Number:
  * Downloadable Period
    - Start of period:
    - End of period:
  * Previous Download
    - Date / Time:
    - Card number:

4. Errors
  * Error 1 5.0315 Error 7F 10 12
  * Error 2 5.0414 Timeout
  * Error 3 -
  * Error 4 -
  
```

Figure 19: result RDL test due to missing configuration for C-CAN at Stoneridge

An error occurs at „Diagnostic Session“ (the connection to the tachograph is correct) which indicates a possible missing configuration for C-CAN.

There is not need for a CTC II to configure a Stoneridge tachograph for remote Download on C_CAN.
The settings can be done at the tachograph by using a valid workshop card in slot1 and the input of the correct PIN.
By pressing "OK" you will enter the menu. Use the arrow keys to scroll to „SETTINGS" and press „OK":



Figure 20: Display Stoneridge „SETTINGS"

Choose „Parameter" by using the arrow keys and press „OK".



Figure 21: Display Stoneridge „Parameter"

Choose „Download CAN selection" and press „OK".



Figure 22: Display Stoneridge „Download CAN selection"

Choose „C“ (or „A&C“ depending on the software version).



Figure 23: Display Stoneridge „Download CAN selection C“

And press „OK“



Figure 24: Display Stoneridge „Changes saved“

With these settings for remote Download the tachograph should be able to support the remote Download function on CAN 2 / C-CAN.

Please finish the menu and remove the workshop card.

We recommend to repeat the RDL test with PikoLoad after finishing the settings

4.5 Inbetriebnahme System

After a successful remote download test you can start-up your system.

We recommend to have the company card in the PikoLoad (if not in remote card mode the company card stays in the PikoLoad). It is helpful to have the company card inserted in PikoLoad until the install logs are done. This takes ca. 5-15 minutes depending on the amount of data stored in the tachograph.

Please watch the LED display for "Double-Green".

We recommend to plug in a USB-Stick after 10 minutes in the PikoLoad and to archive the Installation data.

After start-up of PikoLoad you can start your bord computer system with or without Remote card mode.

If you do a remote company card mode please remove the company card from PikoLoad.

Connect your system to the PikoLoad (RS 232 or CAN2).

Please note that the PikoLoad offers power supply and ignition at the CAN 2 connector for bord computers.

4.5.1 LED display (with Company Card)



Figure 25: LED display

The LED's indicate the following status information (USB interface to the left)

<div> <div>●</div> <div>●</div> </div> <div> <div>off</div> <div>off</div> </div>	Ignition off No power supply -> check the wiring harness
<div> <div>●</div> <div>●</div> </div> <div> <div>off</div> <div>red</div> </div>	Ignition on Initialization and self test is running
<div> <div>●</div> <div>●</div> </div> <div> <div>red</div> <div>red</div> </div>	Error, e.g. <ul style="list-style-type: none"> No card inserted -> check No company card inserted -> check Company card wrong inserted -> check No CAN-Data -> check wiring harness -> check tachograph whether remote downloadable USB-error -> check USB-stick (Formatting, maybe the USB-stick is full) internal error-> replace the unit
<div> <div>●</div> <div>●</div> </div> <div> <div>off</div> <div>green</div> </div>	Authentication running or is checked (ca. 2 minutes duration)
<div> <div>●</div> <div>●</div> </div> <div> <div>green</div> <div>green</div> </div>	Authenticated, data are downloading
<div> <div>●</div> <div>●</div> </div> <div> <div>orange</div> <div>green</div> </div>	USB Stick is in writing mode, download is still running Do not unplug the USB-Stick, you might loose data
<div> <div>●</div> <div>●</div> </div> <div> <div>green</div> <div>red</div> </div>	Tacho is not locked to the company card or locked to a different company card Note: If not locked, all unlocked data are downloaded Driver cards are downloaded independent from the lock
<div> <div>●</div> <div>●</div> </div> <div> <div>orange</div> <div>red</div> </div>	Company card expired (5 years validity check) Company card damaged -> please check and replace Tacho is longer than 15 minutes in „pending mode“ Company card, control card or workshop card is inserted in the tachograph Tacho is waiting on input Internal Tacho error -> check in workshop
<div> <div>●</div> <div>●</div> </div> <div> <div>orange</div> <div>orange</div> </div>	„Service Mode“

5 Appendix

5.1 Technical Data

Dimensions	119 x 111 x 46 mm
Power supply	12 V / 24 V via plug in vehicle
Interfaces	2 x CAN J 1939 1 x USB 2.00 1 x serial RS 232
Included in package	Vehicle connector USB-Stick

5.2 Pin Assignment

5.2.1 PikoLoad CAN 1 Pin Assignment

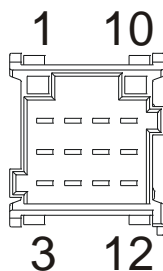


Figure 26: PikoLoad CAN 1 Pin Assignment

Pin 1	Clamp 31 (ground)
Pin 6	CAN high (Tacho data + FMS-Data if available)
Pin 9	CAN low (Tacho data + FMS-Data if available)
Pin 10	Clamp 15 (24 V DC UBat - Ignition)
Pin 12	Clamp 30 (24 V DC)

Note: Please keep in mind that the power supply and the ignition signal is wired and connected.

Pin 6 and Pin 9 are the connections to the tachograph C-CAN (Pin 5 and Pin 7)

The connection to FMS data is optional, if FMS data are available in the vehicle!

5.2.2 PikoLoad CAN 2 Pin Assignment

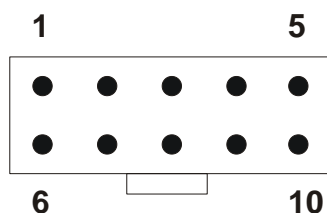


Figure 27: PikoLoad CAN 2 Pin Assignment

Pin 1	GND	
Pin 2	Reserved	
Pin 3	CAN high	
Pin 4	CAN low	
Pin 5	Ground (Out)	Clamp 31
Pin 6	12 VDC (Out, optional)	
Pin 7	Clamp 15R (Out, optional)	
Pin 8	Ignition (24V, Out, max. 100mA)	Clamp 15
Pin 9	Reserved	
Pin 10	24 VDC (Out, max. 5A)	Clamp 30

Note: Ignition is 24 VDC !

Note: This CAN has a 120 Ohm terminating resistor!

The power supply of the PikoTest is via the green connector (CAN 1)

The power supply on CAN 2 is output only!

All FMS data (if available) are routed to the CAN 2 interface of PikoLoad.

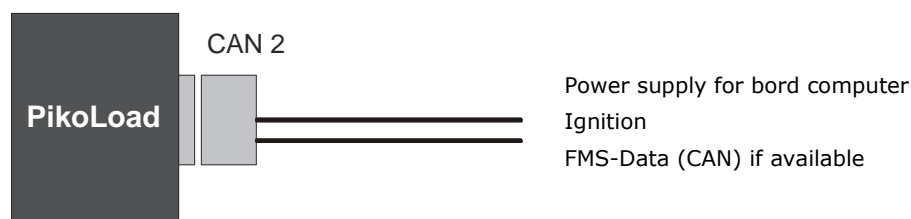


Figure 28: PikoLoad CAN 2 connection

5.2.3 PikoLoad RS 232 Pin Assignment

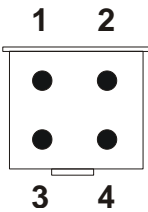


Figure 29: PikoLoad RS232 Pin Assignment

Pin 1	GND
Pin 2	RxD
Pin 3	TxD
Pin 4	Reserved

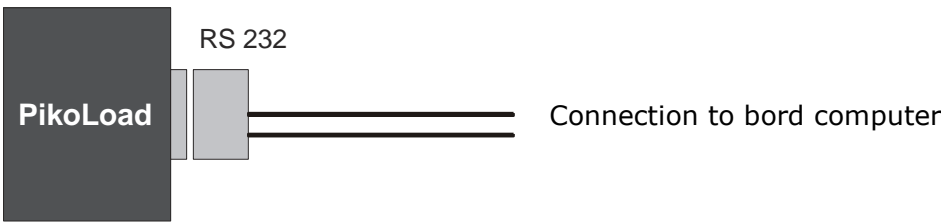


Figure 30: PikoLoad RS connection

5.3 Checklist Installation / Start-up

Check	Result / Remarks
Vehicle ordered with remote download function	
Vehicle ordered with FMS	
„Green connector“ in vehicle	
Connection cable PikoLoad – Bord computer	
Connection cable PikoLoad – C-CAN Tacho	
Company card available	
Validity of the company card until	
Company cards available for all vehicles	
FMS-Test successful	
USB-Stick prepared with file RemDwlTest.PSS	
Remote Download Test successful	
Company card inserted in PikoLoad	
Both LED's green	
Wait ca. 10 Minutes	
Plug in USB-Stick and wait until files are stored	
Check files of USB-Stick	
Tachotyp / -manufacturer	
Vehicle ID	
Vehicle – Plate number	
Connect bordcomputer system	
Check bordcomputer system	
Remove company card for remote card mode	