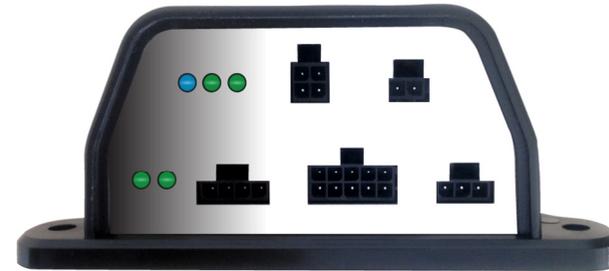


# digiDL<sup>EX</sup>

# digiDL<sup>E</sup>

## Installation Guidelines for Resellers



### content overview

- > Vehicle compatability
- > digiDL-EX connections
- > Activity indicators
- > PC software installation
- > Configuring by pc
- > Monitoring



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Checking compatibility of vehicles:

Remote Download was introduced in 2009 so many vehicles from late 2009 onwards will have compatible Digital Tachographs however it can be a mixed picture depending on the vehicle and Tachograph manufacturers.

**Stoneridge:**

All revision 7.0 Tachographs onwards will support Remote Download.

**VDO:**

Generally all VDO Models from 1.3 onwards are compatible however additional accessories and cable forms may be required. Tachosys and its resellers can help with vehicle audits to determine vehicle compatibility.

In the case of VDO the requisite Secondary CAN-Bus with connection at the back of the Tacho was not always included. Most Heavy Goods vehicles should be okay but many 12 volt models fitted to large vans for instance will require the use of the front port connection via K-Line (see pages 15-16).

Please check [www.tachosys.com](http://www.tachosys.com) for the current exceptions list.

Vehicle Audit

As vehicle compatibility cannot simply be assumed we strongly advise creating a vehicle list to include; Vehicle registration, Model, Year and Tachograph Model Number.

You can find the Tachograph Model number printed behind the removable printer tray on most Tachographs or at the rear of the unit. Alternatively you can perform a Technical Printout from the Tachograph unit.

If you are remote to the customers site then the easiest way to determine the Tachograph model number is to request a vehicle download file. Tachosys provide software called TachoFileViewer which allows you to view the contents of the file and to read out the Tachograph Model Number.

Please see opposite for guidance on how to find the Tachograph Model Number.

Checking Stoneridge Tachograph Model Numbers

**Technical Printout**

```

Stoneridge
v 26/01/2012 11:10 (UTC)
TOT
-----
0 0
PROSYS DEVELOPMENT SER 1 0
-----
# 123 VIN no0987654
UK /S061 SRE
-----
B Stoneridge Electronics
Adolfsbergsvägen 3,
S70227 Örebro
900208R7.3 24R01
e50002
0000340590/0511/06/A2
2011
v P4HH 31/05/2011
-----
    
```

**Tachosys Tachofileviewer**

Identification	
description	value
vuManufacturerName	Stoneridge Electronics
vuManufacturerAddress	Adolfsbergsvägen 3, S70227 Örebro
vuPartNumber	900208R7.3/26R01
vuSerialNumber	345209
monthYear	0511
type	Vehicle Unit
manufacturerCode	162
vuSoftwareVersion	P4HH
vuSoftInstallationDate	28/06/2011 00:00:00
vuManufacturingDate	28/06/2011
vuApprovalNumber	e50002

Checking VDO Tachograph Model Numbers

**VDO**

```

VDO
-----
T 02.02.2012 11:51 (UTC)
TOT
-----
# UUUUUUUUUUUU1236547
UK /SH58SRN
-----
B Continental Automotive
GmbH
H.-Hertz-Str.45 78052
VS-Villingen
1381.1070000047 Model
e1-84 Tachograph
0001612845 Version
2009 13.43 01.09.2009
-----
# 0201871149
e1-175
04.04.2007
-----
    
```

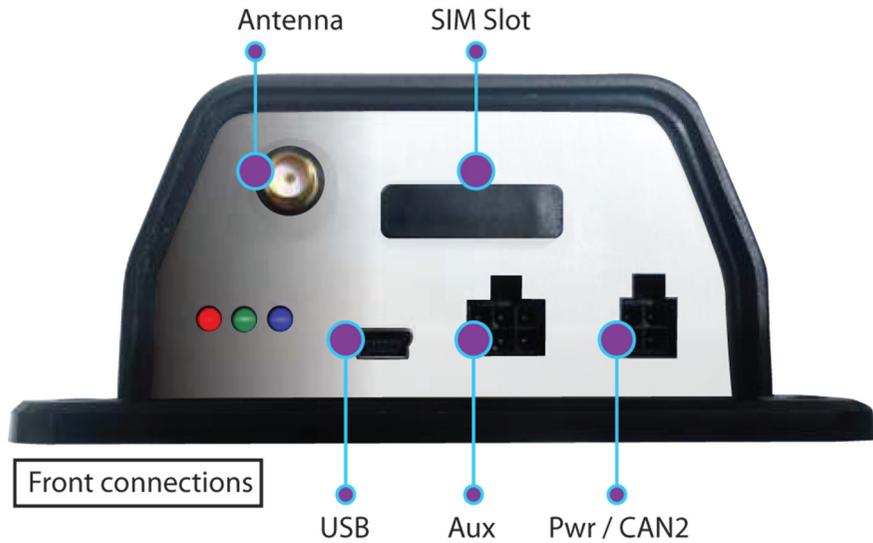
Identification	
description	value
vuManufacturerName	Continental Automotive GmbH
vuManufacturerAddress	H.-Hertz-Str.45 78052 VS-Villingen
vuPartNumber	1381.1070000047
vuSerialNumber	1612845
monthYear	0909
type	Vehicle Unit
manufacturerCode	161
vuSoftwareVersion	1343
vuSoftInstallationDate	01/09/2009 13:06:46
vuManufacturingDate	01/09/2009
vuApprovalNumber	e1-84

VDO and secondary CAN-Bus enabling

Some vehicle manufacturers choose to have their VDO Tachograph delivered with the Secondary CAN-Bus disabled within the internal software configuration. The option can only be enabled with the use of a VDO CTC programmer. This requires a visit to a VDO Calibration centre. We currently know this applies to DAF CF and LF models and some Renault models.

With the vehicle ignition ON check that the Green CAN-Bus LED on the digiDL illuminates. If it does not and the Tachograph model number is valid then it is likely that the secondary CAN-Bus is programmatically disabled.

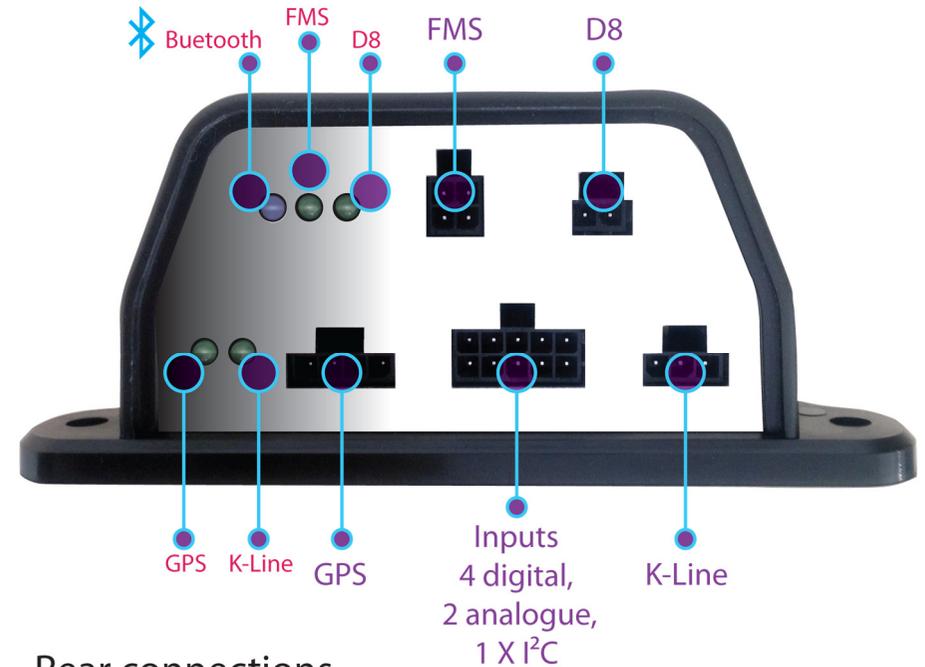
digiDL-E and EX - Front Connections



- USB: Configuration
- Aux: Optional button or alternative RS232 input / output
- Pwr / Can2: Connection to CAN2 of the Tachograph

LED	ON	OFF	Flash
P	Power Okay	No Power	Power okay and a Task is in progress
C	CAN okay	No CAN	Intermittent CAN connection
W	GPRS/WiFi okay	No GPRS/WiFi	Initiating GPRS/WiFi

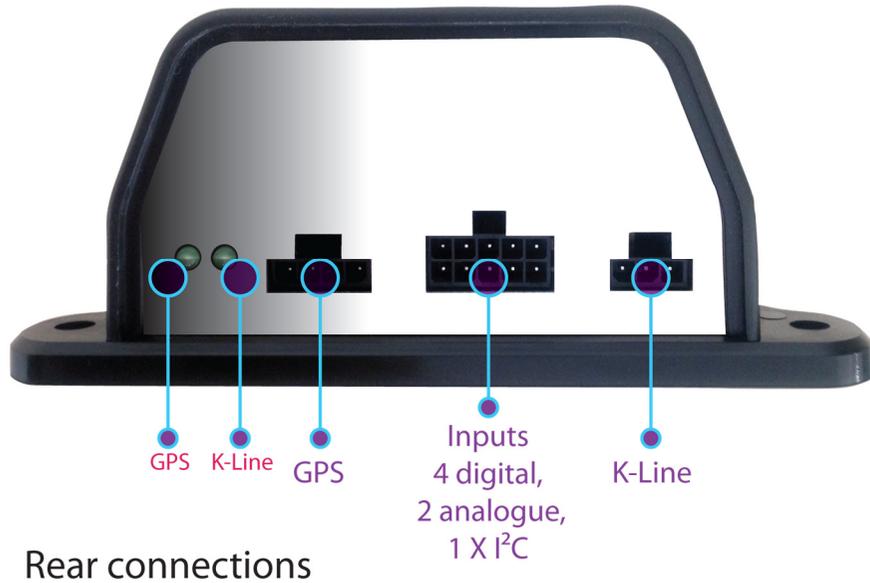
digiDL-EX — Rear Connections



Rear connections

LED	ON	OFF	Flash
BT	Bluetooth Connected	Bluetooth Idle/ Not connected	Bluetooth initialising/working
FMS	FMS okay	No FMS	N/a
D8	D8 data being received	No D8 data being received	N/a
GPS	GPS okay	No GPS	Obtaining GPS positional lock
K-Line	K-Line okay	No K-Line	K-Line is working

digiDL-E Rear Connections

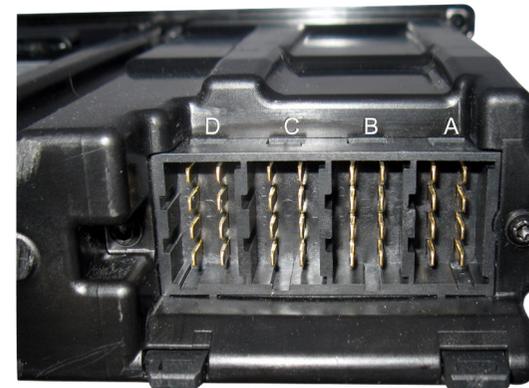


LED	ON	OFF	Flash
GPS	GPS okay	No GPS	Obtaining GPS positional lock
K-Line	K-Line okay	No K-Line	K-Line is working

digiDL , digiDL-E and EX cable options

- Tachograph standard cable (DDLTC-A)
- FMS Square 4-pin Cable (DDL-FMS)
- D8 flat 2-pin cable (DDL-D8)
- GPS Receiver flat 4-pin cable (DGPS01)
- K-Line flat 3-pin cable (DDL-KLINE)
- Mercedes / Volvo double plug adapter (DDLDP)

Vehicle Unit Rear Connections– standard cable form (DDL-TC)



- A CAN-Bus - A
- B Speed Sender
- C CAN-Bus - C. For use with all digiDL models.
- D See Page 17 For D8 information



CAN-Bus C;  
Place in socket C of  
Tachograph.

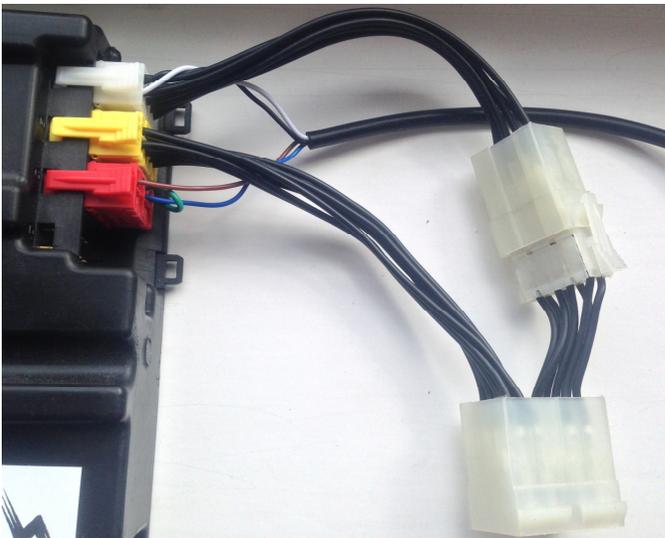
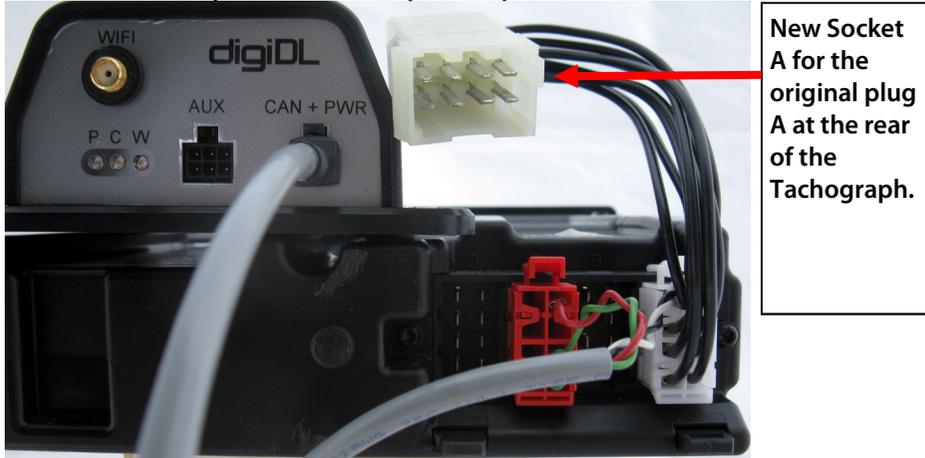
New socket for  
manufacturers  
White plug.

CAN-Bus A plug which  
replaces the  
manufacturers white plug.  
Which is then plugged into  
the female plug provided.

digiDL CAN + PWR;  
Place in digiDL

digiDL with cable form in place

Please note: The speed sensor connection remains in the Tachograph Socket B, this is not shown. You have to remove the existing plug A from socket A of the Tachograph. The plug you removed from socket A must be placed in the new socket clearly visible at the top of the picture above.



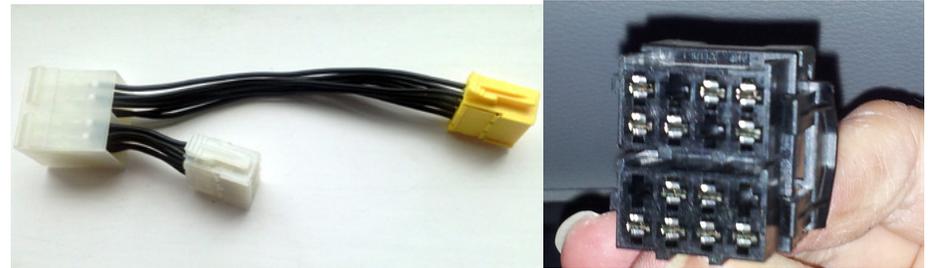
Tachograph Loom with Volvo / Merc adapter cable option see page 11 for more information.

Specific Vehicle Manufacturer Considerations:

Double Plug Adapter - DDL-DP

Description: works in conjunction with DDL-TC (standard loom) for vehicles with a conjoined A and B plug at the rear of the Tachograph.

Vehicles affected: **Mercedes and Volvo**



Volvo / Mercedes Plug

Y Cable Secondary CAN-Bus adapter - DDL-CY

In some cases a RED plug may already be inserted in the C Connector of the Tachograph for manufacturer or third party services. In most cases this can be removed and terminated (see DDL-TM connector Page 12).



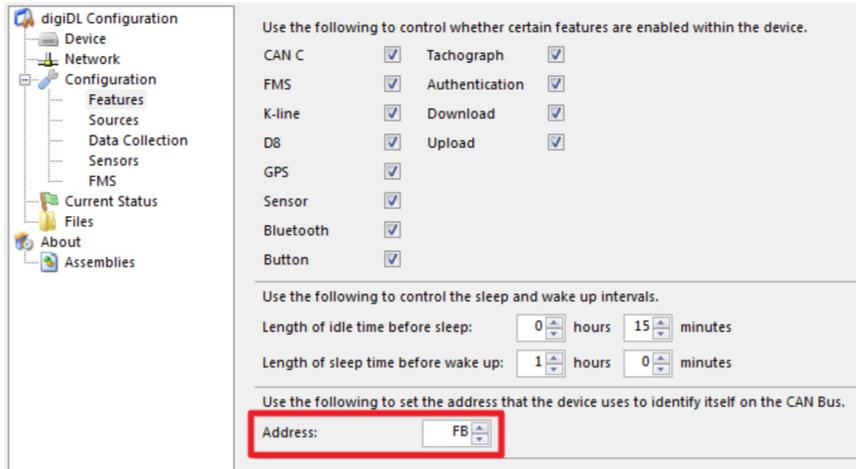
If information is required from the Tachograph for a third party service we provide a Y Connector which allows you to plug both devices into CAN C.

Some 2015 onwards, vehicles (Scania and Volvo to date) seem to have systems which are tapping into data from the CAN2 even though they are not doing remote download.

Both devices cannot share the same CAN address and the truck manufacturers do not provide a way to change their address. If you are running V1.33 firmware or later on your digiDL (E, EX) and our latest digiDL configuration software we allow you to change the CAN2 address.

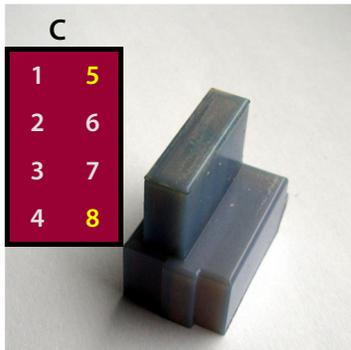
Y Cable Secondary CAN-Bus adapter - DDL-CY—Cont:-

The standard CAN bus address for remote download is FB. This can be found in digiDL Configuration under Features. (See image below). We suggest you change our device address to FA or FC. For shared devices use DDL-CY and if the third party device is not required, use DDL-TM below.



Vehicles most affected: **Iveco, MAN, Mercedes, Scania and Volvo**

CAN-Bus Termination plug DDL-TM for Onboard Systems 2012 onwards



Some manufacturers fit a telematics unit as standard even if the operator does not subscribe to any services. This telematics unit may use the Tachograph to terminate their own CAN-Bus. If the Red Plug is removed from the Tacho errors may occur which are shown on the vehicle dashboard.

Remove the manufacturer's or third party's Red plug and terminate it with our DDL-TM 120 Ohm resistor.

To check for an active third party device, check voltage between GROUND and PIN 5 of their RED plug with the vehicle's ignition ON. It will read +/- 3V if active.

Vehicles most affected: **Iveco, MAN, Mercedes, Scania and Volvo**

VDO and secondary CAN-Bus enabling

Some VDO Tachograph may be configured with the Secondary CAN-Bus disabled by default. In this case the function will need to be enabled with a CTC II programmer with 2.6 firmware or later or Stoneridge Optimo.

If the CAN LED (GREEN) LED does not illuminate on the digiDL and the Tachograph has a Secondary CAN-Bus this is the likely cause.

The VDO programmer settings as we know them are; Programming – TCO Parameters – CANBus – Remote Download (ON) and TCO Parameters – CANBus – CAN2 (ON) . This work although not classed as a full calibration will need to be done with a Workshop Card installed.

Vehicles most affected: **DAF, Renault**

CAN-Bus Baud rates

From 2012 onwards Mercedes upped the Baud Rate of their CAN-Bus and in turn the Tachograph's Secondary CAN. The digiDL firmware was updated in version 1.18s to cope with this change. You must upgrade earlier versions of the firmware.

Vehicles most affected: **Mercedes**

### GPS Receiver (DGPS01)

This GPS Receiver is an all in one intelligent device providing GPS data to a digiDL-E or EX. The flat 4 pin connector, connects to the GPS socket.

Before fitting, the digiDL-E or EX need to be configured so that the GPS feature is enabled. You can configure the GPS settings in digiDL Configuration or digiconnect software. Under the Data Collection view tick the box for GPS. You can also configure how often GPS data is reported to the server.

The GPS receiver needs to be fitted in direct line of sight of the sky, to enable it to obtain a position lock quickly (dashboard or windscreen). Once fitted to the vehicle, the GPS LED will flash while the digiDL-E or EX is getting a positional lock and will eventually become constant to indicate that GPS data is being logged.



### Kline (DDL-KLINE) for Front Port download on VDO Tachographs

Quite a number of VDO model tachographs will not support remote download via the rear port (CAN-C). These are predominantly 12 Volt models as fitted in large vans however there are several Volvo and Renault model tachographs which will only download via the front port. You should always check the status of your Tachograph model with your provider before attempting to fit a digiDL, digiDL-E or EX. You can check your tachograph model number at <http://lookup.tachosys.com> as part of a recommended vehicle audit.

### Unlocking the front port of a VDO Tachograph for use with DDL-KLINE

You are required to software unlock the front port of the tachograph using a 'VDO Front Interface Update Card'.

The product codes are as follows;

Code: A2C59512046 – 1 unlock

Code: A2C59512047 – 5 unlock

NOTE: if you need to use K-Line for remote download, please ensure all of the following:

1. You are using the digiDL-E or EX. The digiDL does not have a K-Line socket.
2. You have purchased a VDO front port unlocking card from VDO – one per vehicle. These need to be put into each tachograph BEFORE fitting the digiDL-E or EX to enable front port remote download.
3. You have configured the digiDL-E or EX to use K-Line as its source of Tachograph Download, Tachograph Mode and Driver Decision Support. This can be found in digiDL Configuration under Sources. (See page 16).
4. DO NOT connect the red plug of the Standard digiDL Cable – this plug is for the CAN-Bus, which you are not using. Connect the white plug of the Standard digiDL Cable as per normal.
5. When the digiDL-E or EX has been fitted, ensure that the K LED on the digiDL-E or EX is illuminated to indicate the K-Line connection is active.

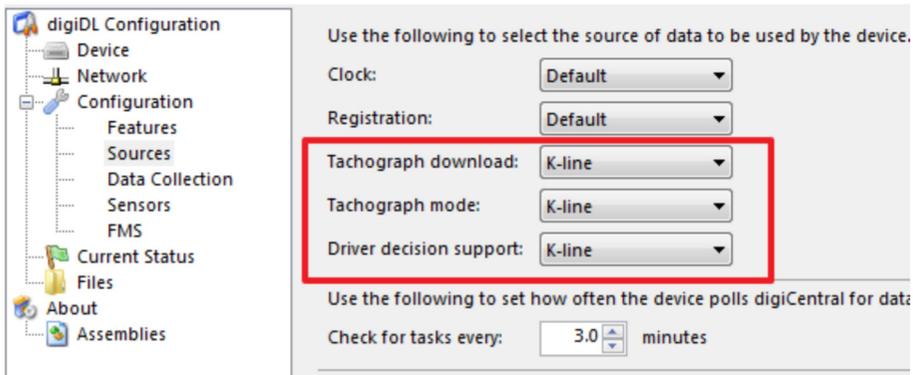
**Kline (DDL-KLINE) for Front Port download on VDO Tachographs Cont:-**  
**Unlocking the front port- Cont:-**

Be careful when using the multiple licence unlock card as there does not appear to be a very noticeable acknowledgement that a unit has been updated and a licence debited from the card.



You will need a K-line cable (DDL-KLINE) which fits between the digiDL-E or EX and the front port of the Tachograph. It is NOT necessary to place the RED plug from the standard loom in the Tachograph.

Please use digiDL Configuration or digiConnect to set the Sources to K-Line as below.



**D8 Cable (DDL-D8)**

This cable connects the digiDL EX to the 8<sup>th</sup> pin on the D port of the tachograph. This connection allows the digiDL-EX only to report tachograph mode information even while the ignition of the vehicle is switched off. In order to get the last event from the Tacho when the Driver goes from Other Work to Rest for instance, you may need to utilise 'mode data' from D8 as when the ignition is turned OFF the CAN2 is also turned OFF. Later Tachographs (broadly from 2012) leave the CAN2 connection live for a period after the ignition is turned OFF so D8 would not be required in these cases.

D	
1	5
2	6
3	7
4	8

This cable is incorporated into the Brown Plug which connects to the D port at the rear of the Tachograph.

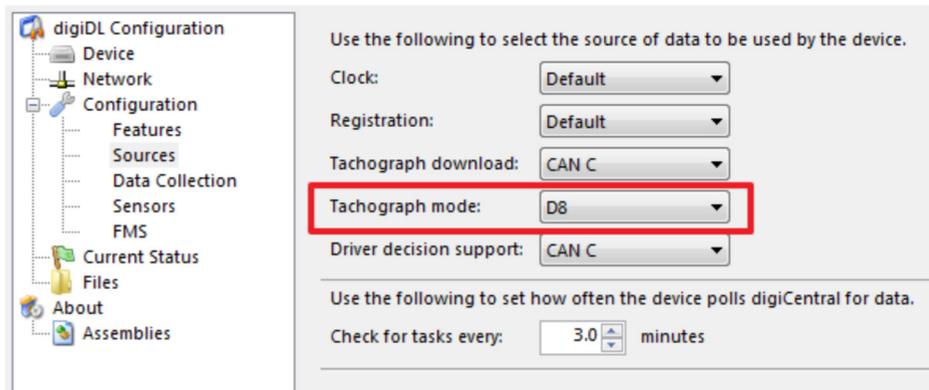
NOTE: if you want to use the D8 connection to supply mode data, please ensure the following:

1. You are using a digiDL-EX. The digiDL and digiDL-E do not have a D8 socket.
2. You have configured the digiDL-EX to use D8 as its source of Tachograph Mode. This can be found in digiDL Configuration under Sources. (See image Page 18).
3. When the digiDL-EX has been fitted, the D8 LED is ON.



D8 Cable (DDLTC-D8) Cont:-

The Vehicle's A plug will connect to the WHITE socket of the standard digiDL cable as normal. The Vehicle's B plug will remain connected to the B port on the rear of the tachograph (not shown). You must use digiDL Configuration or digiConnect to set the Tachograph Mode Source to D8 (see below).



Vehicle FMS (DDL-FMS)

The digiDL-EX model has a second CAN-Bus port for connection to the vehicle CAN-Bus. Our FMS cable has a GREEN plug which is the standard connection but this may vary from vehicle to vehicle. This connection is for use with a manufacturer's FMS Gateway. This enables the digiDL-EX to send FMS data, such as fuel consumption, back to the digiCentral Server. Check with Tachosys for other possible connection methods other than the standard FMS Gateway.

Before fitting, the digiDL-EX needs to be configured so that the FMS feature is enabled. Utilising digiDL Configuration software or digiConnect navigate to 'Data Collection' and enable the FMS option.

The C2 LED should be ON when the digiDL-EX is powered and the vehicle's ignition is ON if the CAN-Bus is receiving data.



Rear security seal

In circumstances where a rear security seal is fitted to the Tachograph, normally where the speed is being taken from the Tachograph, this must be refitted and resealed. Resealing can only be performed by a calibration station. The seal is not required by law in the UK if the speed is being taken from a separate source. UK after market Tachograph are supplied by default without a seal. A secondary seal box can be used if the installer wishes to use the Tachosys plug and play cable and make tamperproof the A connection.

Our current understanding is that a seal must always be fitted in Denmark and Spain.

## digiDL-E / EX Configuration

### Configuration Requirements:

- A PC running Windows 7 / 8 / 8.1 / 10
- digiDL Configuration software version 2 or greater
- digiDL-E or EX Configuration kit

*Important: do not connect any of the cabling provided with your digiDL model before commencing the software installation.*

### Installing the digiDL Configuration Windows® Software

1. Insert the CD provided into your optical disk drive . It will run automatically and a dialog box will appear. If the auto-run feature is disabled on your system the program will fail to load automatically. Please browse to the disk using Windows® Explorer and double-click Setup.exe.
2. If you have a multilingual version of digiDL Configuration you will now be prompted for your language. Please select from the list and then click 'Next'.
3. You will receive a welcome message, simply click 'next'.
4. Read the terms of the Licence Agreement then click on the 'I accept the terms in the Licence agreement' option and then click 'next'. If you choose to not accept the terms the installation will be terminated.
5. Choose the folder in which you wish the software program files to be installed. The default folder is the standard location for Windows® programs. Click 'next'.
6. Click 'Install' to begin the actual installation. This may take several minutes.
7. Finally leave the box labelled 'Launch digiDL Configuration' ticked and click 'Finish'.
8. The application will try and find a digiDL-E or EX and fail if one is not connected.
9. Now follow the instructions opposite for 'Connecting the digiDL-E or EX to your PC'.

### Connecting the digiDL-E or EX to your PC

1. First connect the USB cable to the USB port on the digiDL-E or EX and connect the other end to a spare USB port on your computer.
2. Connect the short 4-pin power adapter to the CAN + Power connector.
3. Plug the provided power supply into the mains and then connect it to the short adapter. The red Power LED should illuminate.
4. Windows will show a small pop-up letting you know that it is installing the drivers for the digiDL-E or EX.
5. When Windows has finished installing the drivers, click "Retry" in the digiDL Configuration software to connect to the device.

If you are having problems connecting to your digiDL-E or EX then repeat the steps above. If problems persist, please see the Troubleshooting section.

**digiDL Configuration - Device View**

The screenshot shows the 'digiDL Configuration' window in 'Device View'. The left sidebar has a tree view with 'Device' selected. The main panel contains the following information:

- Serial Number: 18000005
- PWD: Q21ZLUGBE
- Build Date: 22/04/2014 07:28:15
- Version: 1.01 S (with 'Upgrade Firmware...' button)
- Connectivity: Modem
- Module: 4: GPRS (3G)
- Daughter Board: 2
- Registration: TA14 VDO
- Date of Last Authentication: 28/08/2014 09:03:38 (with 'Cancel Authentication' button)

Buttons at the bottom include 'Refresh' and 'Close'.

The device view provides general information about the digiDL-E or EX such as firmware version, serial number and the device password (PWD).

The device password is used to register the device on the digiCentral Server (see page 20 for more information).

The buttons for upgrading firmware and cancelling the authentication are mostly for troubleshooting and both can be done with the device fitted in the vehicle, using digiCentral server device commands.

The refresh button can be used to re-load the device information.

**digiDL Configuration - Network View (GPRS)**

The screenshot shows the 'digiDL Configuration' window in 'Network View (GPRS)'. The left sidebar has a tree view with 'Network' selected. The main panel contains the following information:

- Host name: dcweb.prosysdev.com
- Port number: 4616
- Network: 23420 (with 'Auto Fill' button)
- APN: stream.co.uk
- User: default
- Password: void
- PIN: 4668

Buttons at the top include 'Open Settings File' and 'Save Settings File'. Buttons at the bottom include 'Refresh', 'Save to Device', and 'Close'.

*Please note: The exact view that you see may vary slightly from the picture if you are configuring a WiFi digiDL-E or EX.*

Each digiDL-E or EX requires a digiCentral server to communicate with and its details must be entered in the Host Name and Port fields. Under the majority of circumstances, the port used is 4616—however please double check before completing the configuration.

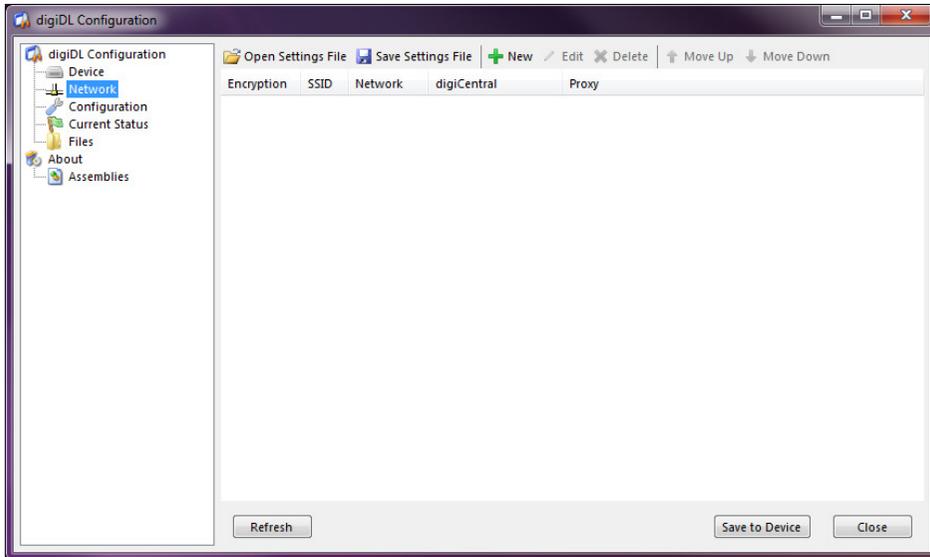
**GPRS**

GPRS digiDL's require an APN, Username and Password to use with the SIM card in the device. Please check with your network provider. The "Auto Fill" button can be used to try and guess the correct details based on networks that the SIM can currently connect to.

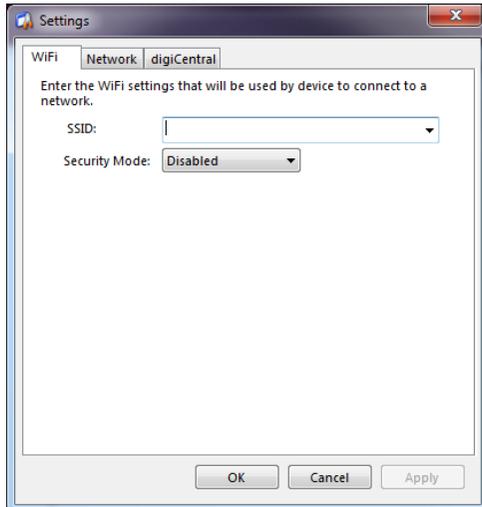
If your SIM card has a PIN applied to it, enter it in the PIN field.

When you have completed all necessary fields, click "Save to Device" to write the settings to the device memory. The digiDL-E or EX will save the settings and reboot. At this point, if the network settings are correct, you should see the blue LED on the device begin to flash and then stay on—indicating that the device has successfully connected. If this does not happen, please refer to the troubleshooting section.

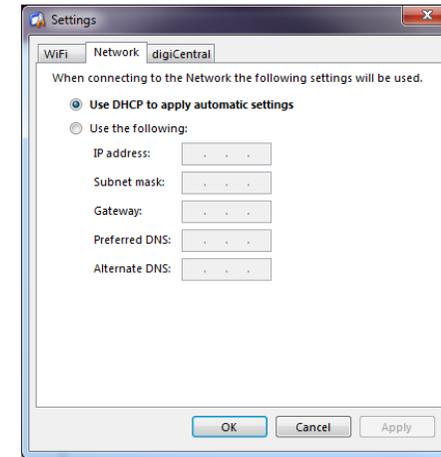
**digiDL Configuration - Network View (WiFi)**



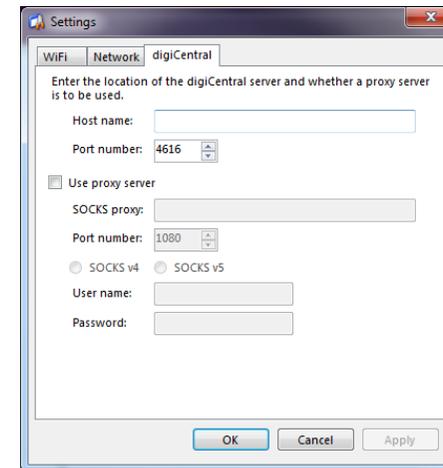
To begin configuring a WiFi digiDL-E or EX, first click the “New” button to open the network settings window.



If you click the drop down box for “SSID”, you will see the option for “Scan for WiFi Networks”. Select this option to search for nearby WiFi access points. If you are not in the vicinity of the access point, enter the SSID and security details for the WiFi network to connect to.

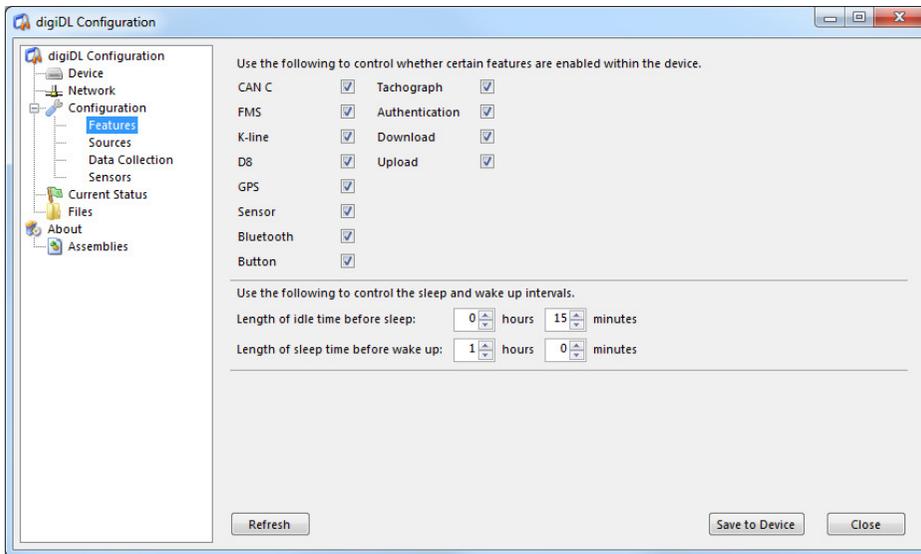


Next select the “Network” tab to enter the network details for the WiFi network you are connecting to. Normally, DHCP is used to allocate IP addresses automatically for WiFi devices, however static IP address information can be entered if necessary.



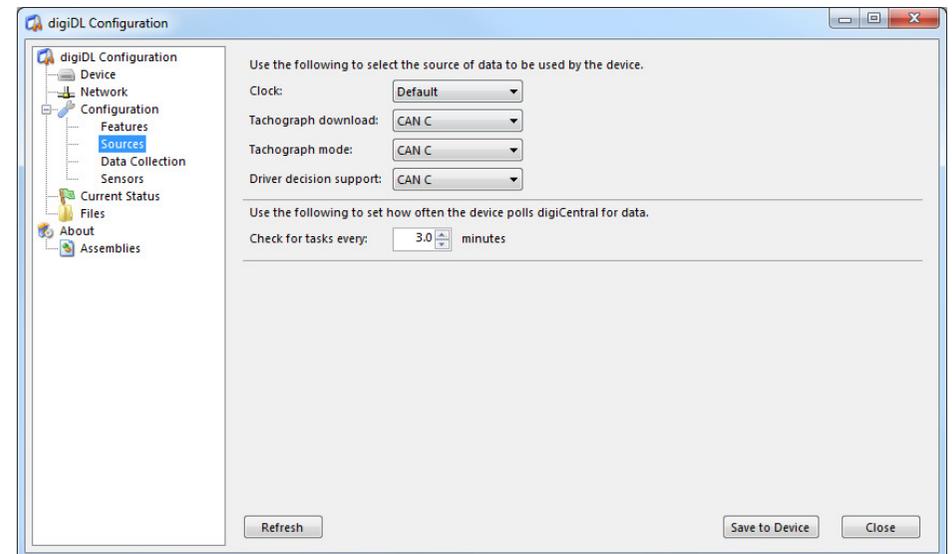
Finally, enter the Host name and Port details for the digiCentral server that your device should connect to. If required, proxy server details can also be entered below. Once you have all information entered correctly, click “OK” and then finally click “Save to Device” to write these new settings to the device memory.

Multiple WiFi networks and settings can be added but bear in mind that the settings will be used in the order listed. Use “Move up/down” to re-order.

digiDL Configuration Window - Configuration ViewsFeatures

Use the tick boxes next to each feature to disable/enable each function of the digiDL-E or EX. Please note that un-ticking Tachograph, Authentication, CAN C or Download will mean that no VU information will be sent back to the server. Other features can be disabled as desired, but do not need to be disabled. For example if you have not connected digiDL-EX to the VU D8 pin, then having D8 enabled will not cause any problems.

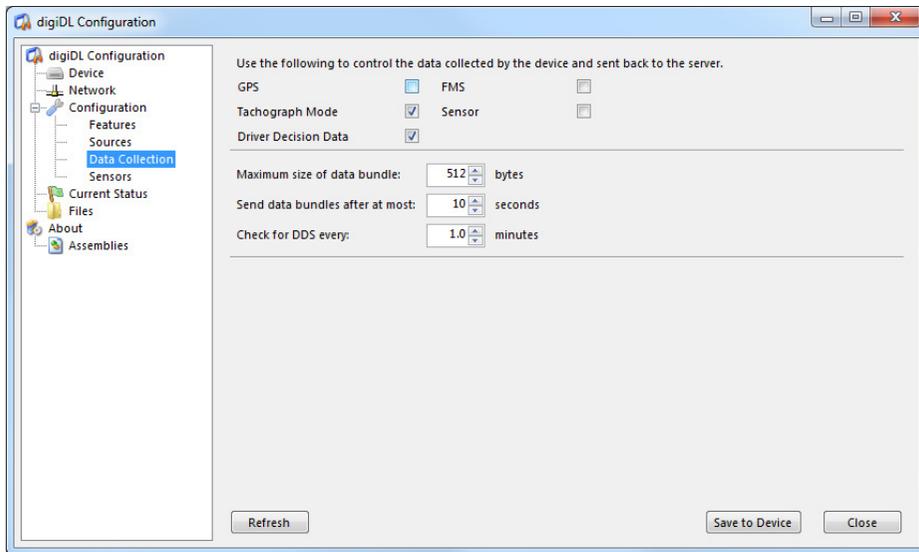
The settings below can be used to decide what happens when the digiDL-E or EX is idle (the vehicle ignition is switched off). By default the digiDL-E or EX will go into a low power sleep mode after 15 minutes and will wake up every hour to check in with the server. It will continue to do so until the vehicle ignition is switched on again.

digiDL Configuration Window - Configuration ViewsSources

The sources view allows you to choose where certain vehicle data will be reported from. Much of the same information will be available from both CAN C and K-Line. This allows you to configure the digiDL-E or EX to use K-Line source if your Tachograph does not support rear CAN C downloads.

Changing the Tachograph Mode source to D8 allows the device to continue to log mode data, even when the vehicle ignition is switched off.

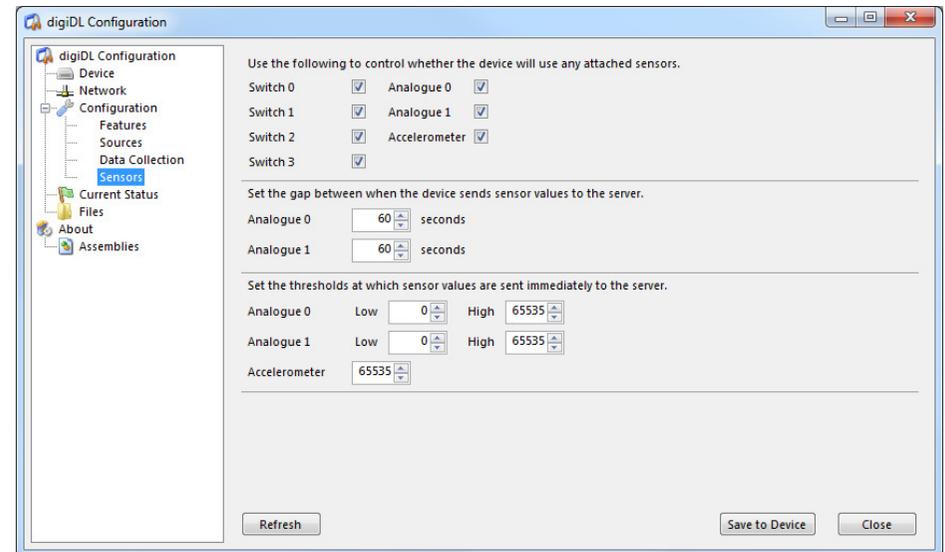
The final setting in this view allows you to configure how often the digiDL-E or EX will ask the server for tasks. This is used when the vehicle ignition is on and the device has a connection to the server. The default is 3 minutes.

digiDL Configuration Window - Configuration ViewsData Collection

This view allows you to customise how the additional data collected is bundled and sent back to the server. Customising these settings allows you to either make the digiDL-E or EX more mobile data efficient or make it report the up to date data to the server more regularly.

By default, the device will log data from GPS, Tachograph Mode, Driver Decision Support, FMS and Sensors into a log that has a maximum size of 512 bytes. If the log is going to exceed this size limit, it is sent to the server. If the log does not exceed this size in 60 seconds, it is then sent to the server.

Driver Decision Support data (Stoneridge terminology) is requested from the Tachograph every minute, unless configured otherwise. This data helps drivers to make accurate decisions for breaks and driving hours. On VDO Siemens Tachographs, this data is called VDO Counter and works in much the same way.

digiDL Configuration Window - Configuration ViewsSensors

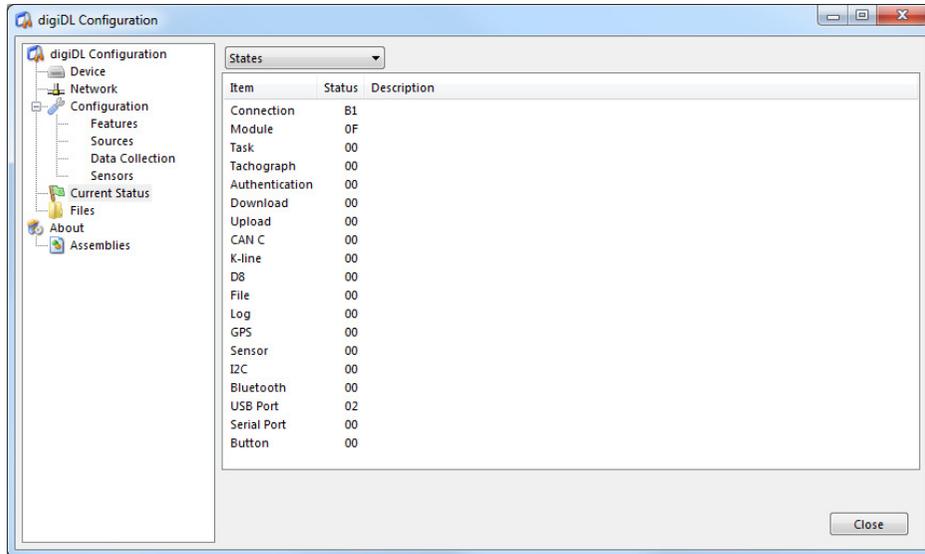
This view allows you to control the additional inputs and sensors and how they are handled by the digiDL-E or EX.

Enable Switch 0, 1, 2 and 3 by ticking the relevant boxes. Their states are logged when they change (from OFF to ON, 1 to 0, HIGH to LOW etc).

The analogue inputs can have their values read at regular intervals. The default is 60 seconds. When they are read, the current value is placed into the log (see Page 28 for when these logs are sent).

You can also set thresholds for the analogue inputs to give you a minimum and maximum value. If either of these are read from the analogue input, that data is transmitted to the server immediately.

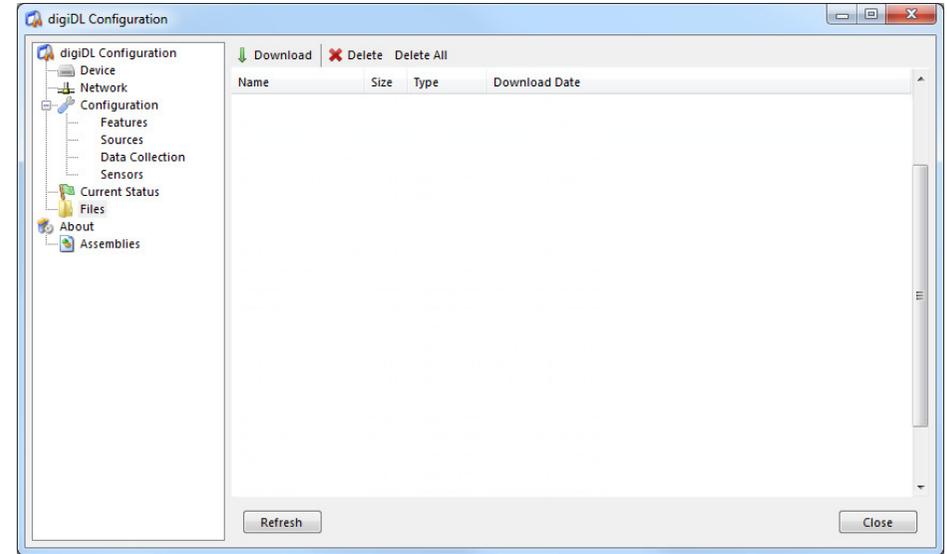
You can also configure the threshold for the accelerometer, which is also sent immediately to the server if the accelerometer reports that value.

**digiDL Configuration Window - Current Status View**

The Current Status view is useful when confirming the configuration has been successful. At the top of the Current Status view there is a drop down menu to select which data to view. Generally the most useful data to view is the “States” data.

During configuration, saving your settings to the digiDL-E or EX will force it to reboot and attempt a connection to the server. The blue LED will flash while the connection is established, but if it does not finish by staying on solidly then there is an issue with the settings. The “States” view can help you pinpoint where this issue may be. See the troubleshooting section for more information about identifying configuration issues.

The other sections of data available ( Locks, Loading and Tacho ) are for debugging use.

**digiDL Configuration Window - Files View**

The digiDL-E or EX stores the files it downloads from the Vehicle Unit. As the unit nears its memory capacity it overwrites the oldest files. Whilst this storage provides some level of backup it is simply designed to deal with situations where the unit is offline for whatever reason. It also allows the unit to independently download and store files whether the vehicle is connected to the network or not provided it has received an authentication in the last 24 hours.

During installation testing or on retrieval of a unit from a vehicle you can view the current files on the digiDL-E or EX. These files can be downloaded to your PC using the “Download” button. You can also Delete files from the device should you be installing in another vehicle for instance.

I/O (General Purpose Inputs)

The digiDL-E or EX has 4 digital inputs, 2 analogue inputs and an I<sup>2</sup>C interface available on the rear I/O ports. These can be used with in-vehicle sensors for doors, temperature or other sensors.

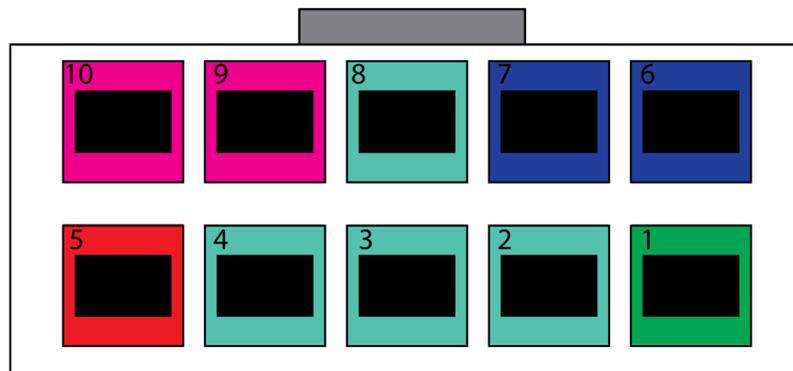
Each digital input has 2 values; a 1 or a 0. These are best thought of in terms of a switch. For example you can have a simple switch which reports if a door is open or closed. Up to 4 of these inputs can be connected to pins 2, 3, 4 and 8.

Each analogue input can be configured with a maximum and minimum value. For example a temperature sensor can be given maximum and minimum thresholds which are reported to the server immediately, with any values in between being reported along with the other logs. Analogue inputs can be connected to pins 9 and 10.

The I<sup>2</sup>C interface is designed to be used so that the digiDL-E or EX can be integrated into other solutions. Please contact us if you are interested in this kind of device integration.

Please see the diagram below which provides the pinout.

digiDL-EX - Schematic of 10 pin Molex viewed from the rear of unit.



5 = +5V	10 & 9 = Analogue Input
4 = GPI (1)	8 = GPI (0)
3 = GPI (2)	7 = I <sup>2</sup> C - SCL (Clock Line)
2 = GPI (3)	6 = I <sup>2</sup> C - SDA (Data Line)
1 = GND	

The role of digiCentral

digiCentral is server software created by Tachosys to manage communication with any Tachosys remote device. digiDL-E or EX needs to communicate with a designated digiCentral server in order to open a dialogue with the appropriate Company Card, to pass data and to receive schedules and tasks. The Company Card is physically placed in a card reader where the attached Windows PC runs a copy of 'digiCentral Authenticate' and in turn communicates with digiCentral, the card's whereabouts can then be managed by digiCentral.

Authentication

In order to download the mass memory of a Vehicle Unit (Digital Tachograph) a valid Company Card must be available for the unit to authenticate against. Previously this was only possible by inserting a Company Card into the Tachograph. The introduction of Remote Download made it possible for the Tachograph to communicate remotely with a Company Card via a gateway. digiDL devices will try and authenticate every 12 hours and the status of authentication is shown in the digiDL Configuration Device Window. Please note that the Company Card being used remotely, or one in the same series, must have been inserted into the Vehicle Unit at some time, if not then the Vehicle Unit cannot use this Company Card.

Your designated digiCentral server will have access to a relationship created between the Vehicle and the Company Card(s). This would be set up in one of three ways; by your service provider, via a web interface provided by your service provider, via your own server.

In summary the essential elements for the Authentication process are;

1. A valid company card which the vehicle has seen and is available online via digiCentral Authenticate.
2. A relationship between the company card and the vehicle created on digiCentral.
3. A digiDL device able to communicate via WIFI or GPRS to the appropriate digiCentral via the Internet.

## Troubleshooting

### The Blue LED is flashing

The Blue LED will flash while it is making the connection to GPRS or WiFi. If the LED does not stop flashing and stays on, then this will be the result of a connectivity issue:

- \* Signal strength issue (WiFi or GPRS)
- \* Incorrect network settings (WiFi or GPRS)
- \* SIM is not activated or not data enabled (GPRS)
- \* Incorrect Firewall settings (WIFI)

The digiDL-E or EX should be able to make the connection while being configured (if WiFi is available), so make sure you see a solid blue LED when it has been configured AND most importantly, when fitting to the vehicle.

If you can connect the digiDL-E or EX to the configuration software, the Current States view can help to pinpoint erroneous settings or hardware issues. Select "States" from the drop down menu and monitor the "Connection" row of data. The status code should follow the following sections:

Code 1st character	Connection stage	Possible issue
B	Set up and configure GPRS or WiFi module	Possible hardware issue with GPRS/WiFi module
C	Connect to GRPS/WiFi network and make a data connection	Incorrect GPRS/WiFi settings Incorrect hostname/IP address
D	Log in to server	Device not registered on digiCentral server

### Blue LED not illuminated.

SIM card not enabled or unit mounted too close to another radio signal. First try moving the unit away from other sources of interference or cable bundles. Extension cables are available if the unit needs to be moved a distance away.

## Troubleshooting

### The Green LED is flashing

A flashing green LED indicates that the CAN is available but a remote download session cannot be started. Please check the compatibility of the Tachograph. If the vehicle is a DAF the rear port may not be enabled for remote download.

### digiDL Configuration does not find the device

Windows will need time to install the drivers for the digiDL-E or EX and this can take a couple of minutes. Usually if you click the pop-up that appears when you power up the device, it will tell you when Windows has finished installing the drivers.

If you then click "Retry" in digiDL Configuration, it should auto-discover the device.

### The White GPS LED is flashing / Tracking data does not appear on the server

GPS tracking data relies on being able to get a positional lock on the vehicle and this usually involves a connection to at least 4 satellites. To give your GPS adapter the best possible chance of obtaining a positional lock, make sure that it is fitted somewhere in the vehicle with a view of as much sky as possible. On the vehicle dash, close to the windscreen should give it the best view.

With the vehicle stationary and the ignition on, the white GPS LED should flash while obtaining positional lock and then stay on when locked. It may take up to two minutes for lock to be obtained.

If the GPS LED indicates that it has a lock on the vehicle, but the data still does not appear on the server, then check that the GPS feature has been switched on. This may require connecting the digiDL-E or EX to the configuration software.

**digiDL<sup>E</sup>**

**digiDL<sup>EX</sup>**

**TACHO · SYS**

ALBION HOUSE  
48 ALBERT ROAD NORTH  
REIGATE, SURREY, RH2 9EL  
UNITED KINGDOM

PHONE: +44 (0) 208 687 3900

FAX: +44 (0) 208 687 3919

E-MAIL: [INFO@TACHOSYS.COM](mailto:INFO@TACHOSYS.COM)

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