

digiDL^B & digiDL^{BT}

ADMINISTRATION GUIDE



content overview

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- > digiDL-B/BT connections
- > Activity indicators
- > PC software installation
- > Configuring by pc
- > Monitoring

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Checking compatibility of vehicles:

Remote Download was introduced in 2010. Many vehicles from 2010 will have compatible Digital Tachographs however it can be a mixed picture depending on the vehicle and Tachograph manufacturer and how much stock of old Tachographs were around in 2009 / 2010.

Stoneridge Compatibility:

All revision 7.0 Tachographs onwards.

VDO Compatibility:

V1.3 onwards with significant exceptions and caveats.

In the case of VDO a Secondary CAN-Bus, required for Remote Download, was not included on every one of their models. The deletion of the Secondary CAN mostly affects 12 volt models however there are many Volvo and some Renault that are affected. Tachosys supply a product called digiDL-E that allows the use of the Tachograph Front Port for Remote download. You will also need the K-Line cable (DDL-Kline) with this solution.

If you need to use the front port for remote download on a VDO Tachograph you will need a VDO Front Interface Update Card. See Pages 12-15 for further information.

Tachosys Compatibility Checking tools

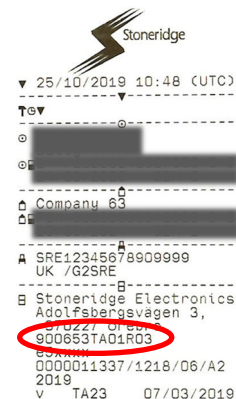
Tachosys are the most experienced manufacturer in this market and we have developed several methods to check Tachograph compatibility.

1. Our TachoFile Viewer software can be downloaded for free at Tachosys.com. The free version of TachoFileViewer is limited, but allows you to at least see the model number of the Tachograph (see page 5). If you want to view more information within the Tacho file, you will need to purchase a license dongle (SFV-ST) from Tachosys.com.
2. Tachograph Lookup is an online tool where you can lookup individual Tachograph model numbers and check compatibility. You are also able to drag and drop multiple vehicle files which can be exported to .pdf or Excel. This program is found in our Dealer Zone (dealerzone.tachosys.com) which requires a login. Please contact Tachosys for a login.

You can often find a sticker with the model number of the Tachograph when you remove the printer tray from the Tachograph or alternatively by outputting a Technical Print Out from the Vehicle Unit.

Checking Stoneridge Tachograph Model Numbers

Technical Printout



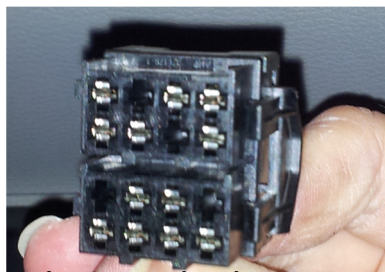
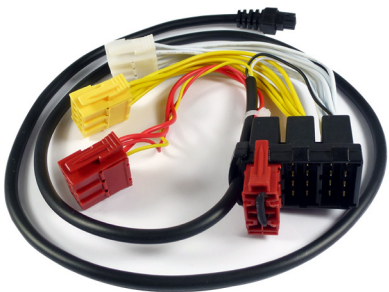
TachoFileViewer software

Checking VDO Tachograph Model Numbers

Specific Vehicle Manufacturer Considerations:Enhanced Tacho Cable - DDL-ETC (Recommended for all installations)

Please note that whilst we have a range of cable options we recommended the DDL-ETC for all installations. In the case of vehicles with a conjoined A and B plug at the rear of the Tachograph you must use DDL-ETC.

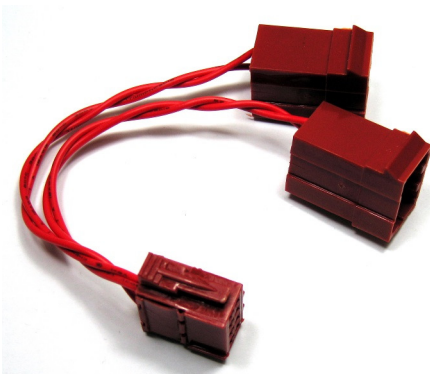
Vehicles with conjoined plug: **Mercedes and Volvo**



Volvo / Mercedes Plug

Y Cable Secondary CAN-Bus adapter - DDL-CY (Legacy Product)

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 7).



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. The Y cable is only used in conjunction with the digiDL standard cable DDL-TC.

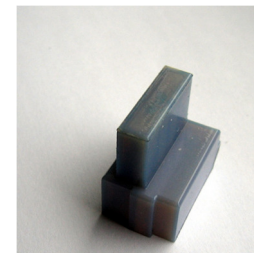
Y Cable Secondary CAN-Bus adapter - DDL-CY (continued)

The standard CAN bus address for remote download is FB. However for all Tachosys remote download devices programmed from Nov 2020, the CAN bus addresses are set to FA as default. This prevents issues occurring where more than one device is set to FB. For older devices, the CAN bus address should be manually changed using the digiConnect software whilst connected to a digiDL with a configuration cable.

For shared devices use DDL-CY and if the third party device is not required use DDL-TM below.

N.B: we recommend the DDL-ETC where a Y Cable was once required as it performs the same job. The Y cable has effectively been superseded.

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**



N.B: we now recommend using the DDL-ETC in all new installations as both DDL-CY and DDL-TM have been superseded by it. The DDL-ETC caters for all aspects of CAN-Bus termination and the conjoining of sockets A and B as in the case of Volvo and Mercedes. DDL-CY and DDL-TM are still supported for legacy implementations which use our original standard cable DDL-TC which is still available.

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) does not illuminate on the digiDL-B / BT 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-B / BT firmware was updated in version 1.18s to cope with this change. The digiDL-B/BT now automatically detects and adjusts to work with both 250kps and 500kps CAN-Bus baud rates. You are advised to upgrade earlier versions of the firmware

Vehicles most affected: **Mercedes**

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 aftermarket 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.

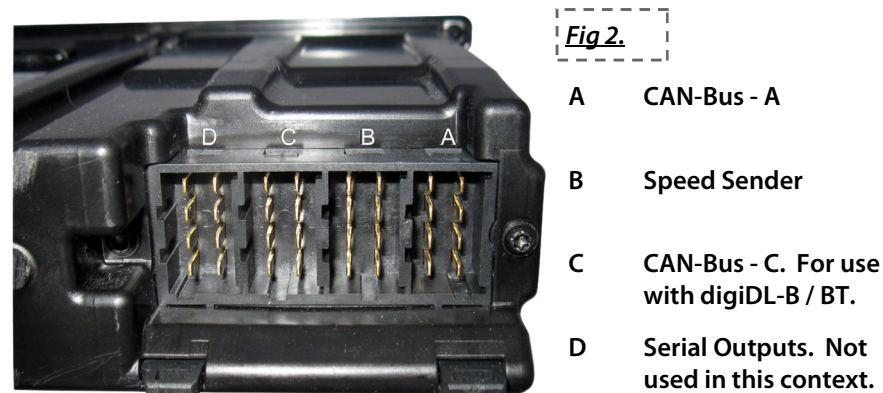
digiDL Connections

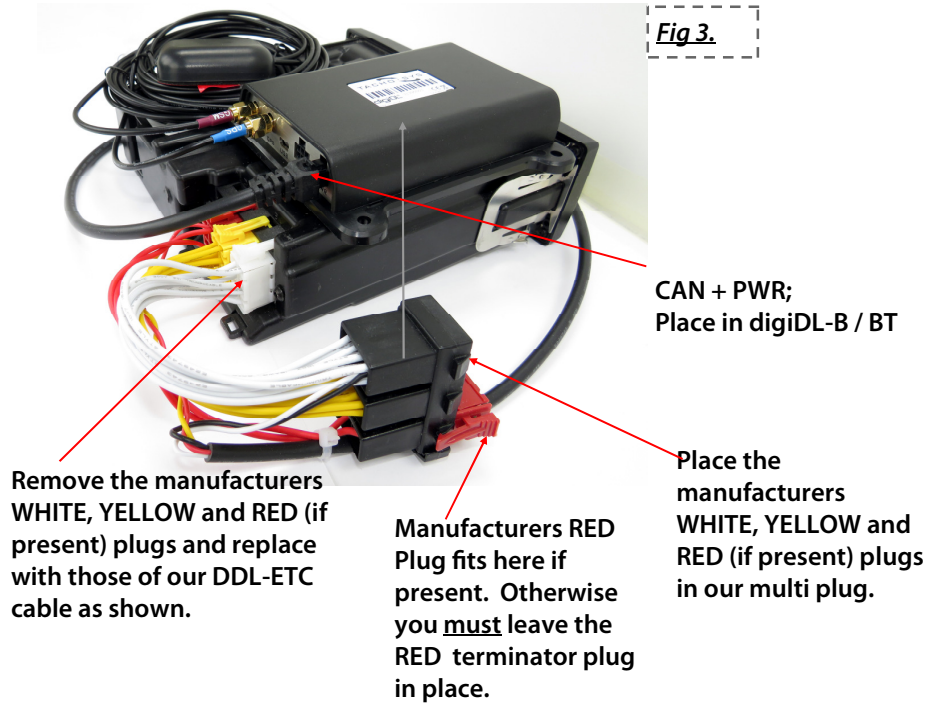
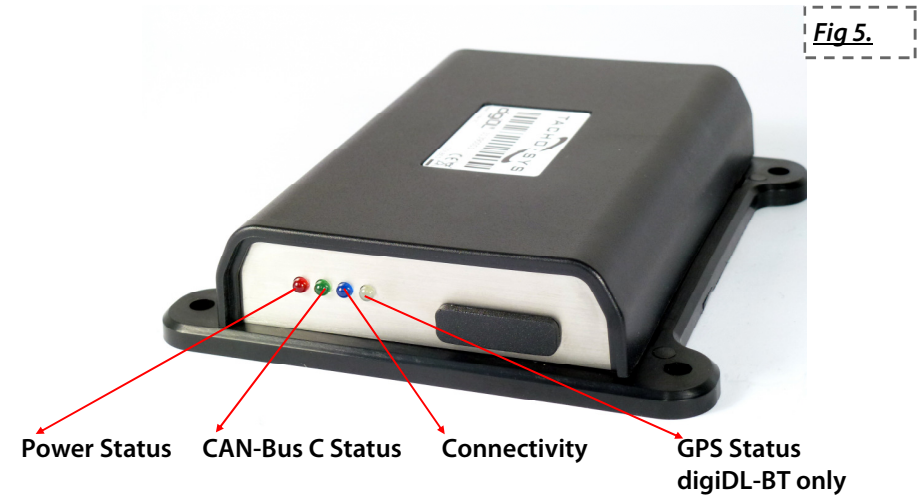
digiDL-B / BT connections



GSM	GSM Antenna connector
GPS	GPS Antenna connector
USB	USB Mini connector for programming
AUX (6 pin)	Connectivity for peripherals such as a download button
PWR (4 pin)	Power and CAN-Bus connections
4 X LEDS	See Page 11 for detailed functions
SIM Slot	Slot for standard SIM Card. Micro and Nano Sims must be in a standard holder.

Vehicle Unit Rear Connections



Enhanced Cable form (see page 10 for other cable options)digiDL-B / BT LED indicators

LED	ON	OFF	Flash
P	Power Okay	No Power	Power okay and a Task is in progress
C	CAN okay	No CAN	Infers intermittent CAN connection or CAN2 programming correction required.
W	Comms okay	No Comms	Slow: GPRS negotiation. Fast: no server
G	GPS Okay	No GPS	GPS Lock pending

Fault finding hints

Ignition is ON but GREEN LED OFF, possible causes -

1. CAN-Bus C (RED PLUG) connector is not connected correctly
2. The Tachograph may not be of the correct type (see pages 4-5)
3. Manufacturer may not have enabled the Secondary CAN-Bus (CAN2) (see Page 8). This is common for DAF vehicles.

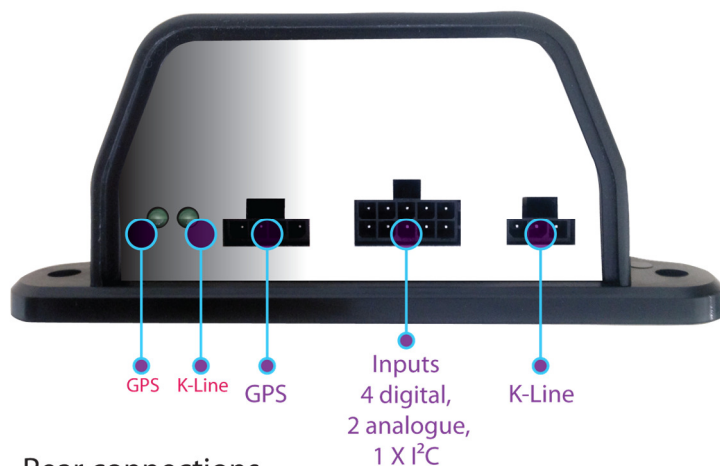
IMPORTANT! - digiDL-B / BT placement information: please make sure you do not place the digiDL-B / BT too close to other comms devices. Preferably place the unit flat with the antenna closest to an exterior panel as possible. In the case of digiDL-BT the GPS antenna should preferably be in view of the sky. Please refer to pages 24 and 25 for additional troubleshooting should the digiDL-B / BT BLUE Led remain flashing when the ignition is ON.

Using digiDL-E Model 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 vehicles such as large vans however there are several 24 volt Volvo and Renault model tachographs which will only download via the front port. You should always check the model of your Tachograph with your provider before endeavouring to fit a digiDL, digiDL-B, digiDL-BT, digiDL-E or EX. You can check your tachograph model number at <http://dealerzone.tachosys.com> as part of a recommended vehicle audit.

digiDL-E Rear Connections - Front Port Download on VDO Tachographs only

GPS and other functionality on the digiDL-E version is optional. GPS logging requires the purchase of our GPS antenna (DGPS02) and may require subscription to a tracking service. Check with your reseller for further information. See digiDL-E and digiDL-EX User Guide if you wish to learn the full features of these devices.



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

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, digiDL-B and digiDL-BT do not have K-Line sockets.
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 digiConnect under Sources. (See page 14).
4. DO NOT connect the Red plug of the Standard or Enhanced digiDL Cable – this plug is for the CAN-Bus, which you are not using. Connect the white plug of the Standard or Enhanced 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.



Take care when using the multiple licence unlock card. There are no visible or audible confirmations that a token has been taken from the card.

You will need a Kline cable (DDL-KLINE) which fits between the digiDL-E and the front port of the Tacho. It is not necessary to place the RED plug from the standard loom in the Tachograph (digiDL-EX pictured but socket is the same on digiDL-E).

digiDL-E for Use in Front Port Download - VDO Tachographs Only

When you connect a digiDL-E to digiConnect in order to setup the device the settings are broader than for the standard digDL.

Please use digiConnect to set the “Sources” to K-Line for front port download as below. See page 16 onwards for all other software settings for both the digiDL-B / BT and the digiDL-E versions.

N.B. the settings screen below is specific to the digiDL-E version and will not appear when you configure a digiDL-B or BT.

Device - digiDL-e/ex

- Features
- Sources**
- Data Collection
- Sensors
- Vehicle CAN
- Connectivity
 - Mobile Network
 - digiCentral Server

Use the following to select the source of data to be used by the device.

Clock: Default

Registration: Default

Tachograph download: K-line

Tachograph mode: K-line

Driver decision support: K-line

Use the following to set how often the device polls digiCentral for data.

Check for tasks every: 3.0 minutes

digiDL-E for Use in Front Port Download - VDO Tachographs Only

The configuration software view for the digiDL-E is slightly different to the digiDL-B or BT as there is additional functionality. If you are using the digiDL-E for Front Port download on a VDO Tachograph then you need only be concerned with the additional ‘Sources’ section (see below and Page 14).

Please ensure that the K-Line option is Ticked ON under Features (Fig 6. below). If you are interested in the other features of the digiDL-E then refer to the digiDL-E and digiDL-EX User Guide or visit www.tachosys.com.

Fig 6.

Configure digiDL-e/ex (18999900)

Device - digiDL-e/ex

- Features**
- Sources
- Data Collection
- Sensors
- Vehicle CAN
- Connectivity
 - Mobile Network
 - digiCentral Server

Use the following to control whether certain features are enabled within the device.

CAN C	<input checked="" type="checkbox"/>	Tachograph	<input checked="" type="checkbox"/>
Vehicle CAN	<input checked="" type="checkbox"/>	Authentication	<input checked="" type="checkbox"/>
K-line	<input checked="" type="checkbox"/>	Download	<input checked="" type="checkbox"/>
D8	<input checked="" type="checkbox"/>	Upload	<input checked="" type="checkbox"/>
GPS	<input checked="" type="checkbox"/>		
Sensor	<input checked="" type="checkbox"/>		
Bluetooth	<input checked="" type="checkbox"/>		
Button	<input checked="" type="checkbox"/>		

Use the following to control the sleep and wake up intervals.

Length of idle time before sleep: 0 hours 15 minutes

Length of sleep time before wake up: 1 hours 0 minutes

Use the following to set the address that the device uses to identify itself on the CAN Bus.

Address: FB

Open Settings File Save Settings File OK Cancel Apply

digiConnect Windows® Software v5.00 onwards

Minimum Recommended PC Specification

Processor: Intel P4 1.4GHz, AMD Athlon 1.4 GHz
 Memory: 512Mbytes
 Hard disk: 40 Gbytes
 Video Resolution: 1024 x 768
 Operating Systems: Windows 7 / Windows 8 / Windows 10

Please note: You will need a digiDL Configuration Kit with Tachosys product code DDLCCK which contains a power supply and a mini USB cable for desktop setup.

Important: do not connect any of the cabling provided in the digiDL Configuration kit with the digiDL before commencing the software installation.

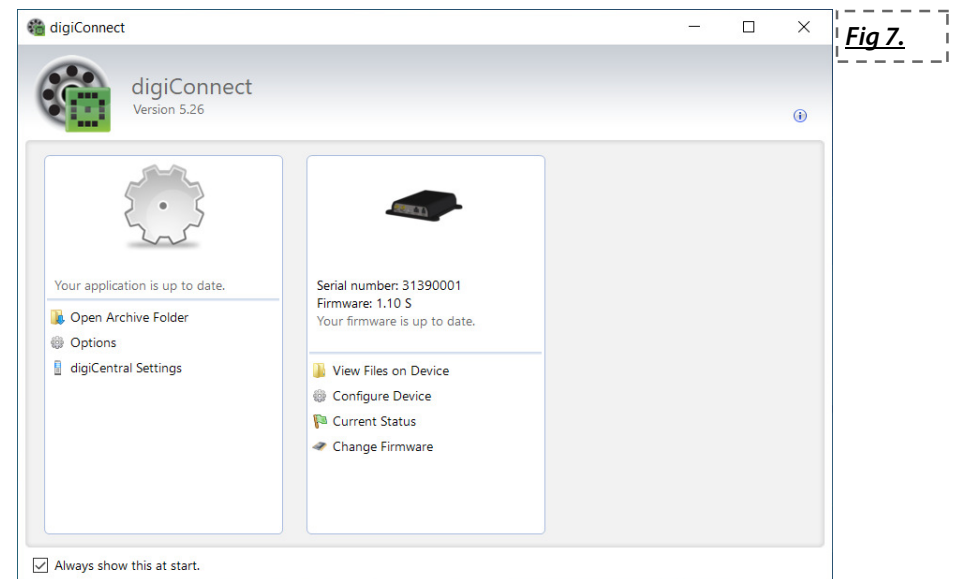
Installing the digiConnect Windows® Software

1. Insert the flash drive provided in the digiDL product family configuration kit into your PC. Within the flash drives home folder, double click the 'setup' file. Windows will ask you to verify that you are happy to proceed. (Alternatively, download the digiConnect software from our website <https://tachosys.com/Downloads/Software>).
2. Select the language required and click OK. This will initiate installation.
3. Click 'Next' when prompted.
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 digiConnect' ticked and click 'Finish'.
8. The application will display any connected device(s).
9. The Options screen allows you to customise your installation.
10. Now follow the instructions for 'Connecting the digiDL-B or BT to your PC' on page 17.

Connecting the digiDL-B / BT to your PC

1. You will need to power the digiDL-B / BT using the power supply in your configuration kit or by it being connected to a vehicle's Tachograph.
2. Connect the standard USB cable supplied in the digiDL configuration kit (A to Mini) to a free USB socket on your PC. Connect the other end of the USB cable to the USB socket on the digiDL-B / BT.
4. Once all connections are made, simply open digiConnect and you should see the digiDL-B / BT, along with its configuration options as shown below (see Fig 7.).

If you are having problems connecting to your digiDL-B / BT then repeat the steps above.





Configure Device - Device Configuration Window

Configure digiDL-B (31390001)

Device - digiDL-B

- Connectivity
- Mobile Network
- digiCentral Server

Device

Firmware: 1.10 S

Serial Number: 31390001

PWD: QT8T5AQE3

Build Date: 30/09/2019 15:59:00

Connectivity: Modem

Module: 1: GPRS

OK Cancel Apply

Fig 8.

- | | |
|------------------|--|
| 1. Firmware | Version of firmware on device |
| 2. Serial Number | Unique to each device. |
| 3. PWD | Used as a means of security between the device and the digiCentral server. |
| 4. Build Date | Date and time of when device was built |
| 5. Connectivity | Will be via Modem for digiDL-B / BT |
| 6. Module | Module type |

Please note that PWD (password) is a unique string which is used by your service provider or on your own digiCentral for initial registration of the device. It avoids communication by random devices with digiCentral. Coupled with our encryption it provides added security.



Configure Device - Network - GPRS

Configure digiDL-B (31390001)

Device - digiDL-B

- Connectivity
- Mobile Network
- digiCentral Server

Mobile Network

Network: 23415 Vodafone Auto Fill

SIM Number:

IMEI Number: 862237040664505

APN: stream.co.uk

User: default

Password: void

Enter the PIN used to secure the SIM card:

PIN:

Open Settings File Save Settings File OK Cancel Apply

Fig 9.

Fig 9. shows the GPRS settings for digiDL-B / BT.

1. For the GPRS network settings, navigate to the 'Mobile Network' tree view. Enter the APN, User and Password appropriate to your service provider. Many of the standard APN settings can be found online.
2. If your SIM has a PIN enter it in the PIN field.
3. Click the 'Apply' or 'OK' button to save the settings.
4. In the 'digiCentral Server' tree view enter the Host name or IP address of your digiCentral server. This will either be provided by your analysis provider or will match your own digiCentral server settings. The PORT Number should be left as 4616 unless you are hosting your own digiCentral server and have changed the default PORT.
5. If your GPRS settings and Hostname are correct and the device is correctly registered on digicentral then the "W" BLUE LED should shine solid blue on the digiDL-B.

Please note that if the BLUE LED is not solid then you do not have connection to the server and you should call the provider you are trying to connect to. A slow flashing Blue LED indicates no connection to GPRS a faster flash at around twice per second indicates that the device is not registered on a digicentral server or your digicentral server settings are incorrect.



Configure Device - Options

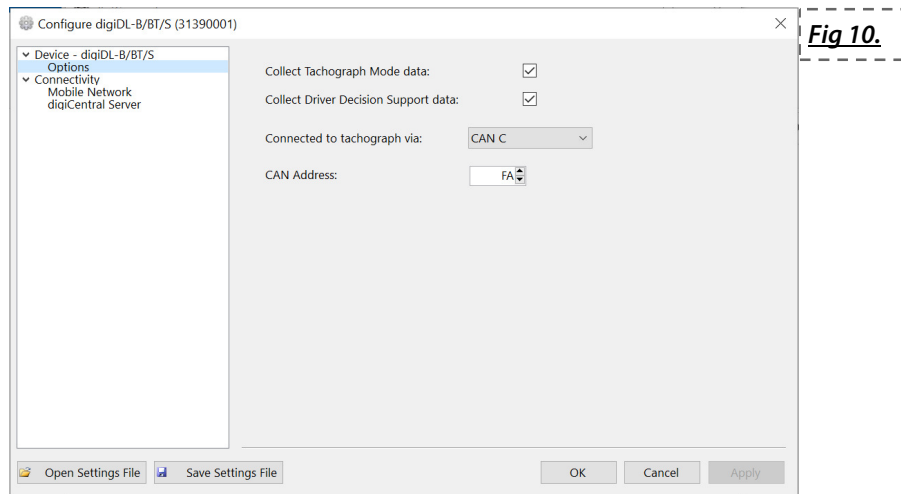


Fig 10.

Collect Tachograph Mode Data: refers to real time data on every change of mode that can be sent back to the server to calculate driving and rest times. By default this is turned OFF as it will use more data if it is not specifically required.

Collect Driver Decision Support data: again by default this option is OFF. However if the customer has a Tachograph that will provide Driver Decision Support data or Counter data and their analysis provider presents this data then it should be turned ON.

Connected to Tachograph via: this setting is not applicable to digiDL-B or BT.

CAN Address: this should be changed only if there is a conflicting CAN device attaching to the CANC (Secondary CAN) see Pages 6-7. The Tachosys default from November 2020 is FA which should avoid conflicts given the industry default is FB.

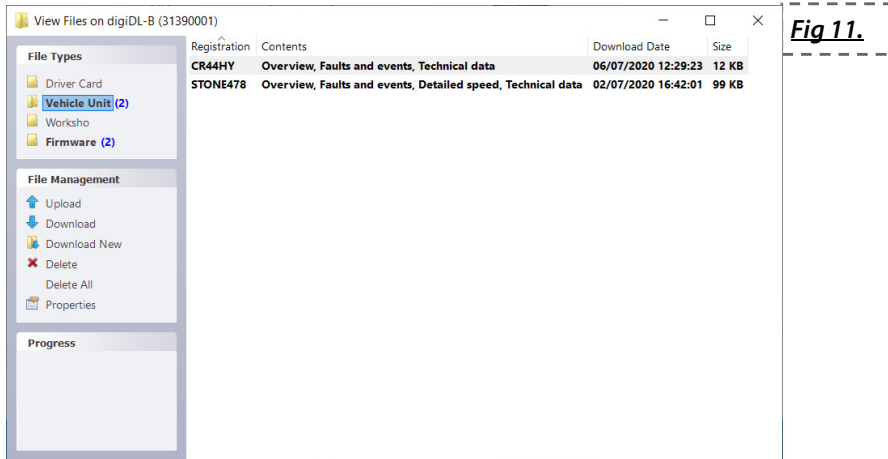


Current Status

Status Item	GPRS	Description
Connection	✓	GPRS Connection status
Modem	✓	Modem connection stage
Modem Sub	✓	Sub stage of modem connection
GPS	✓	GPS Status
Task	✓	Task received from digicentral pending status
Tacho	✓	Indicates activity over CAN-Bus C
Auth	✓	Status of Company Card Authentication
Download	✓	Indicates download in progress if not 00
Upload	✓	Current upload processes to digicentral
Log	✓	Status of data packets being sent to digicentral
File	✓	File writing status
SD	✓	Read / Write status in relation to the internal memory storage
USB	✓	USB connection status
PC	✓	Serial connection status to PC
Power	✓	Indicates Power ON or OFF mainly in relation to digiTRK.
Button	✓	Status of optional button press



View Files on Device



The digiDL-B / BT stores the files it downloads from the Vehicle Unit within its internal memory. In digiConnect these are classified in either the 'Driver Card' or 'Vehicle Unit' folders. 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-B or BT (see Fig 11.). These files can be downloaded to your PC using the "Download" button in the File Management options. You can also Delete files from the device should you be installing in another vehicle for instance.

Authentication of the Company Card

Authentication

The introduction of Remote Download makes it possible for the Tachograph to communicate remotely with a Company Card, in this case by using digiDL-B or BT as a gateway. digiDL-B will try and authenticate every 18 hours and the status of authentication is shown in the digiConnect Current Status 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.

The role of digiCentral

digiCentral is a Tachosys product which runs on Windows servers to provide a communications platform for our devices. The majority of online Tachograph analysis providers have a digiCentral server in operation. digiDL-B / BT 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.

There are a number of hardware options for hosting Company Cards as listed below.

digicard (DC03)	A simple and cost effective solution. However it requires a permanent connection to a Windows PC. Supported by our free software 'digicentral Authenticate'.
digicard Hotel (DCH02)	(Preferred Option) A company card authentication solution provided by your reseller.
digicard-AUT (DCA01)	(2nd preferred option) A stand-alone solution which only requires power and a WiFi connection. Designed for use by companies wishing to host their own company card.

Troubleshooting

GPRS connectivity issues

Blue LED Flashing once per second

A SIM card is present however the unit is unable to initiate communication with the GPRS network. Initially check all of your GPRS settings (see Page 19). If the unit still fails to connect first try repowering the unit. If the unit still fails then you can view the status of connectivity in the digiConnect Current Status window. The code displayed will show the stage of connection.

You must make sure that the SIM card is not PIN locked and that the contract allows you to pass Internet data. This is often termed 'data enabled SIM'.

Blue LED flashing twice per second

Indicates that the device has got onto the Internet but is not registered on a digicentral server or your digicentral server settings are incorrect.

Blue LED is OFF but the ignition is ON

If the ignition is ON and the Blue LED disappears after a few minutes or more then try moving the unit away from any other communication sources. Examples would be things like online weighing, tracking, or onboard computers. Such devices can interfere with each others signals.

Green LED flashing or OFF

You may not have a connection to CAN2. This could be caused by one of the following;

1. Ignition is OFF.
2. The secondary CAN is not enabled (see page 8).
3. The Tachograph is too old or of the wrong type (see page 4).
4. The cabling is faulty. Try another loom.

Troubleshooting Continued

Correct positioning of your digiDL-B or BT

If the Blue LED is flashing and you know that all APN Settings and server settings are correct then try temporarily moving the digiDL-B / BT away from other sources towards the confines of the vehicle cabin. In theory, if your problem is reception then the Blue LED should now go solid.

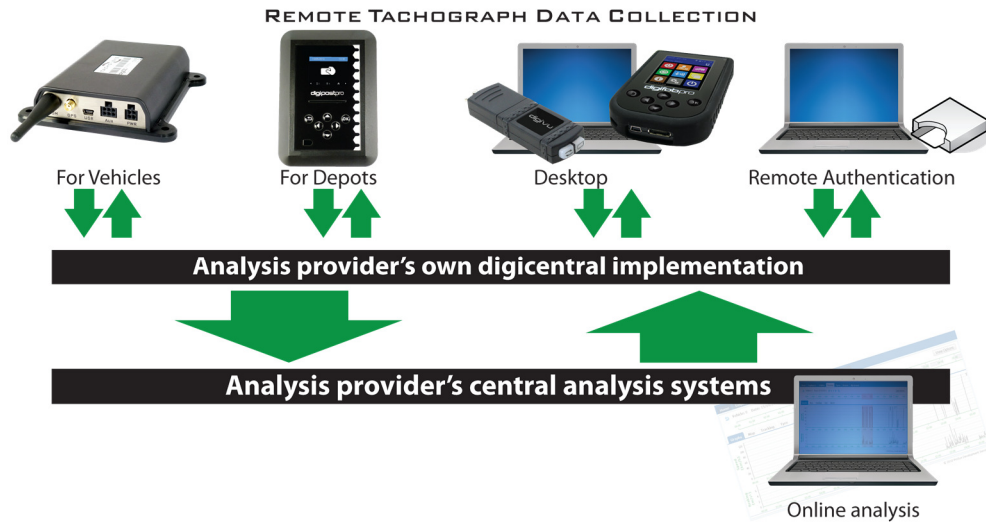
Now the challenge is to find a position where the digiDL-B or BT is far enough away from the source of interference.

To assist with positioning of the digiDL-B or BT we produce a 1 metre in line extension cable with code DDL-TCX. These cables can be daisy-chained to create yet more length if required.

Such occurrences are rare but with vehicles becoming busier with comms equipment positioning needs to be more carefully considered.

Overview of digiCentral Web

Most of the online providers of Tachograph Analysis have their own digiCentral server. Each will have a different web address. digiCentral is not just used for digiDL-B / BT it can receive data from any Tachosys product using different communication methods.



The great thing about digiCentral is that it can be integrated with other systems and it therefore means that the customer's data goes straight from the vehicle and then onwards to their chosen analysis system.

If a company wishes to use a stand alone analysis solution there are providers who will be happy to host the digiDL units at a small annual cost per unit. Tachosys have desktop tools that will allow the synchronisation of downloads to the desktop where they can be imported to stand alone solutions.

Whilst fitters should receive digiDL-B / BT units that are already setup for the appropriate server it is worth understanding the process and what needs to be in place for digiDL-B / BT to function.



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)

