NOMETICAL PROHEAT DATALINK 7 QUICK START GUIDE



X30 / X45 Plus / M-Series

EN

Datalink 7 Quick Start Guide

Connection and update instructions for X30, X45 Plus and M-Series G-II PCM.

Table of Contents

1	Impo	rtant Safety Information	1-1
	1.1	Explanation of symbols	1-1
2	Proh	eat Control Module (PCM) Type	2-1
	2.1	X30 PCM identification	2-1
	2.2	X45 Plus PCM identification	2-2
	2.3	M-Series G-II PCM identification	. 2-3
3	Intro	duction	3-1
		3.0.1 Getting started, acquiring the correct cabling	3-1
	3.1	X30 PCM connections	. 3-3
		3.1.1 X30 direct connect	. 3-3
		3.1.2 Vehicle CAN drop connection — X30 only, when	
		heater is connected to vehicle network	. 3-4
	3.2	X45 Plus direct connect	. 3-5
	3.3	M-Series G-II PCM direct connect	. 3-6
	3.4	M-Series Datalink USB power and connection order	3-7
	3.5	J1939 vehicle connection	. 3-8
		3.5.1 OBD connection — X30, X45 Plus, or M-Series G-II	
		PCM, when heater is connected to vehicle network	. 3-8
4	Insta	Illing Datalink 7	4-1
	4.1	Launching the installer	4-1
	4.2	Setup dialogs	. 4-2
		4.2.1 Setup complete dialog	. 4-2
5	Using	p Datalink 7	5-1
	5.1	Starting Datalink 7	5-1
	5.2	PCM detection	5-1
	5.3	Detecting, opening and reading a PCM	. 5-2
		5.3.1 Monitoring PCM presence	. 5-2
		5.3.2 Database error message	
		5.3.3 New firmware	
	5.4	PCM window	. 5-4
	5.5	PCM pages	
		5.5.1 Information page	
		5.5.2 Settings page	
		5.5.3 Signals page	
		5.5.4 Diagnostics page	
		5.5.5 Eventiogging page	
	56	Update configuration	5-11

6	Data	link 7 Menu and Toolbars	6-1
	6.1	The menu bar	6-1
		6.1.1 File menu	6-1
		6.1.2 View menu	. 6-2
		6.1.3 Control Module menu	. 6-2
		6.1.4 Tools menu	. 6-3
		6.1.5 Windows menu	. 6-3
		6.1.6 Help menu	. 6-4
	6.2	The toolbar	. 6-5

1 Important Safety Information

Read this manual carefully before using the Datalink 7 diagnostic software. Datalink 7 is intended for use by professional technicians who have a thorough understanding of the Proheat X30, X45 Plus and M-Series G-II PCM heaters. This understanding is essential for an accurate, reliable and safe use of Datalink 7.

It is the users responsibility to be knowledgeable of the heater being diagnosed. Always use the applicable service methods provided by Proheat to ensure there is no risk to personal safety, the safety of others, and to prevent damage to the heater being diagnosed.

1.1 Explanation of symbols

The symbols below are used throughout this publication to alert you to potential hazards involved with the operation and installation of this product. Observe these warnings and notices carefully. The safety alerts alone cannot eliminate hazards; strict compliance with any special instructions during installation, operation, and maintenance, along with common sense operation, are important measures to prevent hazardous situations.



DANGER!

Safety instruction: Indicates a hazardous situation that, if not avoided, will result in death or serious injury.



WARNING!

Safety instruction: Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



CAUTION!

Safety instruction: Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



NOTICE!

Indicates a situation that, if not avoided, can result in property damage.



NOTE

Supplementary information for operating the product.

This page left intentionally blank.

2 Proheat Control Module (PCM) Type

2.1 X30 PCM identification



NOTICE!

The information contained in this manual is only for use with the X30, X45 Plus or M-Series G-II PCM.

Please refer to the X30 service manual at $\underline{www.proheat.com}$ for additional information.

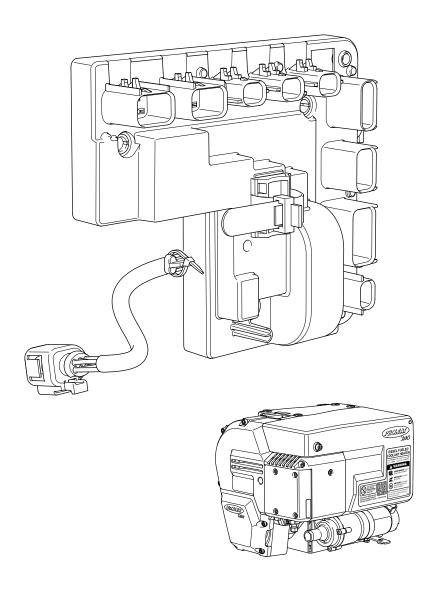


Figure 2-1. X30 PCM identification.

2.2 X45 Plus PCM identification



NOTICE!

The information contained in this manual is only for use with the X30, X45 Plus or M-Series G-II PCM.

Please refer to the X45 Plus service manual at <u>www.proheat.com</u> for additional information.

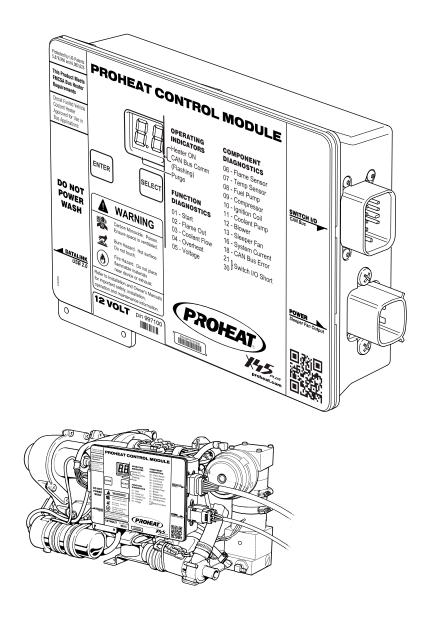


Figure 2-2. X45 Plus PCM identification.

2.3 M-Series G-II PCM identification



NOTICE!

The information contained in this manual is only for use with the X30, X45 Plus or M-Series G-II PCM.

Please refer to the M-Series service manual at $\underline{www.proheat.com}$ for additional information.

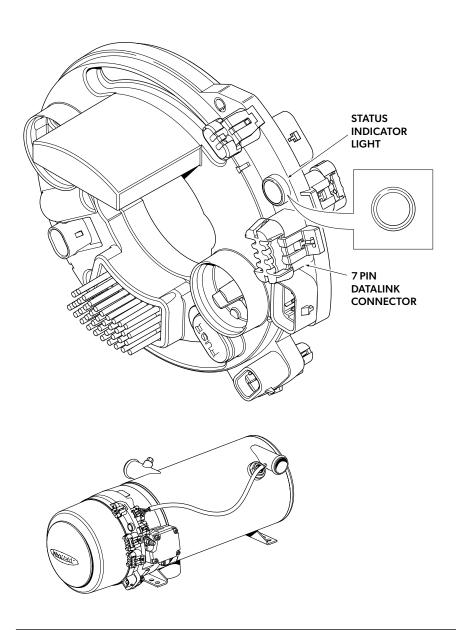


Figure 2-3. G-II PCM identification.

This page left intentionally blank.

3 Introduction

Welcome to the Proheat Datalink 7 connection and update instructions.

Datalink 7 allows trained personnel to:

- Read heater information
- Monitor heater inputs and outputs
- Monitor heater diagnostic trouble codes
- Update firmware and software
- Save heater information to a file

Minimum Computer requirements to run Datalink 7 are:

- 1 GHz processor or higher
- Microsoft Windows
- USB 1.1 or higher
- 250 MB of disk space

If you are currently a Datalink user skip to section 5.6 now.

3.0.1 Getting started, acquiring the correct cabling

If you use a combination of Proheat products — X30/X45 Plus/M-Series G-II PCM. Order Datalink kit # PK0072. This kit contains everything you will need to use Datalink 7 on all our current Proheat products.

If you only use X30 heaters, then you will need Datalink kit # PK3019 which includes X30 and J1939 cables.

If you only use X45 Plus heaters, you can purchase a USB A to B desktop printer cable locally.

If you only use M-Series heaters with G-II PCMs then you'll only require the Datalink kit # PK0064 G-II PCM Datalink USB cable.

The Datalink software required can be downloaded from <u>www.proheat.com</u> Connection is simple by following the heater model specific diagrams (figure 3-2, figure 3-3, and figure 3-4).



NOTE

Be prepared, you may not be able to connect the J1939 cables exactly as shown. You may have to remove the green/blue wedge lock of the Deutsch plug to allow proper connection.

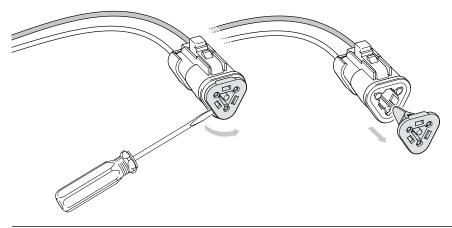


Figure 3-1. Deutsch plug, green/blue wedge lock removal.



NOTE

P/N 149418K is a terminating resistor and is a requirement of the network at the end of the CAN, Blue is the backbone and Green or Orange is a node, look at the 2 position side of the tee connector P/N 149417 and you can see the difference in the center.

Triangle is the backbone!



WARNING!

Do not connect the interface cable to the USB port of a PC until the device drivers and Datalink7 are completely installed and the computer has been re-started.

3.1 X30 PCM connections

3.1.1 X30 direct connect

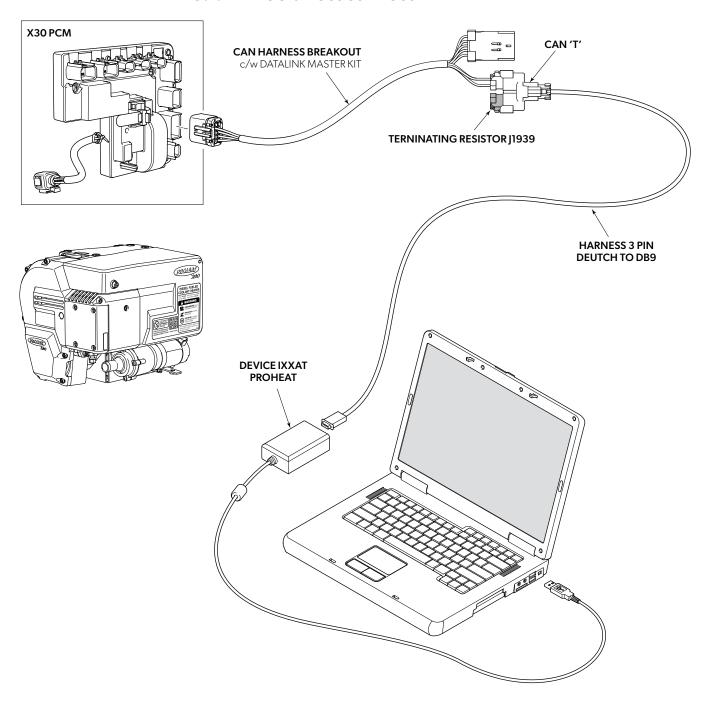


Figure 3-2. X30 Datalink cable kits.



NOTE

There is only one way to directly connect Datalink to the X30 as shown in figure 3-2. There are two kits available to achive this:

- 1. Kit # PK3019 X30 and J1939 only
- 2. Kit # PKO072 Datalink master kit

3.1.2 Vehicle CAN drop connection — X30 only, when heater is connected to vehicle network

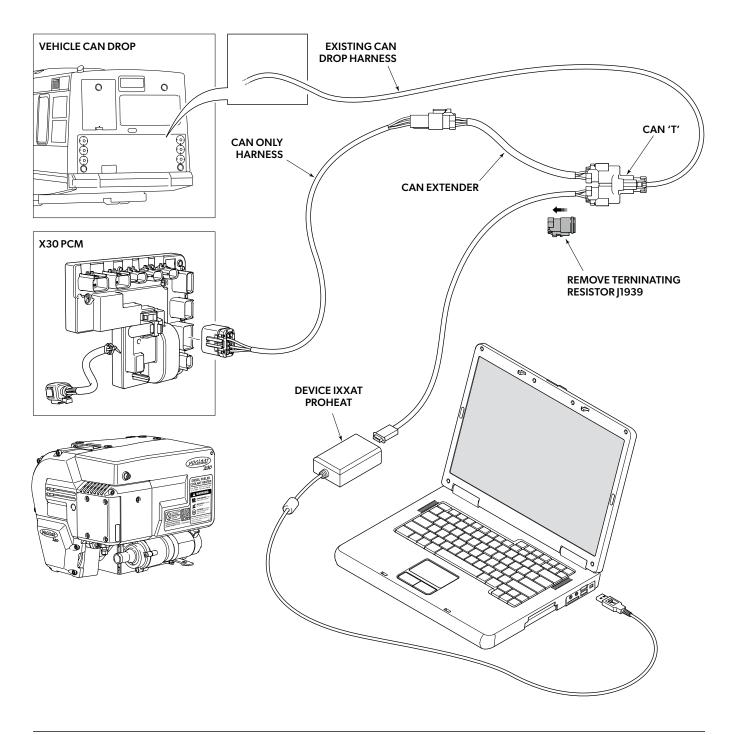


Figure 3-3. X30 only J1939 vehicle CAN drop connection Datalink cable kit.



NOTE

Datalink can also be used when connected to X30 heaters via a J1939 vehicle CAN drop.

When using the vehicle supplied diagnostic connector a CAN extender is required, as shown in figure 3-5.

3.2 X45 Plus direct connect

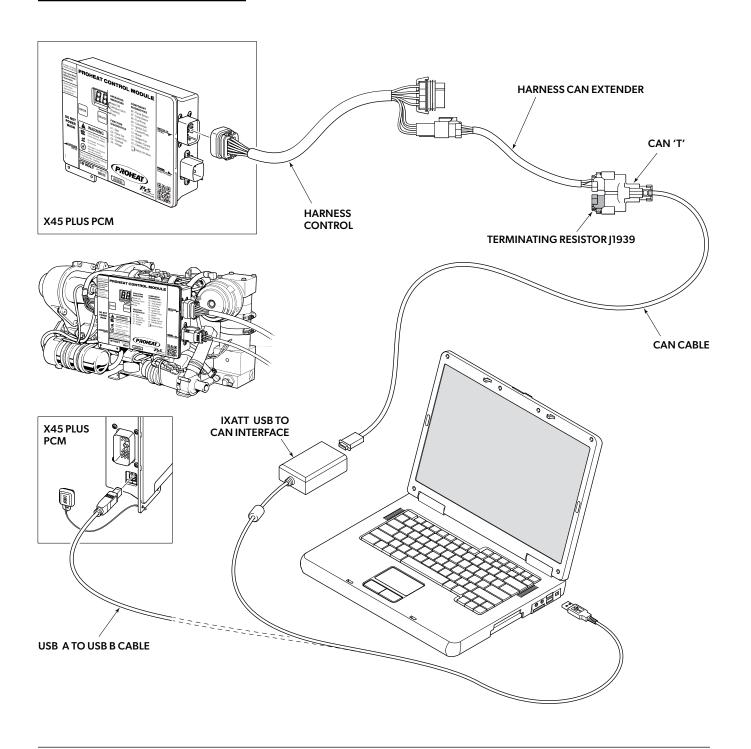


Figure 3-4. X45 Plus Datalink cable kit.



NOTE

There are two different ways to directly connect Datalink to the X45 Plus as shown in figure 3-3. There is one kit available for both methods:

1. Kit # PKO072 — Datalink master kit

Or purchase a USB A to B desktop printer cable locally

3.3 M-Series G-II PCM direct connect

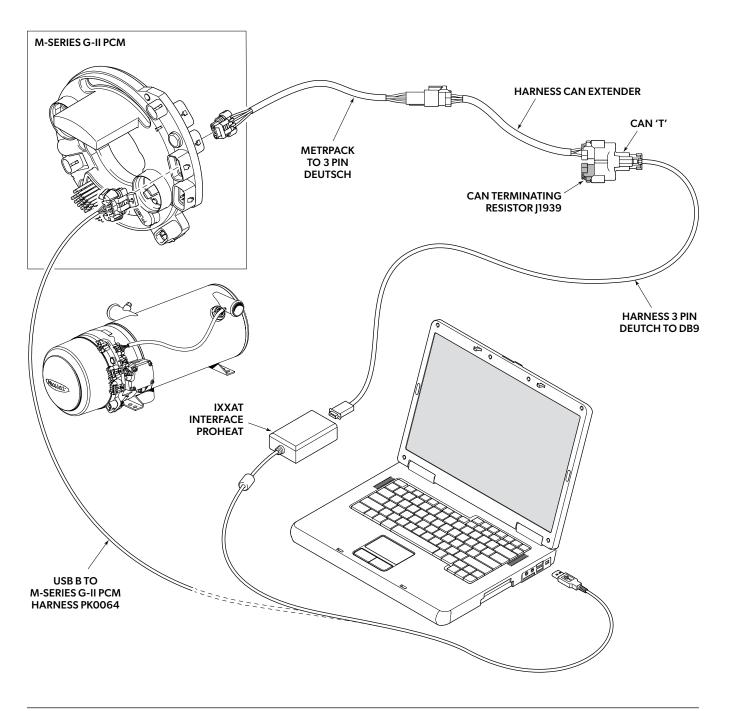


Figure 3-5. M-Series G-II PCM Datalink cable kits.



NOTE

There are two different ways to directly connect Datalink to the M-Series G-II PCM as shown in figure 3-4.

- 1. Kit # PKO072 Datalink master kit
- 2. Kit # PK0064 M-Series USB cable direct from PCM to computer Note: PK0064 is not included in the Datalink master kit PK0072

3.4 M-Series Datalink USB power and connection order

Connection method 1 only as figure below.

- 1. Connect battery power to the G-II PCM first.
- 2. Wait for 5 seconds. G-II Status light will flash Green twice.
- **3.** Connect the PCM side of the diagnostic cable to the 7-pin diagnostic port of the G-II PCM.
- **4.** Connect the USB side of the diagnostic cable to a USB port of a computer with Datalink 7 installed. See picture below.

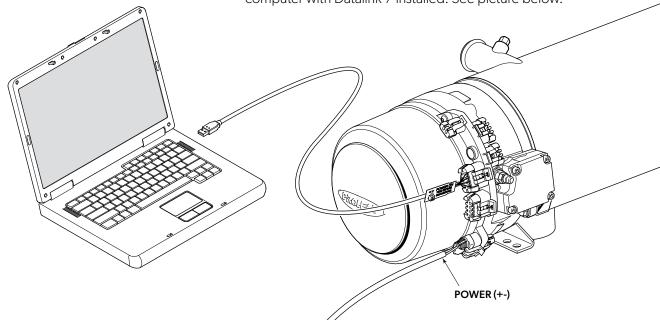


Figure 3-6. M-Series connection method #1.



NOTE

If the diagnostic cable is connected before battery power is applied the PCM will go into Lock out mode (the Status Light will be flashing alternating RED then GREEN). which prevents the heater from working. To unlock the G-II PCM, follow these steps:

- **1.** Disconnect the diagnostic cable from the computer.
- 2. Disconnect battery power from PCM.
- **3.** Wait for 20 seconds.
- **4.** Reconnect battery power to PCM.
- **5.** Wait for 5 seconds. G-II Status Light will flash Green twice.
- **6.** Reconnect the diagnostic cable to the computer.

3.5 J1939 vehicle connection

3.5.1 OBD connection — X30, X45 Plus, or M-Series G-II PCM, when heater is connected to vehicle network

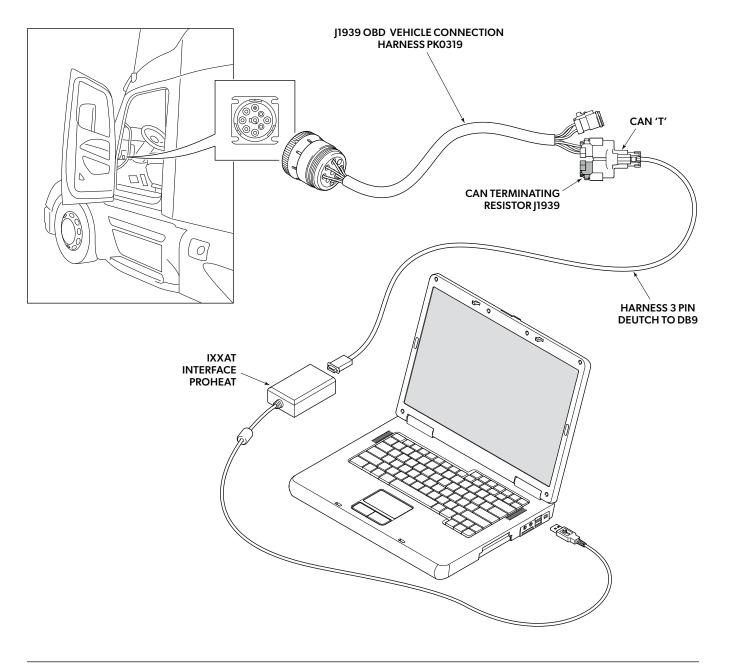


Figure 3-7. J1939 OBD vehicle connection Datalink cable kit.



NOTE

Datalink can also be used when connected to X30, X45 Plus or M-Series G-II PCM heaters via a |1939 OBD vehicle connection.

When using the vehicle supplied diagnostic connector a harness (kit # PKO319) is required, as shown in figure 3-7.

4 Installing Datalink 7



WARNING!

Do not connect the interface cable to the USB port of a PC until the device drivers and Datalink 7 are completely installed and the computer has been restarted.

Datalink 7 is provided with a software installer to guide a user through the installation process.

Please uninstall any previous version of Datalink 7 using the add/remove programs option in windows.

4.1 Launching the installer

Go to <u>www.proheat.com</u> and download the latest version of Datalink 7. Save it to your Desktop. Open the saved Zip file and extract the Zip file to you desktop.

The installer must be run as an administrator. To do so, right click on the installer file and select **Run as administrator** from the popup menu (see figure 4-1 below).



Figure 4-1. File popup menu.

4.2 Setup dialogs

The Datalink 7 installer successively displays four setup dialogs.

4.2.1 Setup complete dialog

The **Setup Complete** dialog is displayed when the installation has completed. Select the option to restart the computer and press the **Finish** button to close the installer. The computer can be restarted at a later time, but it must be restarted before Datalink 7 can be used.

If required please restart your computer.

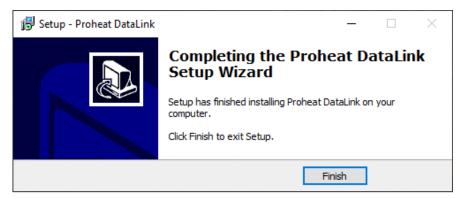


Figure 4-2. Setup complete dialog.

5 Using Datalink 7

5.1 Starting Datalink 7



NOTE

Throughout this manual you will see generic images. Each heater has its own layout and showing all of them is beyond the scope of this manual. All heaters screens are similar.



Figure 5-1. Datalink 7 icon.

Datalink 7 is started by double-clicking on the desktop icon (shown left) or by selecting Datalink 7 from the: **Windows** | **Start** | **Programs** | **Proheat** menu.

Once it has completed its internal initialization, Datalink 7 will display the **Workspace** window.

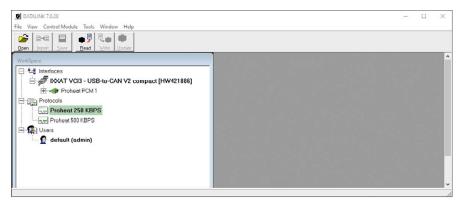


Figure 5-2. Datalink 7 Workspace window.

5.2 PCM detection

Upon start-up, Datalink 7 automatically launches a background program. Once PCM has been detected, double-click on the Proheat PCM 1.

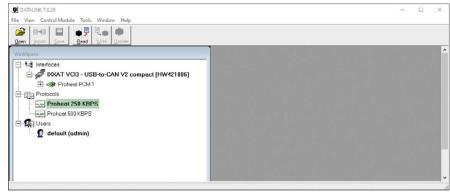


Figure 5-3. Datalink 7 Workspace window with a PCM detected.

5.3 Detecting, opening and reading a PCM

To open and read a PCM, select it from the **Workspace** window and then press the tool bar **Read** button. You can also double-click on its name from the **Workspace** window.

5.3.1 Monitoring PCM presence

If communication between Datalink 7 and a PCM is suddenly lost, then Datalink 7 draws red crosses over its interface and node icon. If Datalink 7 sees the PCM again, the red crosses disappear.

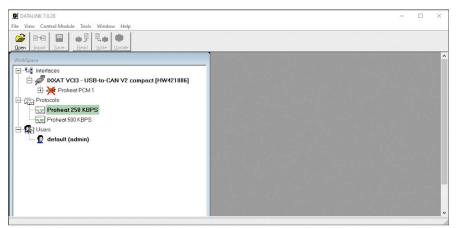


Figure 5-4. Lost PCM.

5.3.2 Database error message

If the Datalink 7 software is older than the PCM firmware or the Datalink 7 software cannot find a database file that matches the PCM software part number and revision, then it displays an error message that will be similar to the one shown below.



Visit <u>www.proheat.com</u> to download the latest version of Datalink 7. Then Read PCM again.

Figure 5-5. Database search error message.

5.3.3 New firmware

If the firmware in the PCM is older than the Datalink 7 software you will have the option to update it during the initial Reading of the PCM. You can choose not to update the PCM firmware by selecting "**No**".

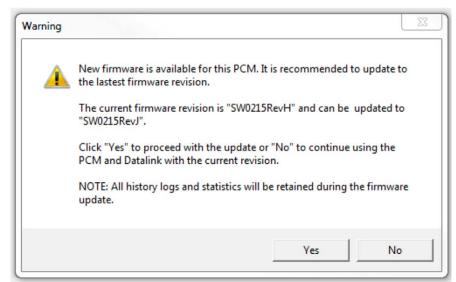


Figure 5-6.

Selecting "Yes" will update the firmware.

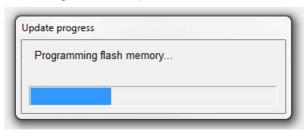


Figure 5-7.

When the Firmware update is finished please follow the on screen instructions.



Figure 5-8.



NOTICE!

Do not have the PCM connected to a computer when connecting power to the heater.

The heater must be connected to an active vehicle network first, then powered up.

The network source address and network speed are set at power up, if the heater is connected to a Computer it may get the wrong information and not work with the vehicle network. To reset disconnect the heater from the computer and connect to the vehicle network and then reboot PCM.

After opening the PCM, Datalink 7 starts reading the content of the PCM memory while showing the following progress bar.

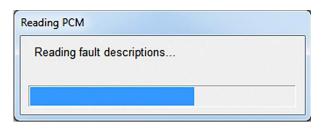


Figure 5-9. Reading progress bar.

5.4 PCM window

After Datalink 7 has completed reading the content of a PCM, it creates a new window and displays the PCM information tab. A number of additional tabs are available each containing different pages for viewing PCM data.



Figure 5-10. PCM window.

5.5 PCM pages

Each PCM window is divided into five pages. Each page can be opened by selecting its corresponding Tab. The table below summarizes the content of the different PCM window pages seen when Datalink 7 is connected to a PCM.

Page	Content Summary	
Information	Various part and serial numbers	
Signals	Real time monitoring of input and output signals	
Diagnostics	Real time monitoring of all diagnostic trouble code status	
Events	Viewing of PCM event log, statistics and meters	

Table 5-1. PCM window pages.

5.5.1 Information page

The **information** page displays part and version information about the PCM connected to Datalink 7. These items are read-only and cannot be edited.

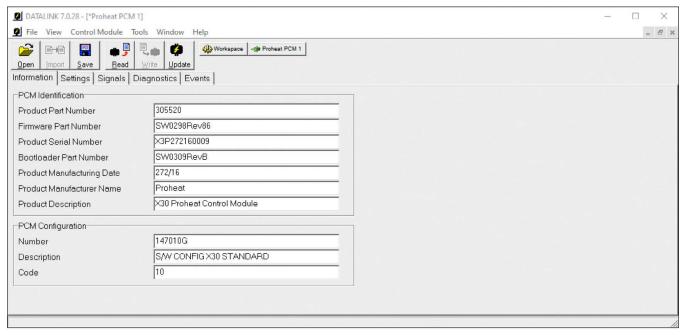


Figure 5-11. PCM information page.

5.5.2 Settings page

The **Settings** page can be used to change options, timing, and sensor thresholds.

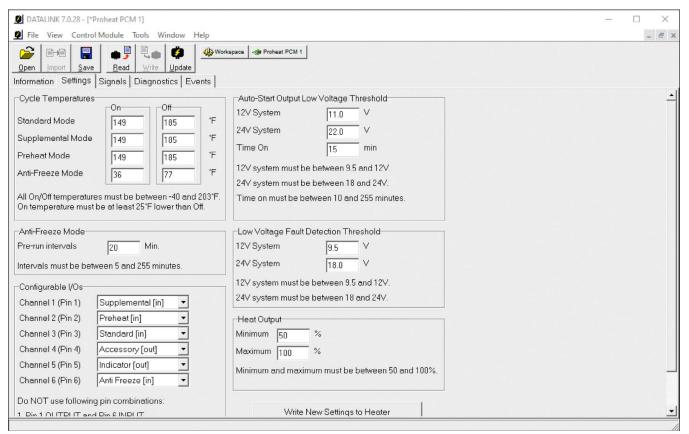


Figure 5-12. PCM Settings page.

5.5.3 Signals page

The **Signals** page allows you to monitor PCM inputs, outputs and variables. Datalink 7 continuously refreshes the data in order to present it in real time.

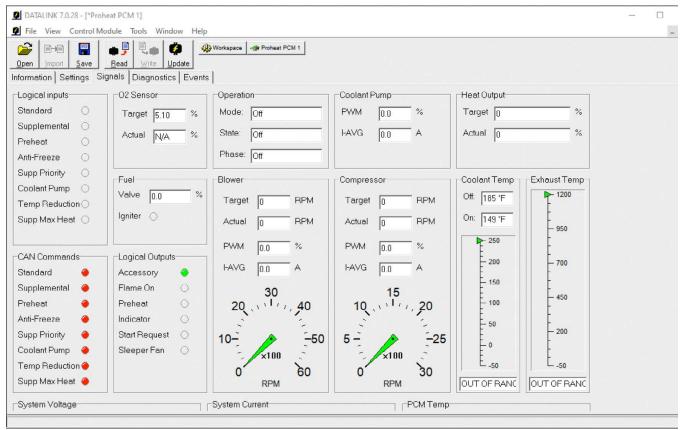


Figure 5-13. Signals page.

5.5.4 Diagnostics page

The **Diagnostics** page provides functions that you can use to monitor the status of all diagnostic trouble codes. When a particular code is active, its corresponding status LED turns red. In the example below, **trouble Codes 5**, **6**, **7**, **12 & 17** are active.

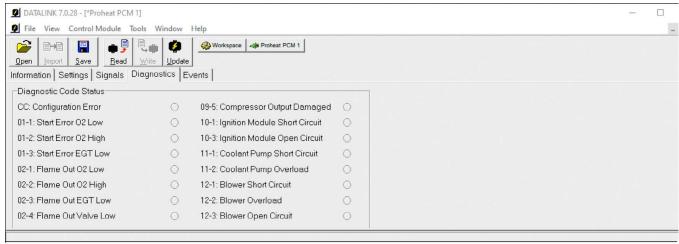


Figure 5-14. Diagnostics page.

5.5.5 Event logging page

The **Event logging** page displays the event log and meter information recorded by the PCM into its memory. To display the content of the event log, press the **Read Log** button once. While reading the event log, the PCM displays the following progress bar.

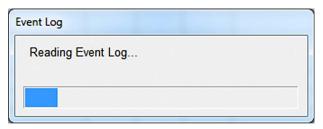


Figure 5-15. Event logging reading progress bar.

Once the event log is entirely read, it is displayed in the Logging page. The event log contains up to 1024 records and each record holds 20 parameters. To navigate the event log and view all records and parameters, use the scroll bars.

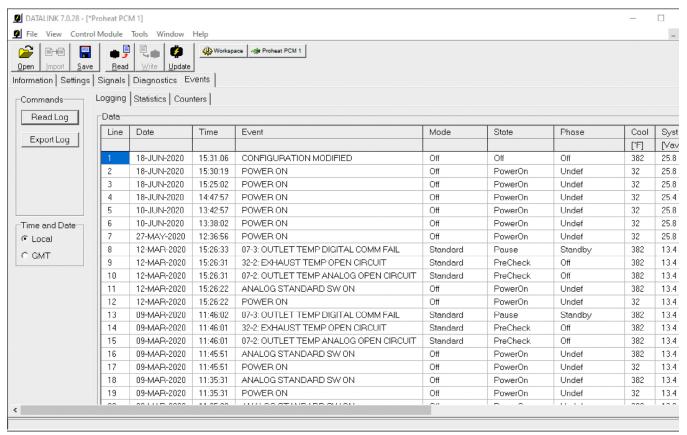


Figure 5-16. Event logging page.

5.5.5.1 - Time and date display

The time and date associated with each record can be displayed using the original event GMT stamp or translated to local time and date using your computer time zone settings. To change time and date display, use the **Time and Date** radio buttons. Changing time and date display does not affect the event log stored into the PCM.

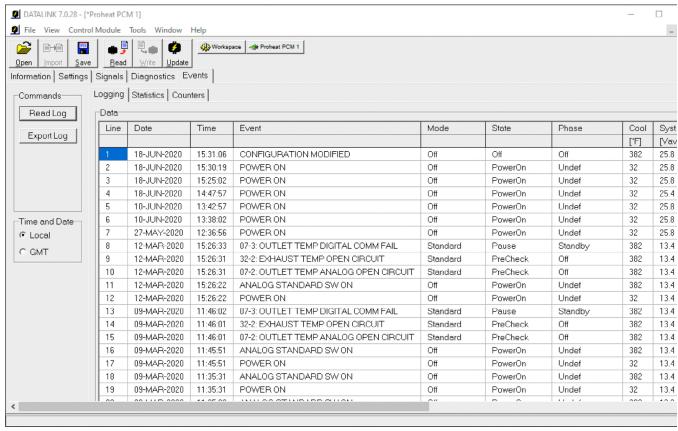


Figure 5-17. Time and date display.

5.5.5.2 – Log file sample

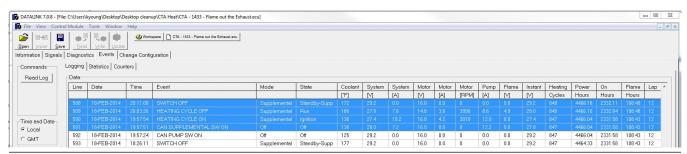


Figure 5-18. Example log file screen.

As you can see on the highlighted rows is an example of a heater log file. The log file is presented with the newest record always at the top and the oldest record at the bottom. Reading from left to right the event that triggered the log record **Line 591** on **18-FEB-2014** at **19:57:51** was a **CAN SUPPLEMENTAL SW ON** event, the heater was in the **OFF Mode** and **OFF State**. At the time of the event record the Coolant Temp was **138°F** and the voltage was **28.0 V**. The other data fields show what was recorded at the time of the event.

The heater now entered the PreCheck then the PreIgnition then finally the Ignition states (these are non recording events) During this time a temperature and fault check is done, then the igniter is turned on and the blower motor speed is ramped up.

The next record up in the log on **Line 590** on **18-FEB-2014** at **19:57:54** is the **HEATING CYCLE ON** event, the heater was in the **Supplemental mode** and the **Ignition state**. At the time of the event record the Coolant

Temp was **136°F** and the voltage was **27.4 V** The other data fields show what was recorded at the time of the event.

The heater now entered the Run state (this is a non recording event) until the next recorded event.

The next record up in the log on **Line 591** on **18-FEB-2014** at **20:03:26** is the **HEATING CYCLE OFF** event, the heater was in the Supplemental mode and the Run state. At the time of the event record the Coolant Temp was **186°F** and the voltage was **27.8 V** The other data fields show what was recorded at the time of the event.

5.5.5.3 – Event log statistics

The **Statistics** page shows the historical count of Diagnostic Codes and Event that are found in the 1024 events in the log.

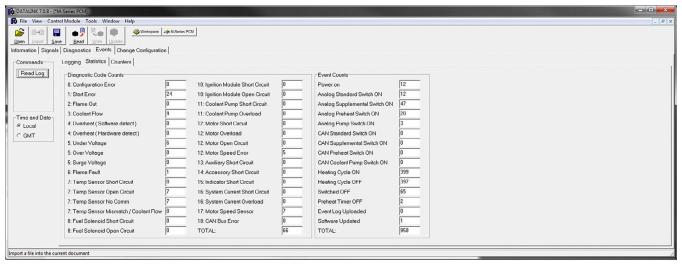


Figure 5-19. Event log statistics.

5.5.5.4 - Counters

The **Counters** page displays the historical hour meters and cycle counts.

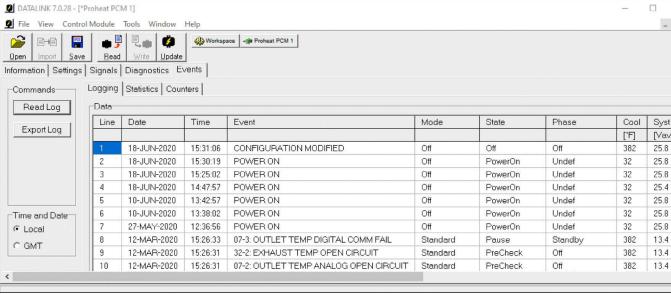


Figure 5-20. Counters.

5.6 Update configuration

By clicking the UPDATE tab in the toolbar, you will be offered a number of templated configurations for a number of specific OEM demands.

The description should help in your choice of the appropriate application.

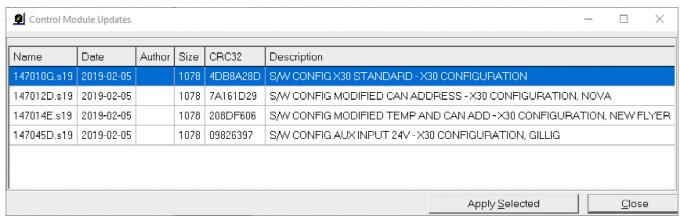


Figure 5-21.

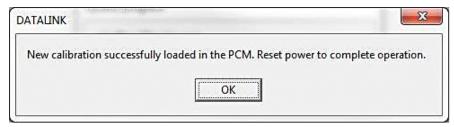


Figure 5-22.

Once configuration has been changed:

- 1. Disconnect the diagnostic cable from the computer.
- 2. Disconnect battery power from the PCM.
- 3. Connect heater CAN to an active | 1939 vehicle network if used
- 4. Wait for 20 seconds.
- **5.** Reconnect battery power to PCM.
- **6.** Wait for 5 seconds.
- **7.** Reconnect the diagnostic cable to the computer and read the PCM to verify the configuration number is now correct under the information tab.

This page left intentionally blank.

6 Datalink 7 Menu and Tool Bars

6.1 The menu bar

The **menu bar** is composed of 6 drop-down menus: File – View – Control Menu – Tools, Window and Help. The following paragraphs describe all drop-down menus.

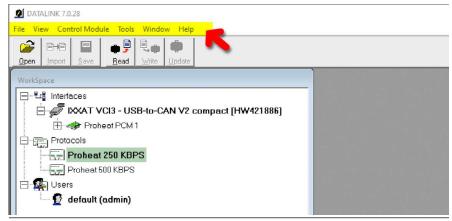


Figure 6-1. Menu bar.

6.1.1 File menu

The **File** menu contains the file Open and Save commands.

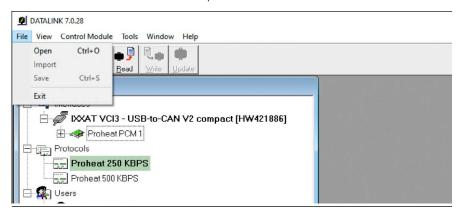


Figure 6-2. File menu.

Command	Function	Shortcut
Open	Open a complete PCM document from disk Useful to read saved PCM data while Datalink 7 is not connected to PCM	CTRL+O
Save	Save current PCM information to disk for further analysis or archive	CTRL+S
Exit	Exit Datalink 7	

Table 6-1. File menu commands.

6.1.2 View menu

The **View** menu contains options to show/hide menu bars.

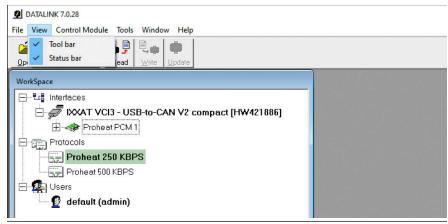


Figure 6-3. View menu.

Command	Function
Toolbar	Hide or shows the toolbar
Status bar	Hide or shows the status bar

Table 6-2. View menu commands.

6.1.3 Control Module menu

The **Control Module** menu contains the PCM Read and update commands.

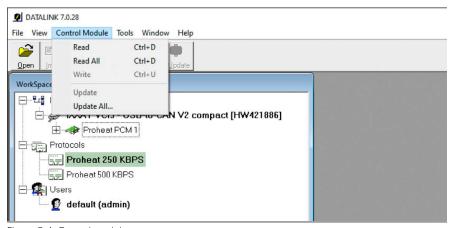


Figure 6-4. Control module menu.

Command	Function
Read	Read the content of a PCM
Write	This function is not used
Update	See the firmware page for more information

Table 6-3. ECU menu commands.

6.1.4 Tools menu

The **Tools** menu contains optional settings.

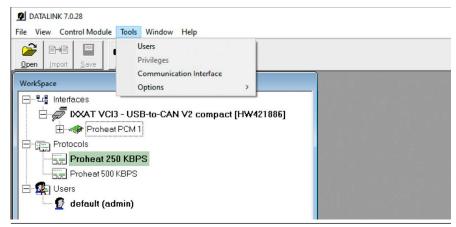


Figure 6-5. Tools menu.

Command	Function
Users	This function is not used
Privilege	Opens the access privilege window. Note: privilege codes can be obtained form Proheat product support
Communication interface	Opens the communication interface window
Options ->	Chooses between imperial and metric units and set the maximum refresh rate

Table 6-4. Tools menu commands.

6.1.5 Windows menu

The **Windows** menu contains display settings.

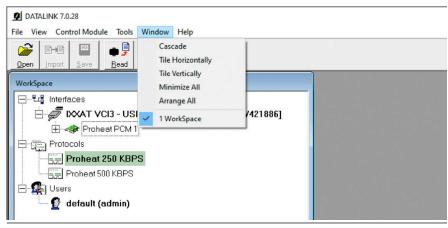


Figure 6-6. Windows menu.

6.1.6 Help menu

The **Help** menu provides copyright and version information through the About... command. Also, any file found in the Help sub-folder will be listed into the **Help** menu.

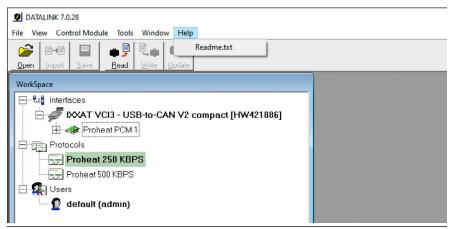


Figure 6-7. Help menu.

Command	Function
About	Open the copyright and version information window
Read me	Open the readme.txt file

Table 6-5. Help menu items.

6.2 The toolbar

The **toolbar** provides shortcuts to the most commonly used commands. The table below shows the **toolbar** commands.

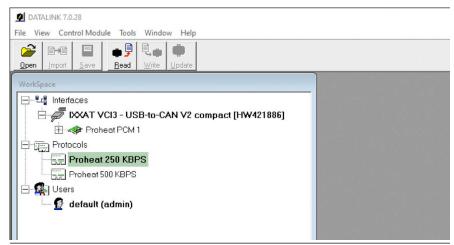


Figure 6-8. The toolbar.

Command	Function
Open	Open a saved file
Import	This function is not used
Save	Save log to a file
Read	Read PCM
Write	This function is not used
Update	Update firmware. See the firmware page for more information
Workspace	Shows the Workspace window
M-Series PCM	Shows the M-Series PCM window

Table 6-6. Toolbar commands.

Notes	

Mobile living made easy.



© 2021 DOMETIC

PRINTED IN CANADA 07/21

Designed and Manufactured in North America



DOMETIC VANCOUVER 3831 NO.6 ROAD RICHMOND, B.C. CANADA V6V 1P6

www.dometic.com

FORM NO. 207500 REV.B

