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Keylo Operating Manual



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0020/54/0039/F





GUIDE TO KEYLO

PRELIMINARY 24 June 2004

Updated – 21 September 2005

*Pg 9- **IMPORTANT:** Ensure the controller is powered up before inserting the Keylo.*

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Contents

Introduction	4
Operating Conditions	4
Supported Features	5
Compatible Sign Controllers	5
Non-Compatible Sign Controllers.....	5
Installation of Key-lo Base Station onto PC	6
Transferring destination list to Keylo	7
Connecting to a Sign Controller	9
Keylo LED flashing – Data Transfer.....	11
Keylo LED flashing – Errors	12
Troubleshooting – Plugging into PC.....	16
Troubleshooting – Plugging into Controller	18

Introduction

The Keylo has been developed to make the process of transferring destination lists and firmware upgrades to DERIC+, ERIC+ and ERIC++ vehicle based Sign Controllers more convenient.

Previously, an ERIC or DERIC, configured as a Data Loader, was used to transfer the data from the PC to the Sign Controller. The Keylo offers the additional advantages that it is small, portable, and robust and fits easily into the user's pocket. In addition no transfer cable is required.

In conjunction with its partner Base Station and the HELEN destination list software, data can be quickly and easily loaded into the Keylo. The Keylo features a 4 MB memory capacity.

The Keylo can then be taken to the desired sign controller(s), once plugged in the transfer of data to the Sign Controller is handled automatically.

Operating Conditions

PC Hardware

The Keylo is designed to work with IBM-PC compatible computers.

A USB port (either USB 1.1 or USB 2.0) must be present on the computer.

Note: If you are using a USB hub it must be a self powered type.

PC Software

The PC must be running one of the following versions of the Windows operating system:

English\Arabic Windows XP
Windows 2000
English\Arabic Windows 98SE

(Note that Windows 95 is not supported.)

HELEN software version 2.0.L or later must be installed. Please contact Hanover Displays if you do not already have the correct version of HELEN.

Sign Controller Configuration

In order for the Keylo to work correctly, the ERIC+ or DERIC+ controller must have two parameters within the “system” section set to the correct values shown below. Note that The Sign Controller is usually shipped with these settings already set to these values.

Please consult the DERIC+ or ERIC+ manual if you require further information on how to change these system settings.

- The *Auto load transfer Speed* (AS) must be set to **104167**.
- The *Auto load transfer Format* (AF) must be set to **BIN**.

Supported Features

- Timed Updates
- Container files and profiling using the profile (PF) parameter in the Sign Controller
- Firmware upgrades to the Sign Controller.

Compatible Sign Controllers

The Keylo will operate with all versions of the ERIC++ controllers and DERIC+ V3_0b or later and ERIC+ V3_0A or later.

If controller firmware upgrades are necessary then some older versions of ERIC+ and DERIC+ may require a newer firmware chip to be fitted internally before firmware upgrades can be carried out via connection to their front panel 9way D-type connector, firmware downloading via the front panel will then be possible.

Non-Compatible Sign Controllers

Older ERIC and DERIC controllers will not work with the Keylo since their hardware is incompatible with the Keylo system.

The Keylo is designed to work only with Hanover Displays' Sign Controllers.

Installation of Key-lo Base Station onto PC

Ensure that the HELEN Software V2.0L or later is already installed on the PC. Refer to the HELEN User Manual for installation information.

This User Manual assumes that the user already has some familiarity with the HELEN software and the windows user interface.

1. Plug the USB cable into any one of the USB ports on the PC, and then into the socket on the rear of the Keylo Base Station. Plug the Keylo into the Base Station.
2. Windows will detect the connected Base station and will then display the Add/Found New Hardware Wizard. The drivers are located on the Hanover Resource CD which should now be inserted into your CD-ROM drive.
3. Select the 'Search for a suitable driver or Install the software automatically (Recommended)' option and click Next. If windows asks you where to search for the drivers, check the CD-ROM tick box only.
4. Windows will now search for the driver. When found windows may inform you that it has found them and prompt you to click on the next button. At the following window click the finish button.
5. If you are using Windows XP windows may inform you that the Keylo Base station drivers "have not passed Windows logo testing..." Click on the Continue Anyway button. The following window will inform you that "The wizard has finished installing the software" Click on finish.

The Base Station has now been correctly installed.
The Base Station may be left permanently plugged into the PC.

Note: It is possible to have more than 1 keylo base station connected to a single PC; however the installation procedure above must be repeated for each base station. In this scenario and when using the send output file function of HELEN, each base station will have a unique identifier within the ports drop down list e.g. KEYLO 1, KEYLO 2 etc.

If you are using a laptop with battery power only, you may wish to unplug the Base Station when it is not in use to conserve battery power. Close the **SEND OUTPUT FILE** dialog window first, before unplugging the Base Station.

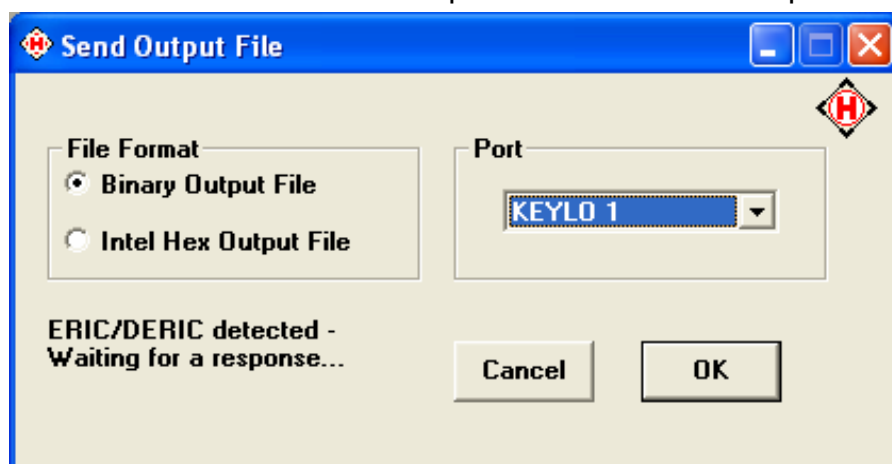
Transferring destination list to Keylo

To transfer data to the Keylo, it must be programmed using the HELEN software, via the Keylo Base Station. This is plugged into any one of the USB ports on the PC.

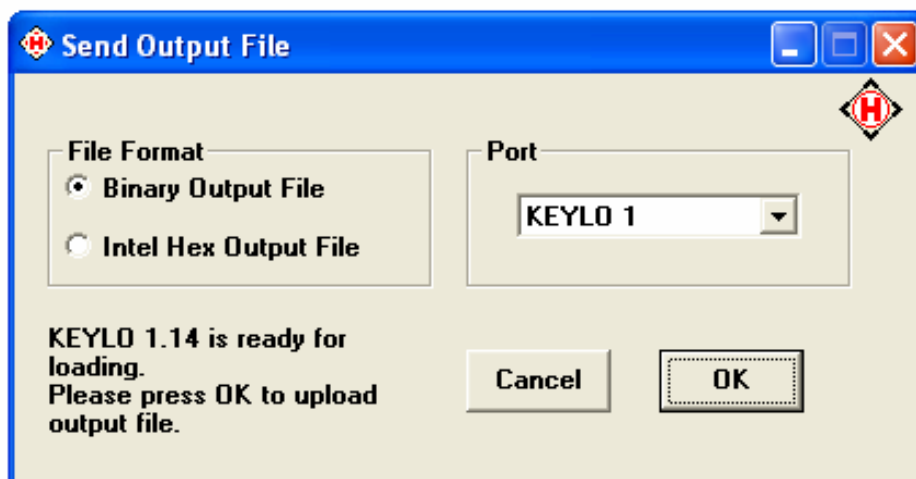
1. Start the HELEN program and load the Destination List you wish to transfer.
2. Plug the Base Station into the USB port on your PC, if it is not already connected. The Orange LED on the Base Station will light to indicate the base station is powered up.
3. Plug the Keylo fully into the Base Station. The Keylo LED will not light at this stage.
4. In HELEN, Select **FILE > SEND OUTPUT FILE**. You will see the windows shown below. If this option is disabled then first select **FILE> SAVE OUTPUT FILE** or load another Destination List. See the HELEN User Manual for further information.
5. In the "Port" drop down list box on the window shown below, select the USB port that the Keylo base station is connected to, in this case KEYLO 1. Once selected the message in the bottom left hand corner of the window will change to that shown in the example below.
6. On first connection the base station may take approximately 10 seconds before this connection message is displayed, thereafter connection time is reduced to approximately 3-5 seconds

At this stage the Keylo LED should be lit.

Note: If you connect the Base Station to the PC *after* Send Output File has been selected in HELEN then it will not be detected and you will be unable to select the "KEYLO" option from the "Port" drop down list box.



7. Wait for the HELEN software to detect the Keylo. When this has occurred the message at the bottom left of the dialogue box will change to 'KEYLO x.xx is ready for loading' as shown below.



8. Click on the OK button within 60 seconds to start the transfer.
9. The Keylo LED will begin a sequence of flashes, when the Keylo LED eventually becomes a steady green colour, the transfer has completed successfully. You may remove the Keylo from its base station and use it to transfer the Destination list to the desired Sign Controller(s).
10. If the Keylo LED does not eventually change to a steady green colour, but continues to flash then an error has occurred. The number of flashes defines the type of error. See section Keylo LED flashing – Errors for further information.

*NB. The Key-lo must be disconnected from the base station before another data file can be downloaded.
Once the download is successful, to close the above window you can either click on **Cancel** or **X**. Do not click **OK**.

Connecting to a Sign Controller

If there is a valid file stored in the Keylo the file transfer will begin automatically as soon as it is plugged into the sign controller.

IMPORTANT: Ensure the controller is powered before inserting the Keylo.

1. Plug the Keylo into the 9 Way D connector on the front panel of the Sign Controller

The Keylo LED will flash green briefly and then become a steady red colour. Once the communication starts, the Keylo LED will begin a sequence of flashes

The screen of the Sign Controller will indicate that a data transfer is taking place. The following screens will appear on the Sign Controller:

Sign Controller

Polling...

Waiting...

Erasing...

Loading...

2. Once the LED on the Keylo stays green, the Keylo has successfully completed communication with sign controller and should be removed.
3. The sign controller will reset and depending on the size of the file transferred, the Sign Controller may take some time to process the file it has received. Wait until the controller has finished processing the file, to ensure that the transfer was successful.

Depending on the controller type & software, if the file transfer was successful the controller will either display "idle" or revert to the last selected destination.

(If the previous & newly downloaded database both contain the same destination number).

Sign Controller



Sign Controller



If the file transfer was not successful the follow screen will appear:

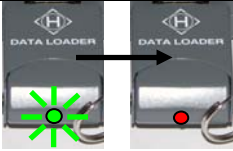
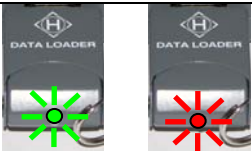
Sign Controller



If this occurs then either the file transfer did not complete successfully or the file transferred was not suitable for the Sign Controller. The Keylo LED should also flash to indicate an error has occurred.

A download should be attempted again. If this fails then see sections Keylo LED flashing - Errors & Troubleshooting.

Keylo LED flashing – Data Transfer

Action	LED Status	
HELEN - Keylo is plugged into the Base station. Send Output File & Keylo is selected.... DERIC+/ERIC+/++ - Keylo is plugged into the front panel connector.	LED flashes GREEN briefly and then steady RED. (This is a test to show the individual portion of the keylo LED are working)	
Communication with the Keylo starts....	LED flashes GREEN.	
File transfer is about to start... (If the keylo is being used in HELEN The OK button must now be clicked within 60 seconds or the Keylo will time out)	LED flashes ORANGE.	
File transfer in progress....	LED flashes ORANGE quickly.	
Checking checksum....	LED flashes ORANGE slowly.	
File Transfer completed successfully! Keylo may now be removed from the Base Station or Controller.	LED steady GREEN.	
Error occurred during transfer.	LED flashes GREEN once followed by a number of RED flashes. (See section: Keylo LED flashing – Errors for more information)	

Keylo LED flashing – Errors

Errors in downloading are indicated by the LED flashing at approximately two second intervals. The LED will first flash green and then flash red a number of times. This flashing sequence will be repeated until the Keylo is removed from the base station or sign controller.

The number of *red* LED flashes indicates the error number and the table below can be used to determine the problem.

If the error occurs while the Keylo is plugged into a Sign Controller, the Sign Controller may also give an error code, on its LCD screen, which can also help to further pin-point the cause of the error.

Number of red flashes	Error / Description
1	Invalid file or Profile number
2	Communication Error
3	Protocol Error
4	Communication Timeout
5	Undefined Error

ERROR: 1 - Invalid File or Profile Error

DESCRIPTION:

No file is loaded into the Keylo or the file is invalid
 -or- the profile requested by the controller doesn't exist in the Keylo
 -or- the file in the Keylo is incompatible with the Sign Controller
 -or- the file from the PC has not been successfully stored in the Keylo
 -or- if you are using a DERIC+ controller the file stored in the Keylo is too large and will not fit into the available memory of the DERIC+

SOLUTION:

- Transfer a valid file from the PC to the Keylo.
- If the file is a container file ensure that the profile number specified in the System menu of the sign Controller matches one of the profiles stored in the container file.
- Reduce the size of your destination list so it will fit into the controller's memory.

ERROR: 2 - Communication Error

DESCRIPTION:

An error has occurred during the communication process.

SOLUTION:

If this occurs when the Keylo is plugged into the Sign Controller, confirm That the Sign Controller is configured as outlined in Operating Conditions.

Restart the communication by unplugging the Keylo, waiting for the Sign Controller to reset and then plugging the Keylo back in.

If this occurs when the Keylo is plugged into the Base Station, close the HELEN send output file window by clicking CANCEL. Then re-select **FILE > SEND OUTPUT FILE** in HELEN.

If this doesn't resolve the problem, close the download window by clicking CANCEL, unplug the USB cable from the Base Station, wait a few seconds, plug it in again, and re-select **FILE > SEND OUTPUT FILE** in HELEN as per usual.

ERROR: 3 – Protocol Error

DESCRIPTION:

Information exchanged during the transfer indicates an error has occurred.

DETAILS and SOLUTION:

If this occurs when the Keylo is plugged into the Sign Controller, it may be due to one of the following reasons:

- The file to be transferred is larger than the available memory in the Sign Controller (check that the size of the file you wish to transfer does not exceed the available memory in the Sign Controller).
- The input voltage from the vehicle to the Sign Controller is too low. Verify that the voltage being supplied to the sign controller is at least 19 Volts.

If this occurs when the Keylo is plugged into the PC, it may be because the file to be transferred is bigger than the available memory in the Keylo, the HELEN software will also warn you if this occurs.

The error occurred because of a glitch during communication. Retry the data transfer again.

ERROR: 4 – Communication Timeout

DESCRIPTION:

Either the PC or Sign Controller has taken too long to respond. The most common cause is during transfer of data from HELEN to the Keylo.

When send output file is selected in HELEN and the user has selected the appropriate Keylo from the ports drop down list, HELEN will then display the message "KEYLO x.xx is ready for loading"

The USER must then click the OK button within 60 second of this message being displayed. If the OK button is not clicked within this time, a timeout will occur.

It is possible that the baud rates of the Keylo and Sign Controller don't match and therefore the two devices are unable to communicate. See Error 2 - Communication Error.

The Keylo and PC or Sign Controller have gone 'out of sync' with one another in their communication.

SOLUTION:

If this occurs when the Keylo is plugged into the Sign Controller, restart the Communication by unplugging the Keylo, waiting for the Sign Controller to Reset and then plugging the Keylo back in.

If this occurs when the Keylo is plugged into the Base Station, close the send output file window by clicking CANCEL, and re-select **FILE > SEND OUTPUT FILE** in HELEN.

ERROR: 5 - Undefined Error

DESCRIPTION:

An undefined error has disrupted the communication.

SOLUTION:

Re-start the data transfer in the prescribed manner. If this error re-occurs, while plugged into a Sign Controller, a new file may have to be loaded into the Keylo from the PC.

If the problem persists after trying these solutions, refer to Troubleshooting section.

Troubleshooting – Plugging into PC

PROBLEM	DESCRIPTION	SOLUTION
<i>Keylo Base Station LED does not light up when plugged into PC.</i>	The Base Station LED should always be lit when correctly plugged into a PC that is running and not in a Power Down mode e.g. SLEEP, STANDBY or HIBERNATE.	Check that the PC is on. Check that the PC is not in a SLEEP or HIBERNATE state. Check the USB cable is correctly plugged into a USB port on the PC and the Keylo base station. Unplug and plug USB cable back in at both ends. Remove the Keylo and see if problem persists. If so the Keylo may be damaged and be the cause of the problem
<i>In the Helen send output file window there is no USB option listed.</i>	The Base Station drivers must be installed and the base station must be plugged into the PC before selecting FILE > SEND OUTPUT FILE in HELEN.	Plug the Base Station into the PC, close the send output file window and re-open it by selecting FILE > SEND OUTPUT FILE. Check the version of HELEN you are using is greater than version 2.0.L. If it is an earlier version then install the required version. The USB driver was not installed correctly. Un-plug the Base Station from the PC, un-install the USB driver using the Windows remove hardware option from the control panel.

		Then plug the Base Station in again, you should be prompted to install the base station drivers as detailed in chapter 3 of this manual.
<i>The message 'ERIC / DERIC detected – waiting for a response...' does not appear in the HELEN send output file window.</i>	Only 1 download can be attempted (and/or completed) for each time the Keylo is plugged into the Base Station.	If the Keylo's previous download was un-successful, the Keylo must be un-plugged from the Base Station and then plugged in again, to reset it.
	The baud rates on the Keylo and PC don't match, and therefore the two devices are unable to communicate.	The Keylo's default baud rate has been changed. Contact Hanover Displays to find out how to reset the Keylo back to its default settings.
<i>The message 'KEYLO x.xx is ready for loading' appears in the window, but the Keylo LED is not flashing orange.</i>	The user has not clicked the OK button of the HELEN send output file dialogue within 60 seconds and this has caused the Keylo to time out.	Un-plug the Keylo from the Base Station. Cancel the send output file dialogue in HELEN. Plug the Keylo back into the base station and then select FILE>SEND OUTPUT FILE in HELEN.

Troubleshooting – Plugging into Controller

PROBLEM	DESCRIPTION	SOLUTION
<i>The Sign Controller constantly displays 'POLLING'.</i>	The baud rates on the Keylo and Sign Controller don't match meaning the two devices are unable to establish communication with each other.	The standard baud rate of the Keylo is 104167. Confirm that the Sign Controller is also configured to the same baud rate as outlined in Chapter 2, Operating Conditions The Keylo's default baud rate has been changed. Contact Hanover Displays to find out how to reset the Keylo to its default settings.
	If the Keylo is also showing an error number 1. then no valid file exists in the Keylo	Download a valid file to the Keylo from HELEN. Retry and confirm that the download was successful.
<i>The Sign Controller displays 'LOAD ABORTED' with the number 1005</i>	The data held by the Keylo is too large for the sign controller's memory.	Decrease the size of the destination list or increase the memory in the sign controller.
	The input power from the vehicle to the Sign Controller is too low.	See ERROR 3 in Chapter Error! Reference source not found. Error! Reference source not found.
	Flash memory chips in the Sign Controller may be damaged.	The flash chips in the Sign Controller may be damaged. Please contact Hanover Displays.

<i>The Sign Controller displays 'LOAD ABORTED' with the number 1222</i>	The Profile Number selected in the Sign Controller doesn't match any of the profile container files transferred to the Keylo	Change the Sign Controller's Profile Number. Load a new Destination List into the Keylo without profiles (i.e. not a container file) or ensure the correct container file is present. The error number displayed by the controller may also be number 1005.
<i>The Sign Controller displays 'LOAD ABORTED' with the number 12F2 or 12F4</i>	The Sign Controller has encountered a Communication Error.	Unplug the Keylo, wait for the Sign Controller to restart, and plug the Keylo in again. The (error) number displayed by the controller may also be number 1005.
<i>The Sign Controller displays 'LOAD ABORTED' with the number 1209</i>	The data held by the Keylo is too large for the sign controller's memory.	Decrease the size of the destination list or increase the memory in the sign controller.