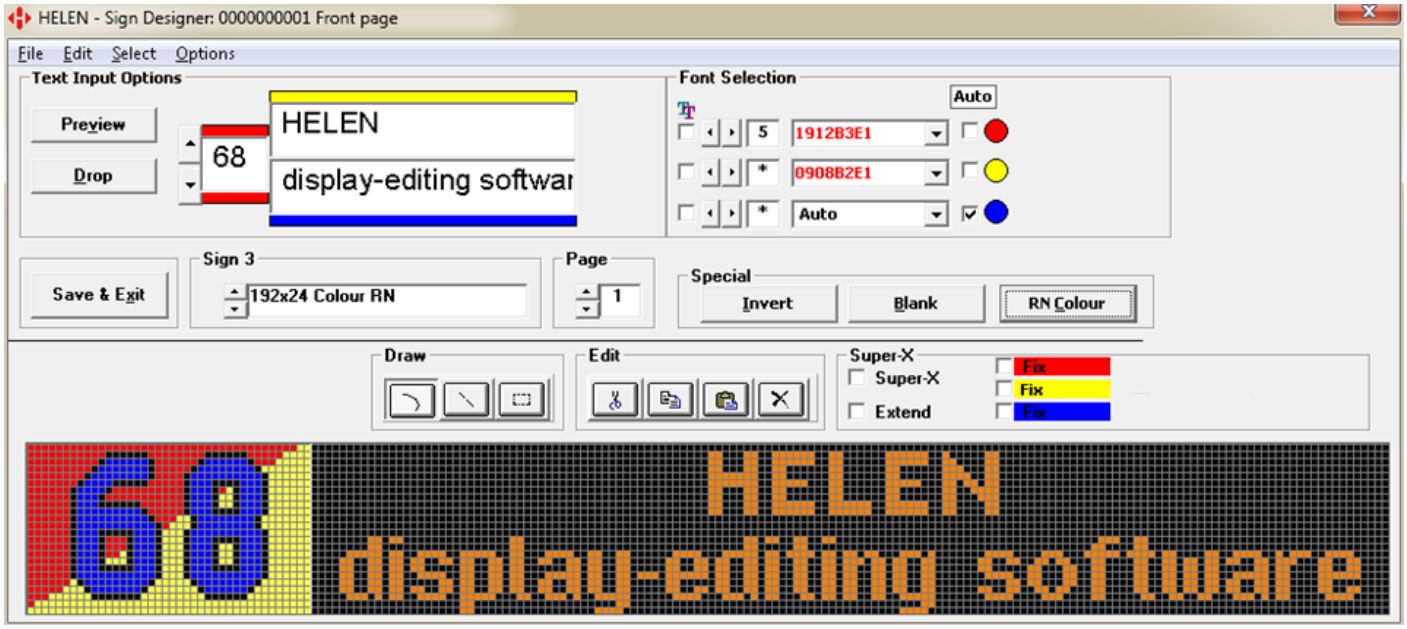
HELEN Sign-editing Software

Operating Manual

(Software version V3.16.06)



Revision History

Revision	Date	Notes
540125-17	26/08/2022	Updates: Software version update: v3.12 to v3.13 Installation, Masking area of the sign, Deleting an existing destination, Regenerate submenu, Regenerate submenu (Options), Console configuration submenu (Advanced), Creating new characters, Configuration submenu, Help menu, Sign Designer – Opening Screen Functions (Edit menu, Options menu), Text Input Options, Super-X features, Extend features, Appendix I: Alpha to symbol converter, Deletion of Appendix K: The Super-X process, Appendix N: Export submenu, New Appendix P: Working with Multipage Super-X, New Appendix Q: Pasting a Route number into an Information page, New Appendix R: Layout Configurations
540125-18	08/11/2024	Update of: ISO 9001 & ISO 14001 logos Software versions updates: v3.13 to v3.14.03, v3.14.03 to v3.15.02, v3.15.02 to v3.16.06 HELEN Setup Wizard, Getting Started (Signs), Sign Size and Address, Transferring destination list to Key-lo, Transferring the database to the USB stick using HELEN, Export submenu, The Font editor, Previewing fonts, Comparing fonts, Exporting HELEN fonts, Help menu, Appendix C-4: Establishing that HELEN has created a container file, Appendix C-5: Downloading a container file, Appendix I-2: Lower case alpha characters, Appendix N: Export Submenu (Sign check)

Please note that this document is subject to continual updating: please ensure you are using the latest edition.

This edition: **08 November 2024**

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GLOSSARY

Explanations relate to the use of the word in this manual and other Hanover publications; the word or phrase may have other meanings elsewhere.

ASE - AVL system editor

AVL - **A**utomatic **V**ehicle **L**ocation. Please refer to 7.5.3 AVL.

console - former term for ‘controller’

(sign or driver) controller - on-bus device used by driver to select destination / advert / information details that will be shown on the signs (prepared using HELEN software)

destination code - the number used to identify a particular set of destination signs (typically, front, side and rear signs). NOT necessarily the operator's route / service number

sign (or display) - equipment used to present text and graphics for viewing by passengers, usually located on the front, side or rear of, or inside, a bus

glyph - the shape or appearance of a character

GPS - **G**lobal **P**ositioning **S**ystem: satellite navigation system providing location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites

Key-lo - device used to transfer a HELEN database from a PC to a Deric+ or Eric++ controller

LED - **L**ight-**E**mitting **D**iode

mimic - a tool within HELEN which gives a representation of how the sign will appear on the bus

stroke width - ‘thickness’ of character stroke in the display mimic; e.g.: vertical stroke width is the width of the downstroke of the vertical component of a character (in dots)

1. Introduction

1.1 Overview

The **H**anover **E**xtended **L**ist **E**ditor for destinatio**N** signs (HELEN) is a tool used to create messages and destination lists on a PC as they will appear on a Hanover sign. Using HELEN, all Hanover sign types can be programmed, from single sign systems to a multi-display AVL or GPS system. The information can be previewed on the computer or by linking the computer directly to it, viewed on the sign itself. Once a list is complete, it can be uploaded to an ERIC++, DERIC+, DG3 or EG3 controller or a dataloader.

HELEN can also be used to customise signs:

- The font editor allows the user to import fonts, edit existing fonts or create new fonts.
- The graphics editor can be used to edit text and create graphic images for the signs. (Route numbers and destination / via point messages are composed as text in HELEN and then rendered as a graphic image by HELEN software).

HELEN can be used both to program the sign information and also determine the way the information is presented on the controller, thereby giving significant flexibility.

HELEN is a Windows-based program so it is useful to have some familiarity with this operating system.

- Hanover recommends using Windows 7 or later. Although HELEN was initially developed on Windows XP, most features will work with previous versions of Windows (although Windows 95 will not support the USB Key-lo Dataloader). The only differences the user should see between the various versions of Windows are that default file locations have changed in newer versions and the screen design/style may look different to the screenshots used in this manual.
- HELEN is compatible with 32- & 64-bit versions of Windows 7 or later.

1.2 General

The best understanding of HELEN software will be gained by reading the complete manual - but this is not always practicable for the user. The document has therefore been written in a modular fashion in order to allow users to refer only to those parts of it they need: topics should thus appear relatively self-contained. However, there are several useful cross-references, both to other points within this manual, to other Hanover manuals and to external documents as appropriate. Accordingly, when consulting this document using a pdf reader, it is helpful to have the 'Back' (or 'Previous') and 'Next' (or 'Skip' / 'Forward') buttons enabled to obtain maximum benefit from the intra-document cross-references. For example, in Adobe Reader, press F8 to view the toolbar if it is not already visible. Right-click on a blank section of the toolbar and, in the 'Page Navigation' menu, please ensure that 'Previous View' and 'Next View' are ticked.

Reference is made to the controllers using HELEN software and to the equipment used to display the information: detailed manuals are available for these from Hanover.

Existing customers are strongly advised to always use the latest version of the software. This can be obtained on request. Using a newer version of HELEN with older controllers should not present problems but should any occur, they can be remedied: contact Hanover if necessary.

Destination signs for buses and coaches are normally used on the front, side and rear of the vehicle. This practice is so widespread that Hanover often uses 'front, side and rear' to describe equipment used in those positions. However, it is important to stress that any sign can be used anywhere on a vehicle, subject to the relevant electrical / communications connections being made.

Note: the conventional print dialogue window will not appear when choosing the 'Print' option: options must be selected in advance via File → Print setup from the HELEN main screen.

The screenshots used in this manual may not be exactly the same as those seen by the reader: variations are due to the new versions of Windows and HELEN the reader uses. With regard to this, please note that the terms 'display' and 'console' are no longer used and have been replaced by 'sign' and 'controller' respectively. The older terminology is reflected in some screenshots.

1.3 Scope of this manual

This manual covers the installation and operation of the HELEN software.

Manual covers	
Section 1	Introduction to the manual
Section 2	Installation: preparation, installation from CD and HELEN setup wizard procedure
Section 3	Getting started: sign size and address
Section 4	Destination list database: creation of new folder/list and sign parameter editor
Section 5	Destination codes and route codes: creation, edit or deletion of destinations
Section 6	Saving and uploading destination lists: for ERIC, DERIC, DG3 or EG3
Section 7	HELEN main window: Opening screen functions: file, options, route, help menus and buttons
Section 8	Sign designer: opening screen functions and features
Section 9	Hanover Technical Support: contact details

Manual does not cover
The destination or in-bus signs themselves: • The installation and service of the signs: for more details, please refer to the **LED destination display - installation and service manual (ref. 540156)** • Technical data sheet for individual signs: this is provided separately for each variant

2. Installation

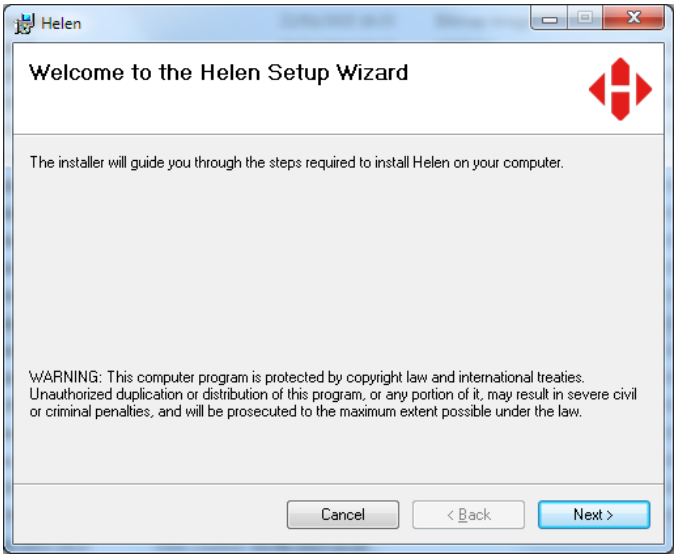
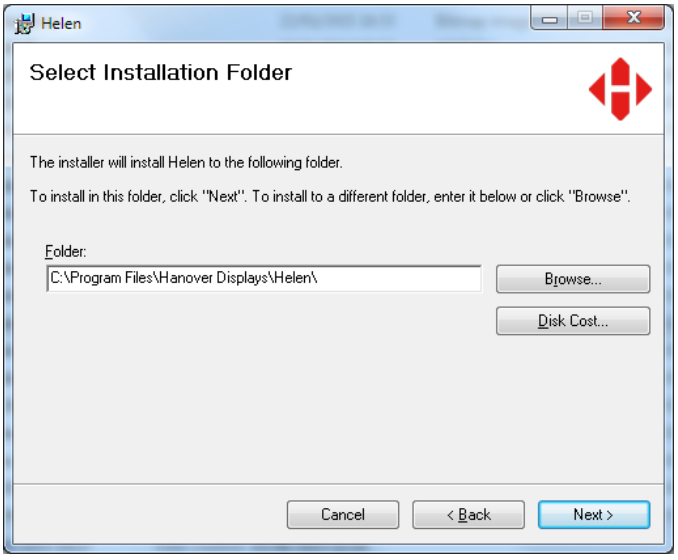
2.1 Preparation

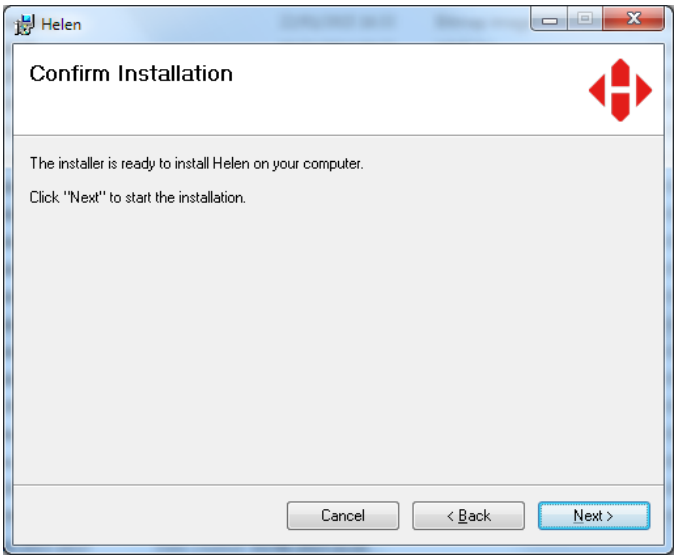
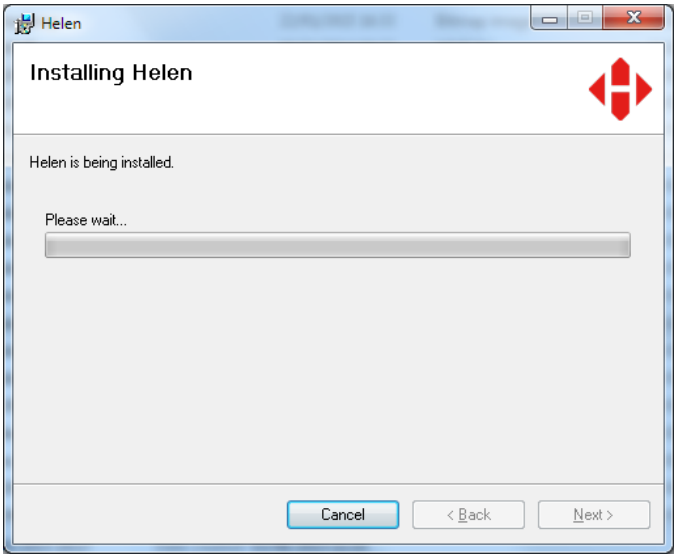
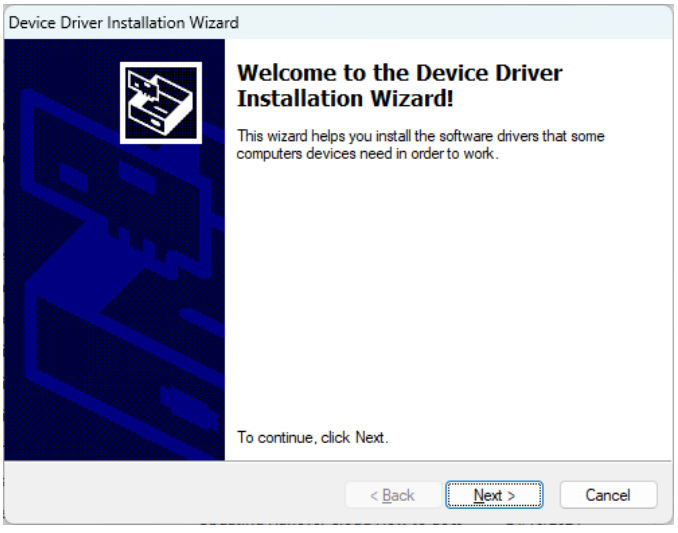
Before beginning the installation, for which administrator's rights will be required:

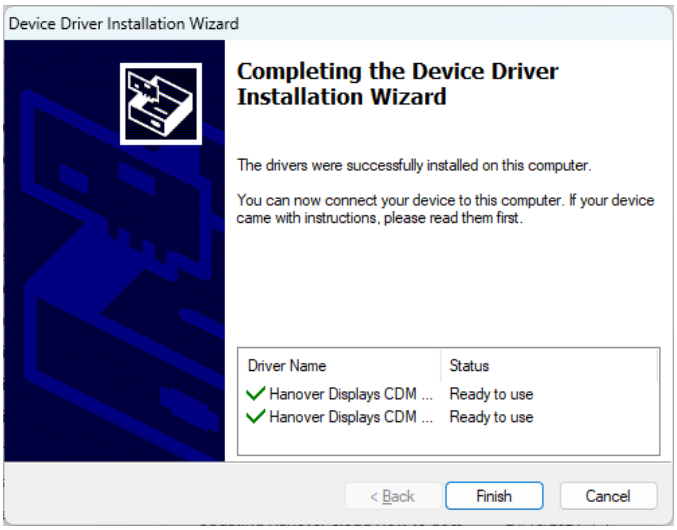
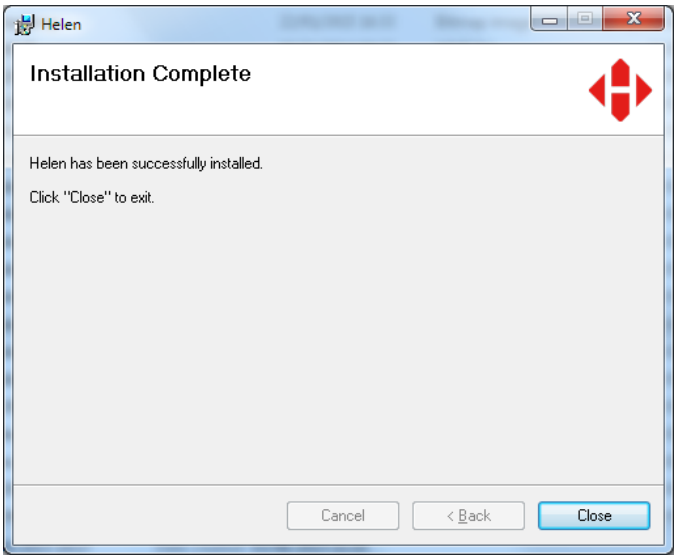
- close down all other programs
- back up any existing destination lists to another location on the computer
- uninstall any existing versions of HELEN installed on the computer, otherwise database errors may occur. For more information, please refer to Appendix A: Uninstalling HELEN software.

HELEN software v3.9 or later can be installed on the PC from the link supplied by 9 Hanover Technical Support.

2.2 HELEN Setup Wizard

No.	Description	Figure
1	The 'Helen Setup Wizard' window will appear. Click Next.	
2	Select the directory location – the default is 'C:\Program Files\Hanover Displays\Helen\'. Then, click Next.	

No.	Description	Figure
3	Click Next to confirm that HELEN should be installed.	
4	The HELEN installation will start.	
5	Installing Key-lo Drivers; click Next.	

No.	Description	Figure
6	Key-lo drivers Installed; click Finish.	
7	When this window appears, installation is complete. Click Close to exit.	
8	Once installed, HELEN is added to the program list and a diamond 'H' Hanover icon is placed on the desktop. To open HELEN, double-click on the desktop icon. **Note:** the version number quoted will reflect what is installed.	

3. Getting Started

3.1 Signs

All Hanover standard sign types can be programmed by HELEN. However, certain information will be required before a destination list database can be created.

Note: High Resolution signs would need to use HERALD. For more details, refer to Herald – User Guide (ref. 542071).

- **Sign Type:** LED Destination, Full Colour, Colour Route Number, Flip Dot, LED in-bus etc.

  LED Destination sign:

  Full Colour sign:

  Colour Route Number sign:

  Flip Dot Destination sign:

  LED In-bus sign:

- **Sign Size:** This specifies the layout (or matrix) of LEDs or Flip-dots and is defined by the number of columns (width) x the number of rows (height), e.g.: 144 x 19.

- **Sign Address:** Each different sign must have its own unique address. For OLED signs (using processor boards 7524 or 7611), this is set by the rotary switch found on the board. For OLEMS signs (which deploy the 7766 board) the address is set using a link jumper. Default settings in both cases are: front = 0, side = 1, rear = 2.

Second-hand / transfer vehicles may be configured differently. If required, the switch (or link jumper) position can be changed to conform to the standard above.
Remember that the setting must match the sign address specified in HELEN.

3.2 Sign Size and Address

There are two methods to provide the sign size and address:

- either via the sign test from the controller (for LED sign systems only)
- or via the silver label (for size) and sign processor (for address).

The user may find it helpful to keep a record of the sign size and product number of each sign installed for reference: it will help if advice from 9 Hanover Technical Support is necessary later.

3.2.1 1st method: From the Controller – Sign Test

3.2.1.1 DERIC+ or DG3

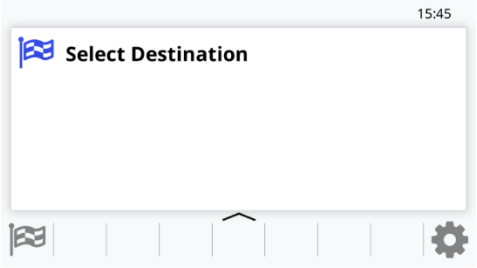
Step	Description
1	Press F/E (or) until ‘Lock code:’ appears.
2	Enter 0101 using the arrows and (for DERIC+) or and (for DG3).
3	Press or : ‘Show status?’ will be shown.
4	Press the UP arrow or once to display ‘Test signs?’.
5	Press or : ‘Testing…’ will be displayed on the controller.
6	Press or to cancel the test.

3.2.1.2 ERIC++ or EG3

Step	Description
1	Press the F key until 'Lock code:' appears.
2	The 4-digit lock code is 9876 by default or if a factory reset is performed. However, if an ERIC++ or EG3 is loaded with a list from HELEN, the lock code will be changed to 0101 as HELEN has by default a lock code of 0101. Enter 9876 using the keypad.
3	Press the ENT key: 'Show status?' will be shown.
4	Press the UP arrow once to display 'Test signs?'.
5	Press the ENT key: 'Testing…' will be displayed on the controller.
6	Press the ENT key to cancel the test.

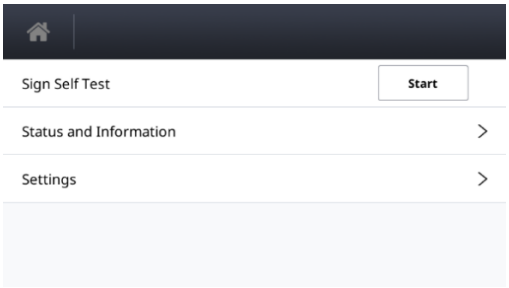
3.2.1.3 EG4

The sign self test function tests all the destination displays connected to the EG4 destination controller and can be used to help determine the source of a problem i.e. hardware, address settings or programming.



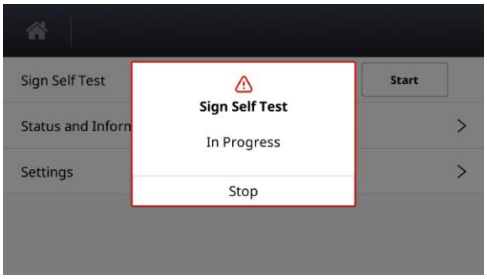
This function is accessed using the settings button ( ) on the front panel of the destination controller.

It is shown as **Sign Self Test**:



Selecting “Start” will start the sign test function.

The following message will then be displayed:



Selecting “Stop” will stop the sign test function.

During sign self test, the destination controller sends a message to all the connected destination displays for them to show a repeating test pattern. This test pattern verifies that the destination displays and controller are communicating with each other and that for LED destination displays, the individual LEDs are working correctly.

Each LED sign will show a scrolling message followed by an alternating test pattern (the content of the scrolling message is described below) whilst flip dot signs will show just the test pattern. There will be some variation in what is scrolled across the sign, depending on firmware, sign size etc., but the key areas will be the same.

Sign test character string definition

LED signs will show scrolling text similar to that set out below, followed by a series of horizontal and vertical line test patterns:

Example: **OLED v1.15 (X1.15) #0 144x19 C=3D00 P=65/100**

OLED v1.15	=	the sign's base software type and version
(X1.15)	=	application software version (Super-X)
#0	=	sign address, set by the switch on the sign processor
144x19	=	sign size in LEDs (number of columns x number of rows)
(C=3D00)	=	for Hanover engineer
P= 65/100	=	brightness of sign (100/100 is max (100%) while 10/100 is min (10%))

Sign address and size →

3.2.2 2nd method: Silver Label and Sign Processor

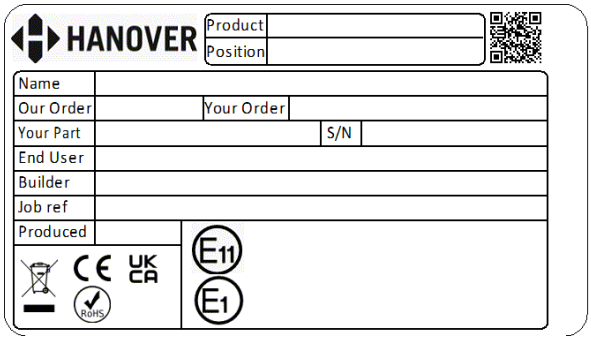
3.2.2.1 From the silver label (Pre July 2022): sign size

An identity label on the rear of each sign will show the sign type and size. It is helpful to have this to hand if contacting 9 Hanover Technical Support about the product.

Features	Meaning	Description
Product no.	Product number	Identifies the display type.
Position	-	Indicates where the sign is likely to be fitted on the vehicle.
Type	-	Installation type.
Our order no.	Our order number	Number used for internal use by Hanover.
Your O/N	Your Order Number	Number used to identify the order for this sign.
Your Part no.	Your Part number	Specific to each sign.

Features	Meaning	Description
S/N	Serial Number	Specific to each sign.
End User	-	Is generally the ultimate operator of the vehicle.
Builder	-	References the name/customer to which the product is shipped.
Job reference	-	For the use of builder or end user.
Manufactured	-	Date when the finished sign is available for shipment after all checks, tests and approvals are complete.
Made in the UK	-	Shows the country of manufacture of the sign.
Exx-yyR-zznnnn	United Nations Standard Type Approval (EMark) number	xx = country code. yy = regulation number. zz = regulation revision number. nnnn = approval certificate number.

3.2.2.2 From the silver label (Post July 2022): sign size



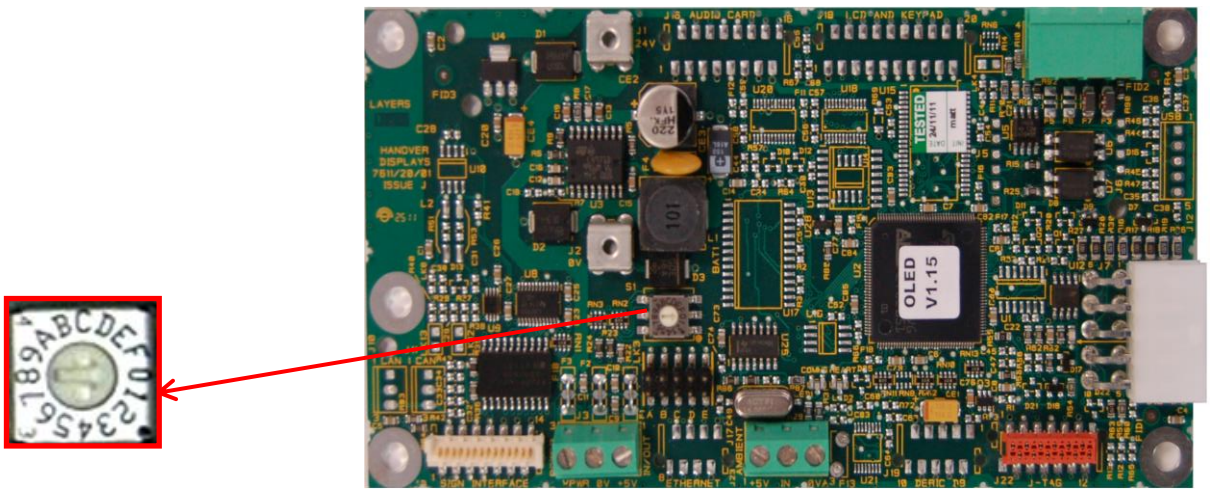
Features	Meaning	Description
Product	Product number	Identifies the display type.
Position	-	Indicates where the product is likely to be fitted on the vehicle.
QR Code	-	Serial number of product.
Name	-	Name of product e.g. size, colour etc.
Our Order	Our order number	Number used for internal use by Hanover.
Your Order	Your Order Number	Number used to identify the order for this product.
Your Part	Your Part number	Specific to each product.
S/N	Serial Number	Specific to each product.
End User	-	Is generally the ultimate operator of the vehicle.
Builder	-	References the name/customer to which the product is shipped.

Features	Meaning	Description
Job ref	Job Reference	For the use of builder or end user.
Produced	-	Date when the finished product is available for shipment after all checks, tests and approvals are complete.
	-	WEEE (Waste Electrical and Electronic Equipment) logo = Dispose of appropriately. Do not dispose of with ordinary refuse – on all products. CE = conforms; can be sold in EU. RoHS = product contains no hazardous substances. UKCA = same as CE but for Great Britain.
Exx-yyRaa-bb-nnnn-zz	The United Nations Economic Commission for Europe (UNECE) for automotive industry Regulation approvals mark	xx = country code of certifying body. yy = regulation number. aa/bb = revision of regulation nnnn = approval certificate number. zz = approval revision number (if any).
	UNECE Reg 10	Exx-**10R**aa-bb-nnnn-zz Conforms to the Electromagnetic Compatibility requirements of the vehicles and electronic sub-assemblies (ESAs) used in automotive industry.
	UNECE Reg 118	Exx-**118R**aa-bb-nnnn-zz Conforms to the requirements of the Burning Behaviour of Materials used in the interior construction of certain categories of motor vehicles.

3.2.2.3 From the sign processor: sign address

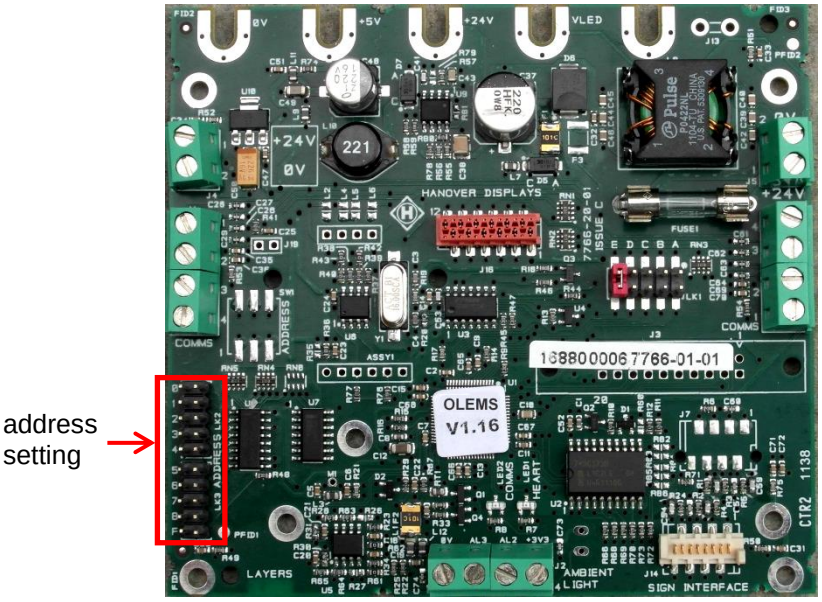
- **7524 or 7611 processor (for OLED signs)**

The sign address will be found by removing the rear panel(s) of the sign to reveal the processor. In the case of the 7524 or 7611 processors, the arrow on the switch is pointing to the address number. On the 7611 processor below, the switch is showing sign address ‘0’.



- **7766 processor (for OLEMS signs)**

On the 7766 processor below, the address setting is provided by the position of the link jumper. Default settings are: front = 0, side = 1, rear = 2.



4. Destination List Database

4.1 Creating a new directory / folder

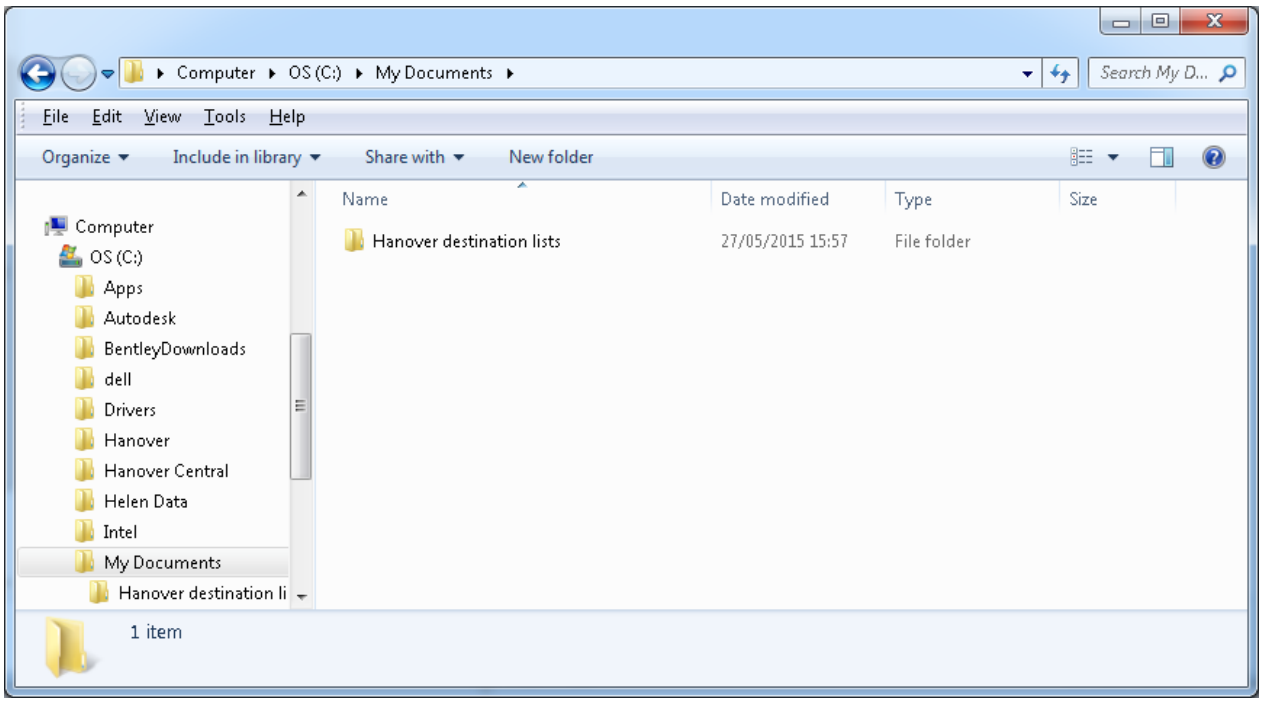
HELEN uses a database which includes a list of destination codes; route filenames are based on these codes.

Where more than one database is deployed, each should be stored in a separate folder as individual destination codes could be replicated in different databases. Storing one list per folder will avoid possible problems and confusion and also save on space.

Remember: each database must be stored in its own folder to avoid problems.

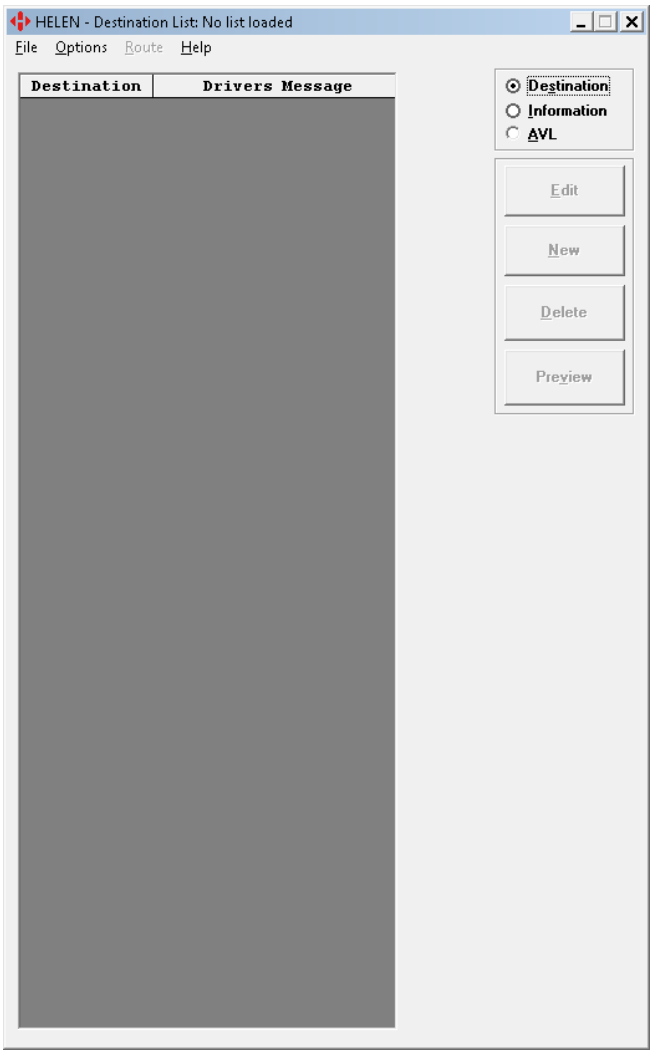
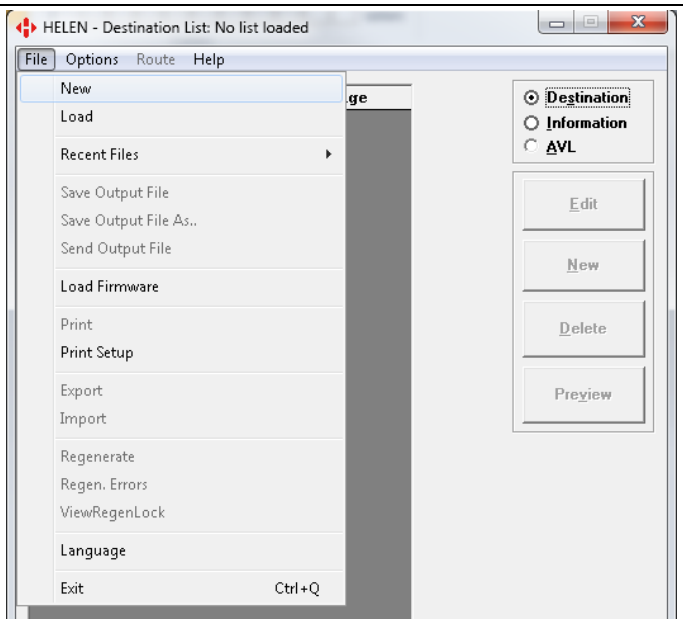
Files can be stored in any convenient folder although care should be taken if a shared machine is being used.

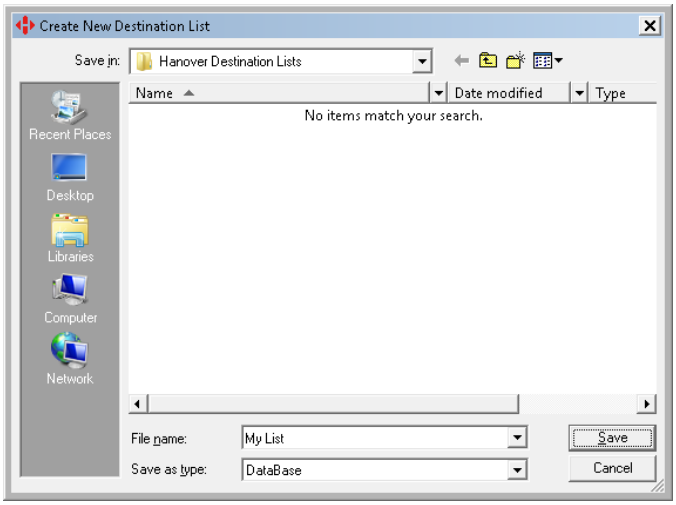
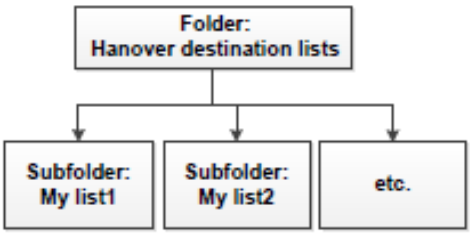
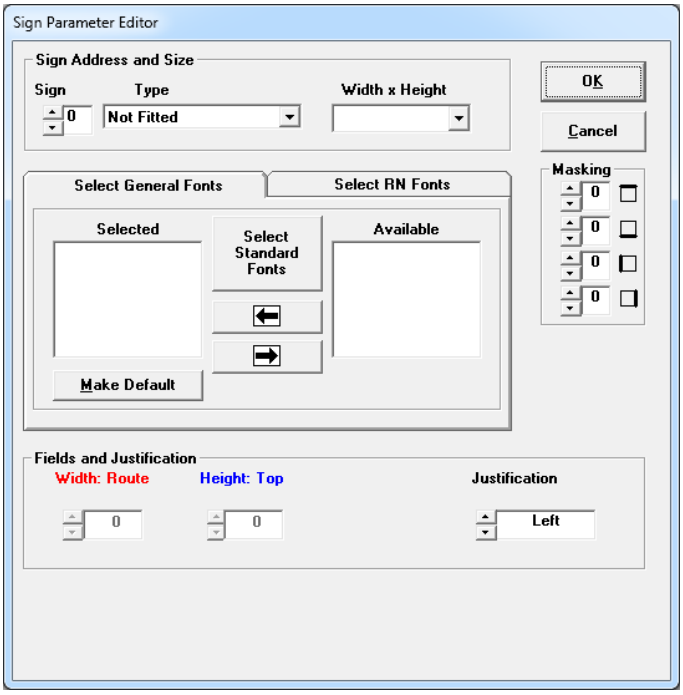
For example, to create a new folder in 'My Documents', select Start → Computer → Local disk: OS (C:) → My Documents → New folder.



Once HELEN is running, a new folder can also be created in the 'Create New Destination List' window by clicking on the folder button that appears third from the right.

4.2 Creating a new list

Step	Description	Figure
1	To open HELEN, double-click on either the desktop icon or ‘Helen 3.11’ under ‘All programs/Hanover Displays’. The main ‘Destination List’ window will be displayed.	
2	Select File → New. Choose a folder in which to store the list, for example ‘My Documents’. Alternatively, create a new folder.	

Step	Description	Figure
3	Create a new folder within that folder and name it ‘Hanover destination lists’.	
4	Open that ‘Hanover destination lists’ folder by selecting it and then clicking Open. In the Input box ‘File name’, enter the name of the subfolder e.g. ‘My list1’ and then click Save. The directory structure would then be: **Hanover destination lists\My list1**. **Note:** If more than one list is used, it is important that each list is in its own subfolder. The directory structure for: • the first list would be **Hanover destination lists\My list1** • the second list would be **Hanover destination lists\My list2** • etc.	 
5	The ‘Sign Parameter Editor’ window will be displayed. Refer to 4.3 Sign Parameter Editor for more details.	

4.3 Sign Parameter Editor

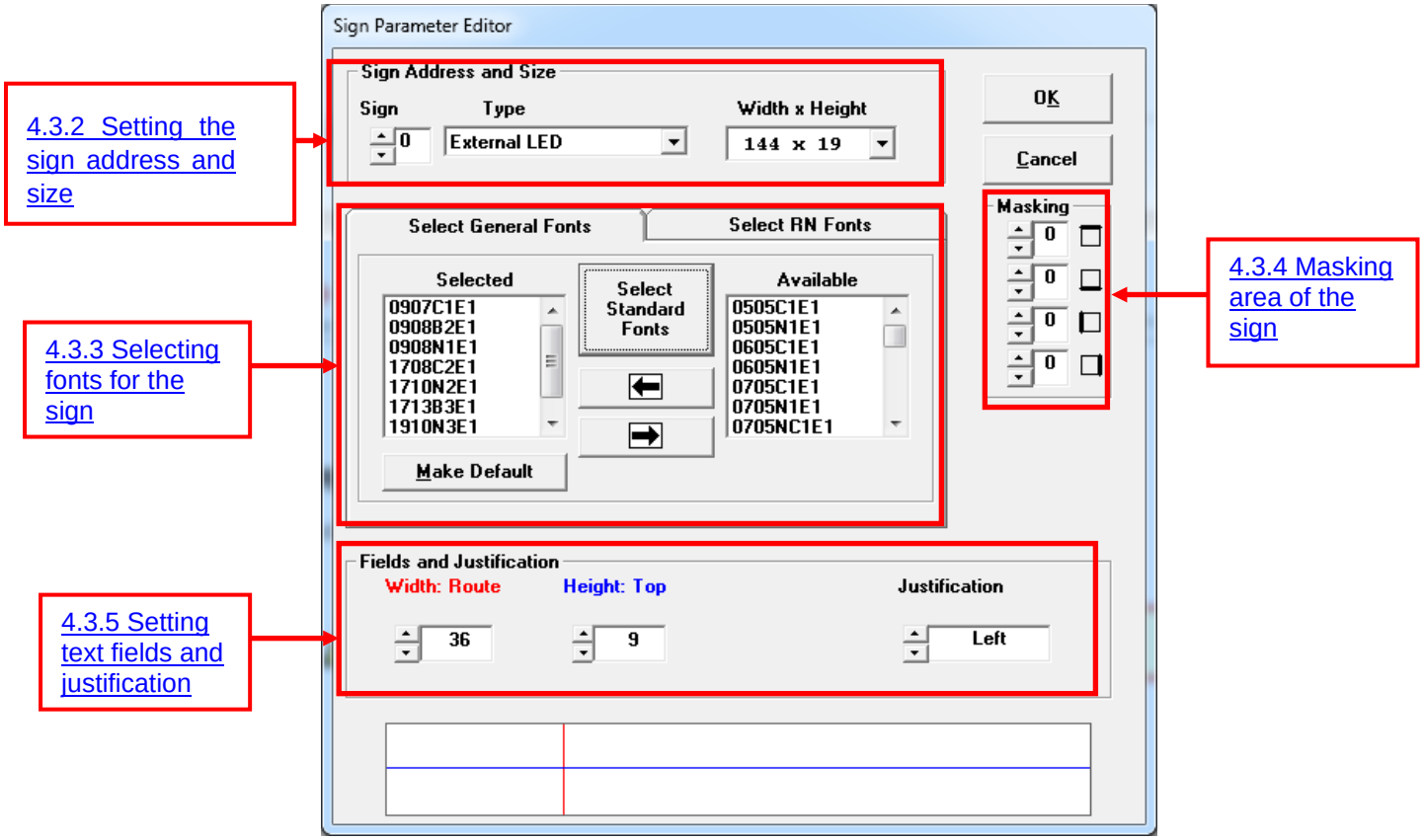
4.3.1 Overview

This is where the sign type, size and address details are entered. An example is shown below, detailing a bus with 3 signs fitted with standard default switch settings.

Switch setting	Position	Type	Size (W x H)
0	front	LED Destination sign	144 x 19
1	side	LED Destination sign	96 x 8
2	rear	LED Destination sign	32 x 17

This information now needs to be entered into HELEN, one sign at a time.

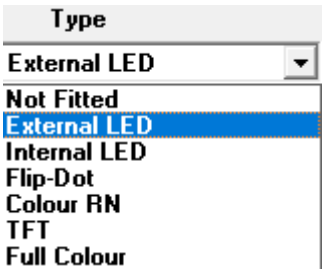
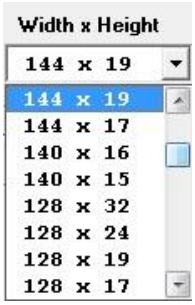
For switch setting 0 for example, the sign parameter editor has been configured as shown below:

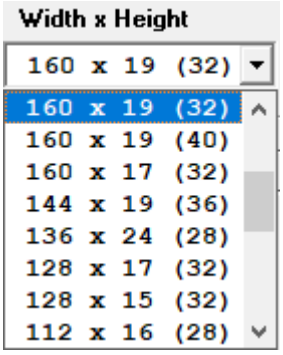


Note: To edit an existing sign configuration, choose ‘Load’ from the File menu in the Destination List window. Select the relevant list and click OK. Selecting ‘Sign config’ from the Options menu then delivers the ‘Sign Parameter Editor’ which, using the instructions below, allows the configuration parameters to be changed.

Note: Do not click OK until all the required signs have been configured.

4.3.2 Setting the sign address and size

<table>
<tr><th colspan="2">Parameter</th><th>Description</th></tr>
<tr><td rowspan="3">Sign Address and Size</td><td>Sign</td><td>Use of the up or down arrows:
to select the sign address
to add further signs
to move between existing signs within the destination list
The number (switch setting) will change with each click of the mouse.</td></tr>
<tr><td>Type</td><td>Use of the drop-down list to select the type of the sign:
 
</td></tr>
<tr><td>Width x Height</td><td>Use of the drop-down list to select the size (width x height) of the sign:
 

From HELEN software V3.12.06 onwards, colour RN and Full Colour signs have the panel size in brackets as shown below. For example, a Colour RN of 160 x 19 will have two panel width options of either 32 (for G3 range signs) or 40 (for G4 range signs). For more information, contact 9 Hanover Technical Support.
 
</td></tr>
</table>

There are 16 addresses available, numbered 0 to 15 (it will depend on the sign controller whether all 16 can be used) which are selected using the ‘Sign’ up and down arrows.

These will correspond to the actual address settings on the installed sign(s)[1] unless a profile has been set up (refer to 7.2.1 Console configuration submenu: profiles).

For example, if a particular sign has had its internal address setting set to 0, then the sign setting in HELEN should also be set to 0 when configuring the sign parameters.

Once the address has been set, the sign type needs to be set. Click on the 'Type' dropdown arrow and select the type of sign that has been installed at this address. The dimensions of the sign can then be selected from the 'Width x Height' field.

4.3.3 Selecting fonts for the sign

Parameter		Description
Select General Fonts / Select RN Fonts	Selected (Font names)	Each font is named using the following structure **hhwwstE1** or **hhwwstR1** where: • **hh:** height in dots • **ww:** maximum character width in dots • **s:** style i.e **C** for Condensed, **N** for Normal, **B** for Bold • **t:** vertical stroke width i.e 1, 2, 3 or 4 dots • **E:** character set – currently the Hanover European font set which includes Cyrillic and accented West European Latin Characters • **R:** font suitable for the route number field as the numbers and letters are all full height • **1:** a character set (from 0-9 or from A-Z)
Select General Fonts	Select Standard Fonts	The easiest way to select the most commonly used fonts for a given sign height is by clicking on the 'Select Standard Fonts' button.
		Individual fonts can be added or removed by highlighting the font and clicking the left- or right-hand arrows.
	Make default	The range of standard fonts can be augmented by selecting a user-created font and clicking the 'Make default' button. These fonts are then incorporated in the automatic font-fitting process. Manual selection can also be achieved as described in 8.3.2 Font Selection.

[1] Unless the user has set up his own signs, the installation engineer would have provided details as to what these are.

Parameter		Description
Select RN Fonts	Select RN Fonts	There are a number of fonts specifically designed for the route number field to give full height capital letters. The fonts can be selected in a similar fashion, by clicking on 'Select RN Fonts'.
		Individual fonts can be added or removed by highlighting the font and clicking the left- or right-hand arrows.
	Make default	Again, the list of standard RN fonts can be augmented by selecting the required user-created fonts and clicking the 'Make default' button. Up to 20 standard fonts for each sign size can be accommodated.

Fonts are required to produce the graphical image on the sign. Once a sign has been selected, only the fonts that will fit are shown. For example, a 144 x 19 sign has been selected which means only fonts up to 19 dots (LEDs) high can be used – of which there are 20 different examples. Useful font sizes are 19 and 17 as these make maximum use of the available space. Fonts 9 and 8 high are also useful as they allow two rows of text to be deployed separated by a blank row. As a rule, larger fonts are advisable for clarity and legibility reasons.

The process in sections 4.3.2 Setting the sign address and size and 4.3.3 Selecting fonts for the sign will need to be repeated for each additional sign required.

4.3.4 Masking area of the sign

The 'Masking' function is not necessary unless there is a problem with the position of the sign. For example, if it is mounted low down and the bottom row of dots cannot be seen due to an angle, this section can be masked electronically and will not be available when the destination information is written to the sign. Up to four rows from the top and four from the bottom can be masked, and up to nine from each side by clicking the 'Masking' up and down arrows. Any adjustments will be shown immediately in the graphic representation of the sign shown at the bottom of the window.

Remember that all vehicles using the same destination list will show the text on their signs, regardless of whether or not masking is necessary. It may therefore be necessary to product a duplicate list without masking if this is appropriate. Alternatively, masked signs could be allocated a separate address, thereby enabling just one list to be used.

Note: Masking is only available for graphic messages and will not have any effect in Super-X.

4.3.5 Setting text fields and justification

Other tools which contribute to the layout of the text are found within the fields and justification section. Use of these functions depends on the size and shape of the sign, with any adjustments again being shown in the graphic representation of the sign at the bottom of the window. The 'Width: Route' setting determines the maximum space available for a route number.

For example, if the sign is set to show a 16-dot high route number followed by two lines of text, the available space for this number can be adjusted. The 'Height: Top' function is similar but determines the space available for the top row of a two-line sign. It is generally recommended to accept the default values. The justification box simply sets the position of the route number either to the left or right of the text. Click the up and down arrows to toggle between the two.

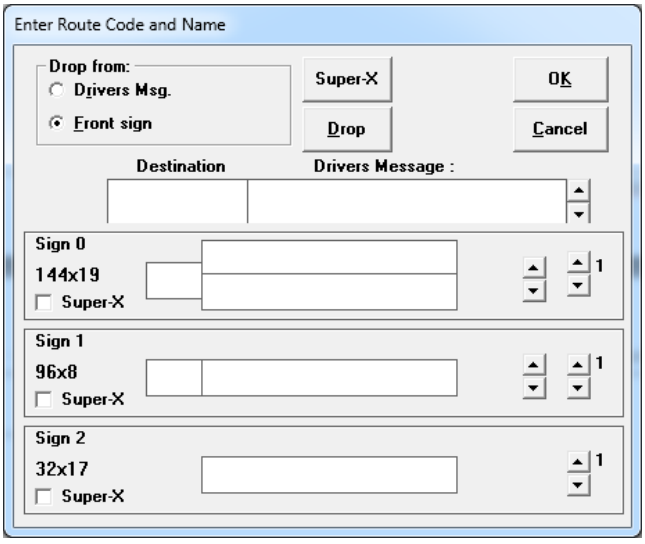
5. Destination Codes and Route Codes

5.1 Creating new destinations

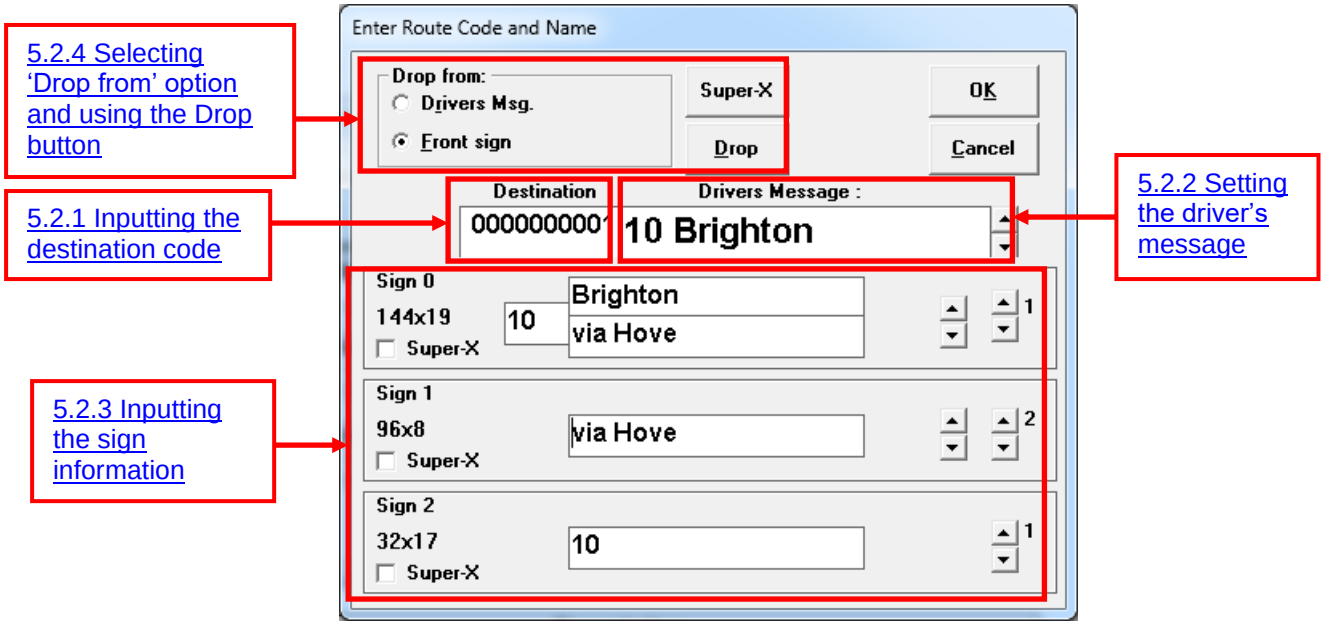
The sign parameters having been set up, the next stage is to add destination information.

The ‘New’ button, now available on the above main screen, will be used for creating new destinations.

When New is clicked, the following window ‘Enter Route Code and Name’ will appear. This window will show all the signs selected during the configuration process described in section 4.3 Sign Parameter Editor.



5.2 'Enter Route Code and Name' window



5.2.1 Inputting the destination code

In the box marked 'Destination', enter the destination code e.g. the first destination on the list – say, 1.

Each code entered must be unique within the list as this is the code to be entered on the controller by the driver. It can contain up to four alphanumeric characters if required. The 'Destination' box will automatically include additional zeros when the user clicks into another text box. In the figure in section, this has caused the '1' to become '0000000001'.

5.2.2 Setting the driver's message

The Drivers Message field is used to enter text that will be shown on the controller to indicate to the driver the destination corresponding to the destination code shown. Although this can be the same as the destination information itself, it is not always possible to fit all that information in. The driver's message can therefore be an abbreviation of the destination or some other text that would indicate the actual destination detail displayed. Up to 16 characters can be entered, or if the message needs to be longer than this, further 'pages' can be added by clicking the up arrow next to the message box. Up to 16 such pages are allowed for each destination and these will be shown sequentially on the controller.

5.2.3 Inputting the sign information

In the above example, the sign processor's address should be set as follows:

- Front sign: **Sign 0** (144x19) set to address switch '0'
- Side sign: **Sign 1** (96x8) set to address switch '1'
- Rear sign: **Sign 2** (32x17) set to address switch '2'

Parameter	Description
Sign 0 Sign 1 Sign 2 etc.	• Enter the route and destination information into the text box or boxes. Example: 10 / Brighton / via Hove (three text boxes). • The first set of up / down arrows, directly to the right of the sign, is used to change the number of text boxes required. In this example, the way the sign is to be used required three boxes. **Note:** boxes available via these up and down arrows will vary according to the sign size. • The second set of up / down arrows is used to add extra text when more than one 'page' is required e.g. if additional via points are needed. Signs that use just a single line of text will show additional information over two or more 'pages'; alternatively, the text can be made to scroll. In the case of sign 1, page 2 shows 'via Hove' so page 1 may contain the text 'Brighton' for example. The number adjacent to the arrows indicates the page number. **Note:** Sign 0 is also the switch setting for the sign processor on the vehicle.

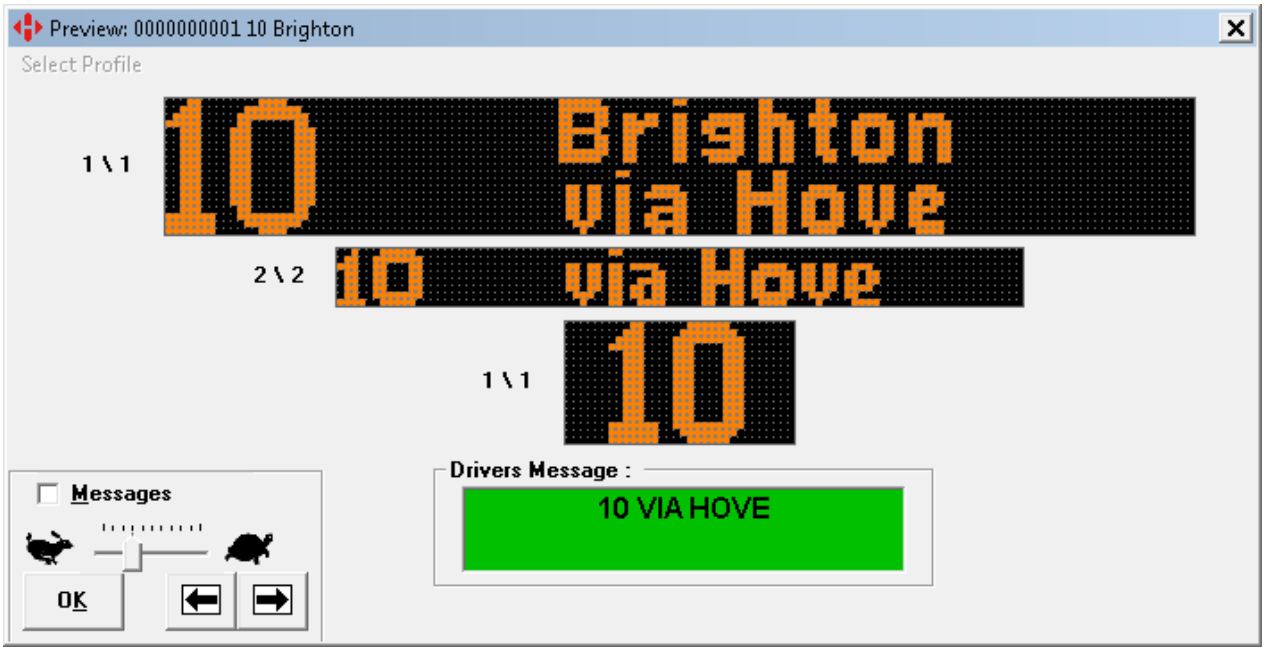
5.2.4 Selecting 'Drop from' option and using the Drop button

Parameter	Description
Drop from: / Drop	The Drop button is used to save time when inputting destinations although is optional as all information can be entered directly. In • If 'Front sign' has been selected as 'Drop from' option: Once the text is entered into the front sign (Sign 0:144x19), it will be duplicated to the other signs and to the **Drivers Msg.** when the button marked Drop is clicked. All boxes are still editable before and after the information has been dropped. • If 'Drivers Msg.' has been selected as 'Drop from' option: Any information in the driver's message box will be copied to the signs. This is a useful function as many signs may be installed; however, on clicking the Drop button, all information previously entered into this destination's fields will be overwritten so care must be taken.

5.2.5 Saving the destination information

When the text boxes are filled and to save the destination information, click OK.

The ‘Preview’ screen below will be displayed after it has generated the signs.



The preview screen shows, dot for dot, the image that will be created on the signs when the corresponding destination code is entered on the driver’s controller. It will also show the driver’s message (text only). The driver’s message preview will use the controller configuration parameters (refer to 7.2.1 Console configuration submenu: profiles) to show either one or two lines and to determine whether to convert to mixed case or leave in upper case.

Note: old controllers can only show upper case text.

- The single- / two-line setting is made in Options → Console config. → Select Profile → Modify → General. For more details, refer to 7.2.1.1 General.
- Case options are determined by a setting in the Configuration file (Options → Configuration). For more details, refer to 7.2.5 Configuration submenu.

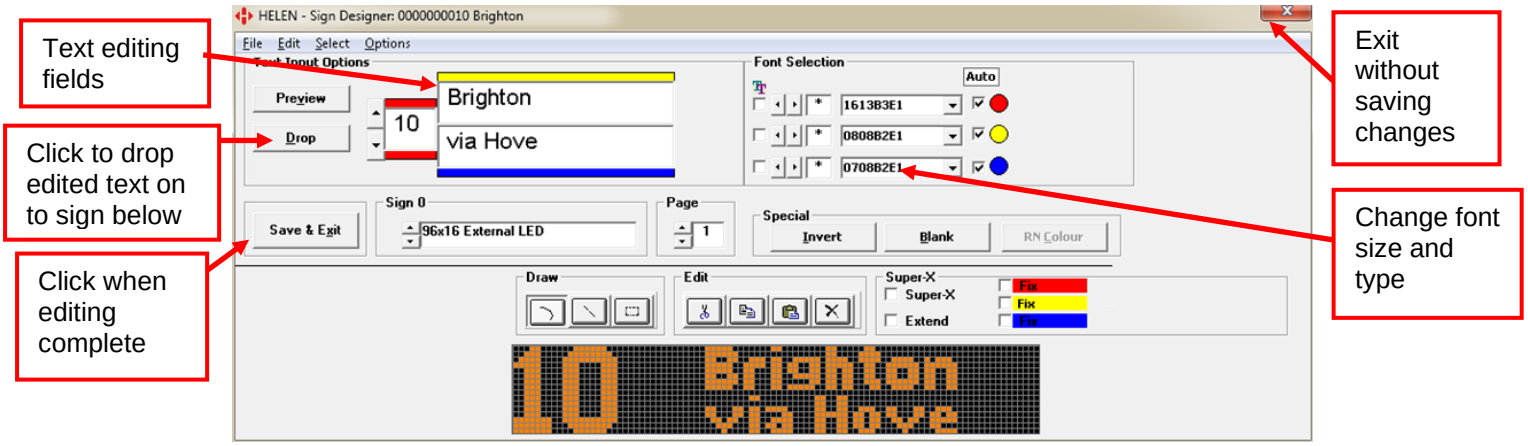
Press OK to return to the Destination List window. Repeat this process until all destinations have been entered. Note that each destination will need a unique destination code: HELEN will not allow duplicates.

Once a sign has been configured (refer to 4.3 Sign Parameter Editor) that configuration applies to all signs within the same list i.e. if sign 4 is set to 32 x 19 Colour RN, then all sign 4s within that list will be 32 x 19 Colour RN.

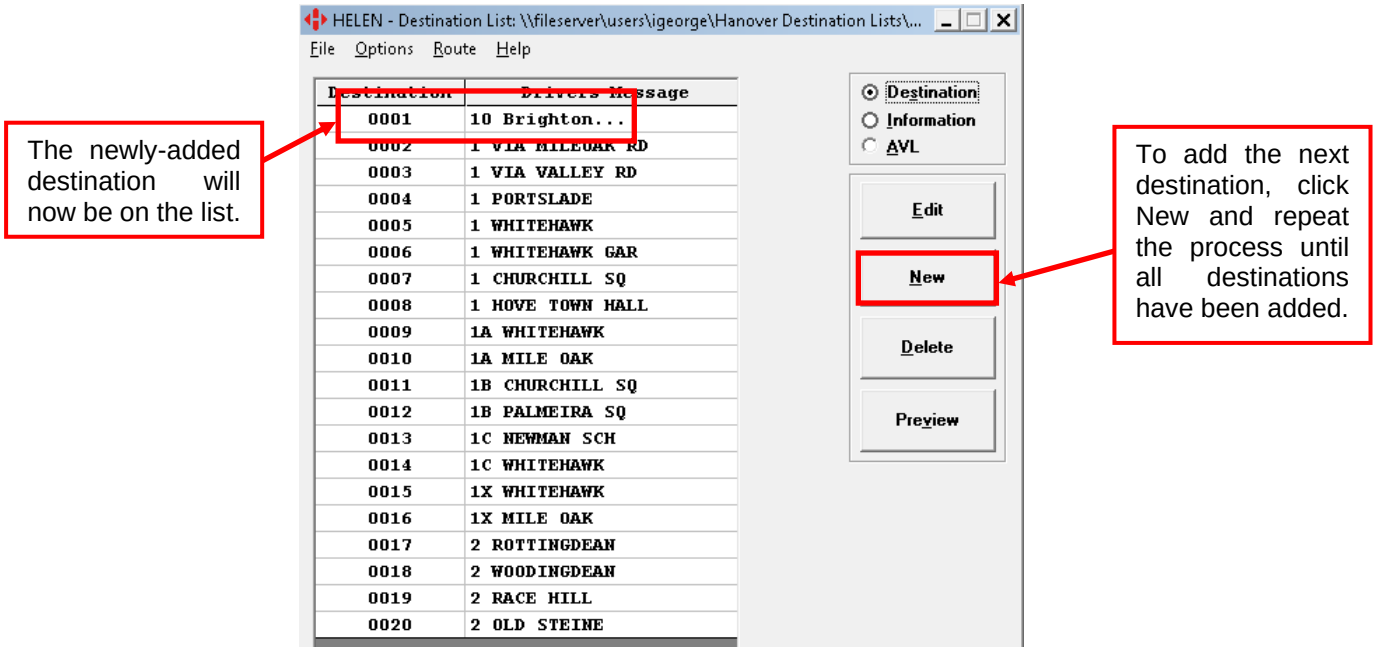
If there is more than one page, the preview screen will show pages three seconds by default. This rate can be changed by moving the slider. Moving the slider to the leftmost position will actually freeze the current page; this may seem odd as it is moving towards the fast symbol but it does allow speedy movement through the pages until the desired page is reached – which can then be frozen. In addition, the cursor hovering over a sign will show the sign size and type.

Check the signs. If editing is required, double-click on the sign to be changed and the following ‘Sign Designer’ window will appear.

For more details on ‘Sign Designer’ window, please refer to section 8 Sign Designer.



When the required edits have been made, click Save & Edit. The preview screen will then appear, showing the changes made. When all signs are correct, click OK. The main destination list window will be shown and the newly-added destination will now be on the list.



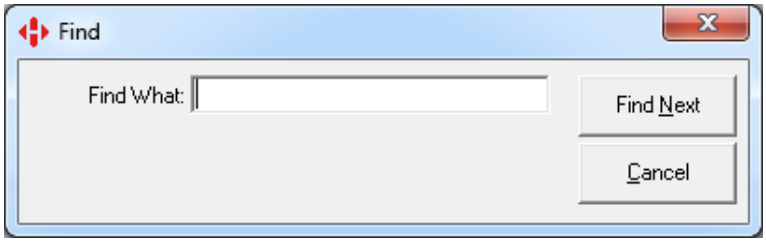
5.3 Editing an existing destination

Double-click a destination within the Destination List window, or click the Edit button on a highlighted destination.

The following 'Edit Route Code and Name' window will be displayed:

Both the destination code and the driver's message can be edited directly from this window. Click OK to save any changes or Cancel to discard them and return to the Destination List window. Edit Signs will show the sign designer window. For more details, refer to 8 Sign Designer.

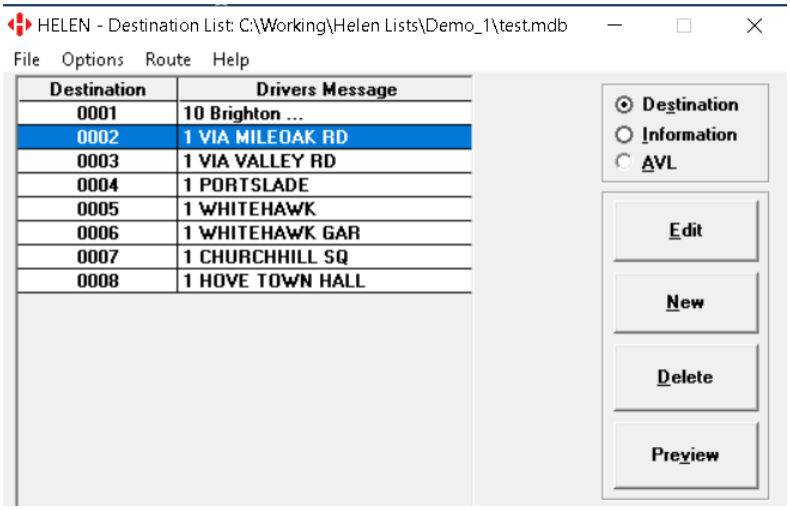
To find a destination in a long list quickly, click on Route from the Destination List window and select Find.



Any numerals or text or combination thereof entered in the 'Find What:' box will be found in list order, whether the search term is in the Route Destination or Drivers Message column.

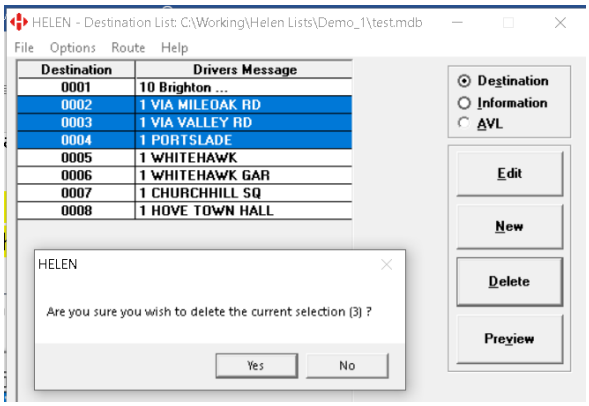
5.4 Deleting an existing destination

Destinations are easily deleted via the main Destination List window. Select the one to be removed and click Delete.



In the above example, code 0002 will be permanently deleted.

From HELEN V3.13 onwards, it is possible to select multiple destinations for deletion. A popup, which shows the number of files selected for deletion, will be displayed as follows:



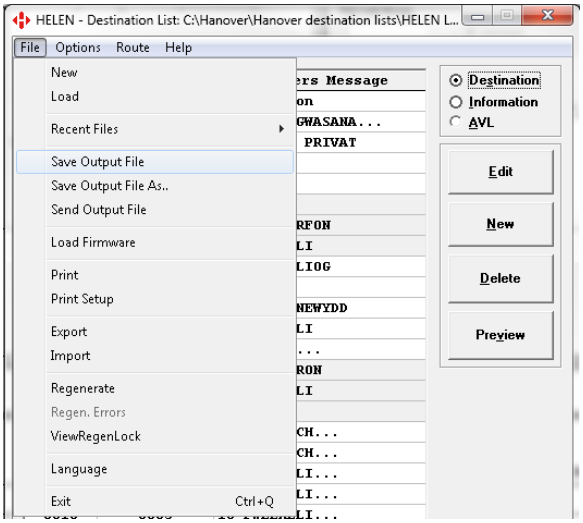
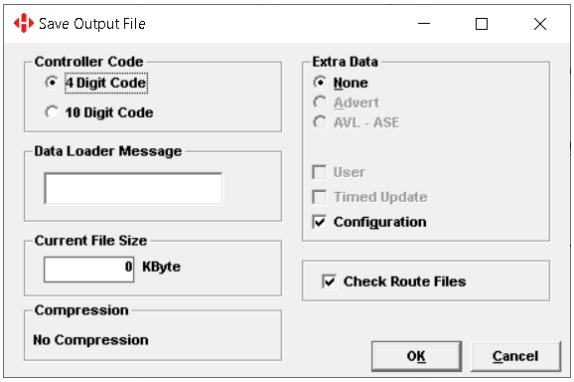
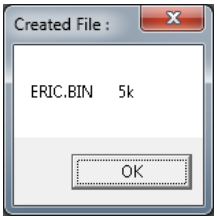
In the above example, items 0002, 0003 and 0004 will be permanently deleted.

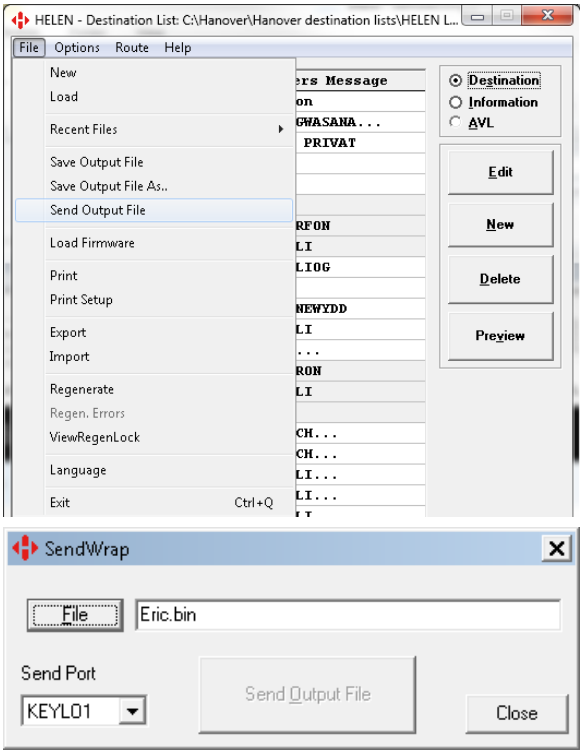
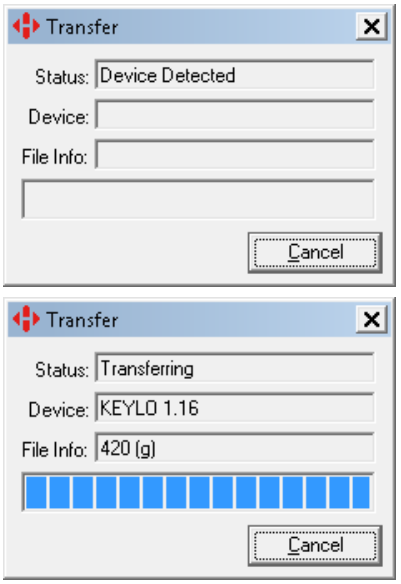
Deletion is permanent so make sure to select the destinations that should be deleted before selecting ‘Yes’ from the popup.

6. Saving and Uploading Destination Lists

6.1 For DERIC+ or ERIC++

6.1.1 Transferring destination list to Key-lo

Step	Description	Figure
1	Plug your USB cable to the base station and your PC. The ERIC.BIN file will be sent from the PC to the base station.	
2	On the HELEN main screen, click the “File” menu and then select “Save Output File”. **Note:** If the database has not been previously saved, it will now be automatically saved and the following screens will then be displayed. Verify that the options selected are correct and then click OK. ‘Check Route Files’ will check the details of the signs fitted against the details found in the route files. Any discrepancy will create an error list. Click OK to save the database.	  

Step	Description	Figure
3	On the HELEN main screen, click the “File” menu and then select “Send Output File”. The following “SendWrap” window will appear as shown. **Note:** Please make sure ‘KEYLO1’ is set in Send Port.	
4	Plug the Key-lo into the base station.	
5	The transfer will automatically start. When the light of the Key-lo turns solid green and the status bar on the computer screen turns completely blue, the transfer has completed.	
6	You can now remove the Key-lo from the base station.	

*Advanced options of ‘Save Output File’ window:

- **Controller code:** Some features like Appendix D: Route Browse require the use of 10 digits but generally a 4-digit code will handle a list of up to 9,999 routes which should be sufficient for most users. However, if in doubt, unless the controller is very old, the controller code can be set to ‘10’ although it will slightly increase the size of the load file.

  An additional feature provides for the HELEN program to examine the list, determine if Route Browse is in use and, if so, select the 10-digit code setting automatically.

- **Data Loader Message:** If an ERIC / DERIC controller is being used as a dataloader (from HELEN version 3.0) then the text entered here will be shown on the controller screen (this has no effect if a Key-lo is being used as a dataloader).

  Note: a DG3 or EG3 cannot be used as a dataloader.

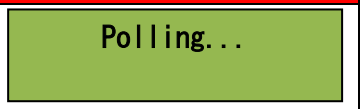
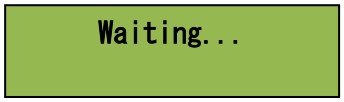
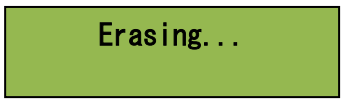
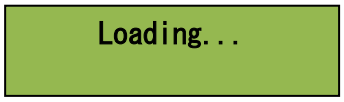
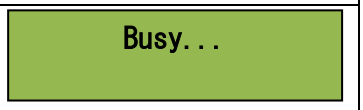
- **Current File Size:** indicates the size of the binary file and should show ‘0’ until an output file is created.
- **Compression:** refer to 7.2.5 Configuration submenu.
- **Extra Data:** If advert or AVL files have been created, select them here. They will then be included during the upload of the file. The Configuration box should be ticked if the parameters already set to configure the controller are to be sent to the controller. Note: these items will only become active if there are parameters to send i.e. ‘AVL – ASE’ will only be active if an AVL list has been prepared and an ASE.bin file exists in the data list folder.

6.1.2 Key-lo loading to a DERIC+ or ERIC++ controller

If there is a valid file stored in the Key-lo, the file transfer will begin automatically as soon as it is plugged into the controller.

IMPORTANT: Ensure the controller is powered before inserting the Key-lo.

Step	Description	Figure
1	Plug the Key-lo into the 9-way D-type connector on the front panel of the controller. The Key-lo LED will flash green briefly and then become a steady red colour. Once the communication starts, the Key-lo LED will begin a sequence of flashes.	• DERIC+: • ERIC++:

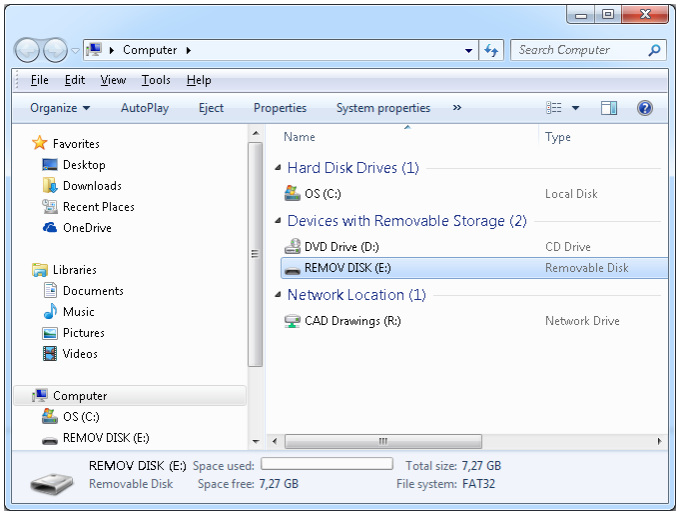
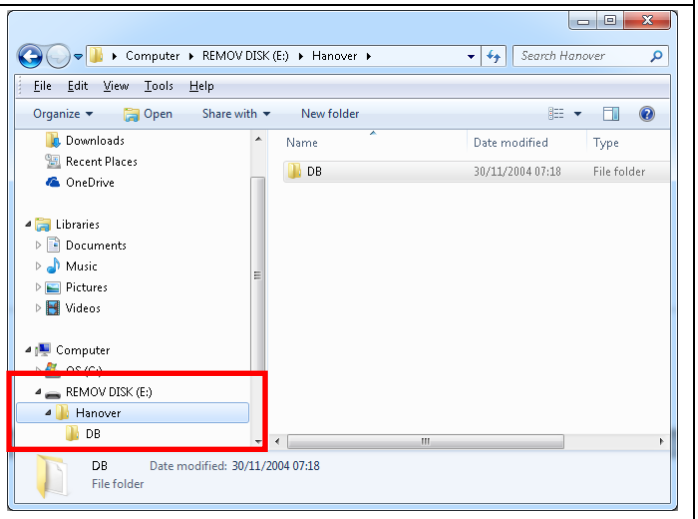
Step	Description	Figure
	The following screens will be displayed on the controller:	   
2	Once the LED on the Key-lo stays green, the Key-lo has successfully completed communication with the controller and should be removed.	
3	The controller will reset and depending on the size of the file transferred, the 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. • If file transfer is successful, the controller will either display “idle” or revert to last selected destination (if the previous and newly downloaded database both contain the same destination number). • If file transfer is not successful, the controller will display “NO DATA”. If this occurs, then either the file transfer did not complete successfully or the file transferred was not suitable for the controller. The Key-lo LED should also flash to indicate an error has occurred. A download should be attempted again. If this fails, then please contact 9 Hanover Technical Support.	 or

6.2 For DG3 or EG3

6.2.1 Configuring the USB stick for loading

To ensure the correct data is loaded, an Eric.BIN file is saved on the USB stick using the directory structure **X:\Hanover\DB** (where X is the drive allocated by the PC to the USB stick).

The table shows how to configure the USB stick:

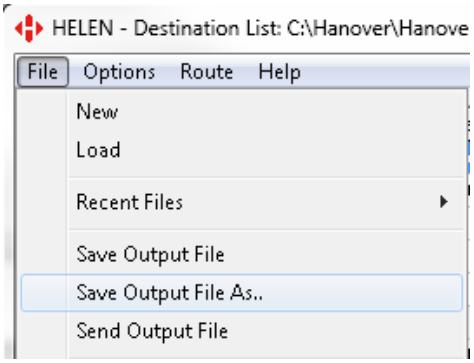
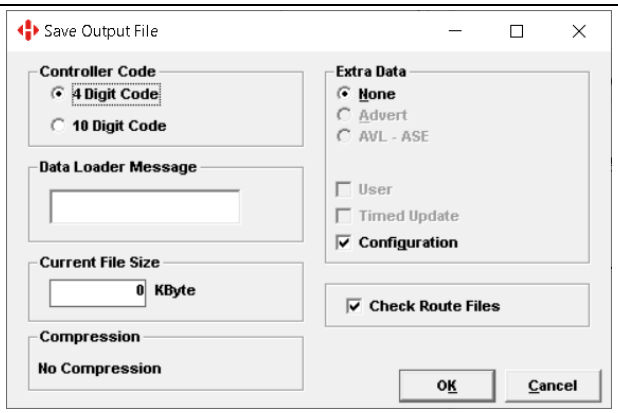
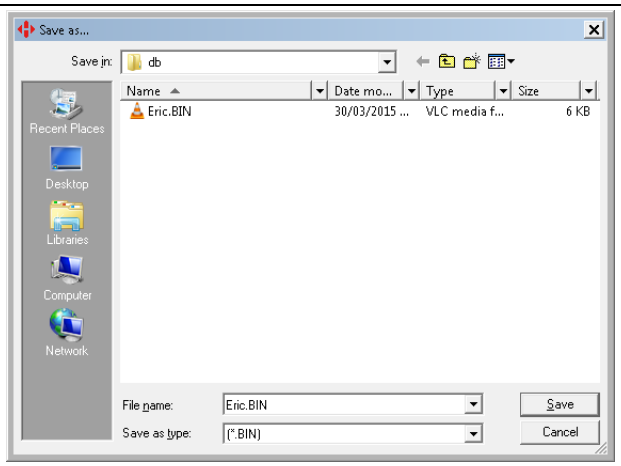
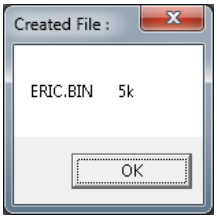
Step	Description	Figure
1	Insert the USB stick into the PC and locate it. In our case, it appears as **REMOV DISK (E:)**. **Note:** The name and drive letter are variable and in this case, the drive letter allocated to the USB stick by the PC is 'E:'.	
2	On the USB drive, create a folder called '**Hanover**'. Open this folder and create another folder within it and name it '**DB**'. **Note:** 'DB' stands for DataBase.	
3	The USB drive is now set up to download any ERIC.BIN file into the 'DB' folder.	

USB sticks sometimes fail: try another stick before assuming the problem lies elsewhere.

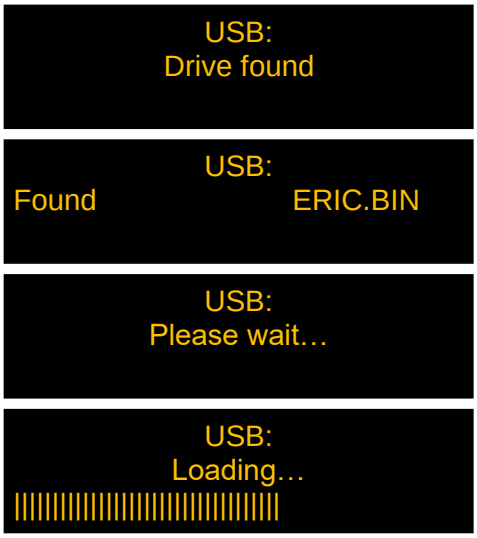
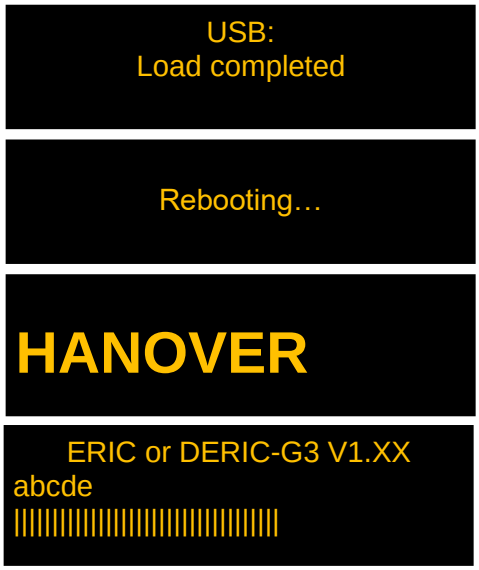
The USB stick must be formatted to use the FAT32 file system.

6.2.2 Transferring the database to the USB stick using HELEN

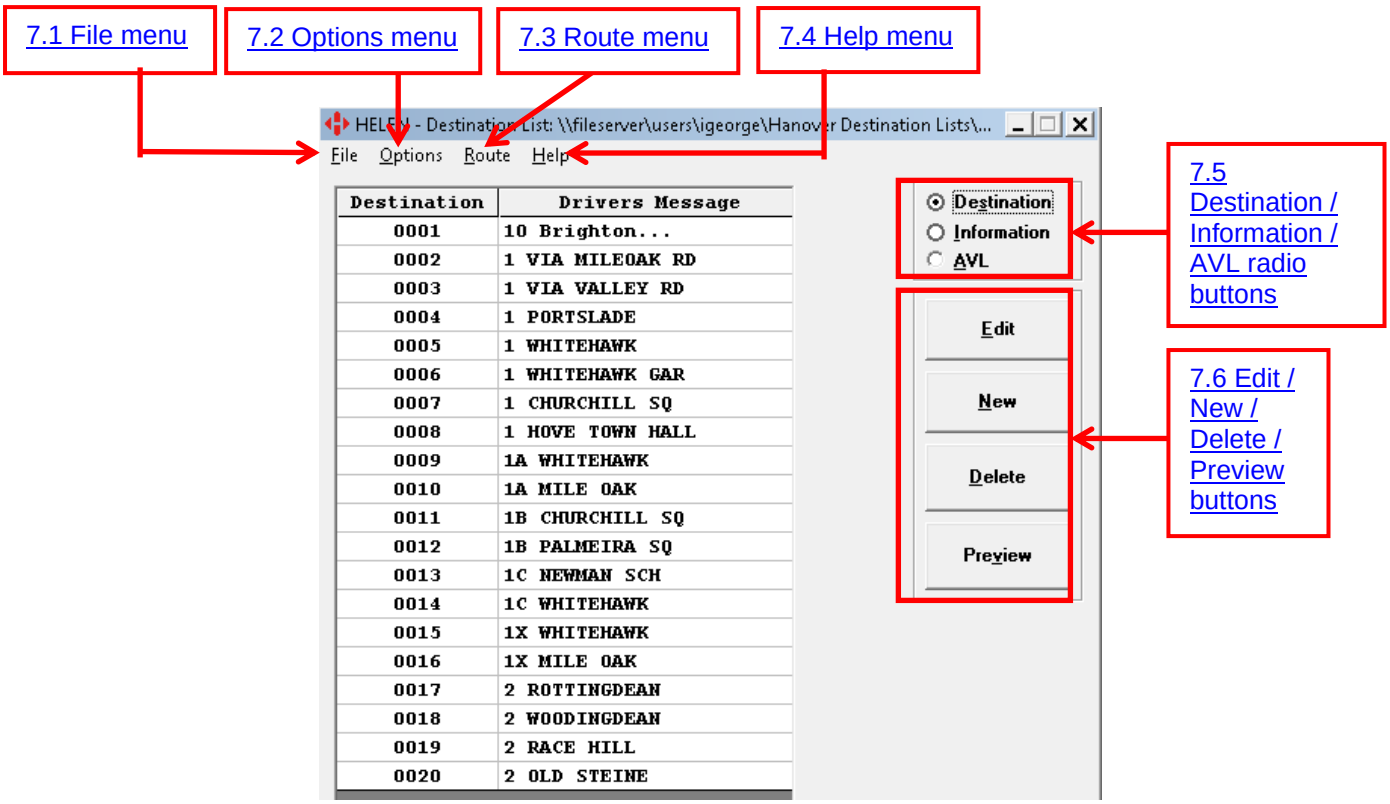
To load the database to the USB stick using HELEN, please ensure the USB drive is connected to the PC.

Step	Description	Figure
1	In the main HELEN window, click File → Save Output File As.. as shown.	
2	Verify that the options selected are correct and then click OK. 'Check Route Files' will check the details of the signs fitted against the details found in the route files. Any discrepancy will create an error list.	
3	The 'Save As…' window will appear as shown (it may be necessary to browse to the USB folder → Hanover folder → DB folder). Ensure the text in the 'File name:' box is Eric (or Eric.BIN) and that the 'Save as type:' box has [*.BIN] in it.	
4	Click Save. **Note:** subsequent downloads will already have a file called Eric.BIN shown in this window: it will be overwritten.	
5	The database has been saved to the USB stick inside the DB folder. Click OK.	

6.2.3 Transferring the database from the USB stick to the DG3 or EG3

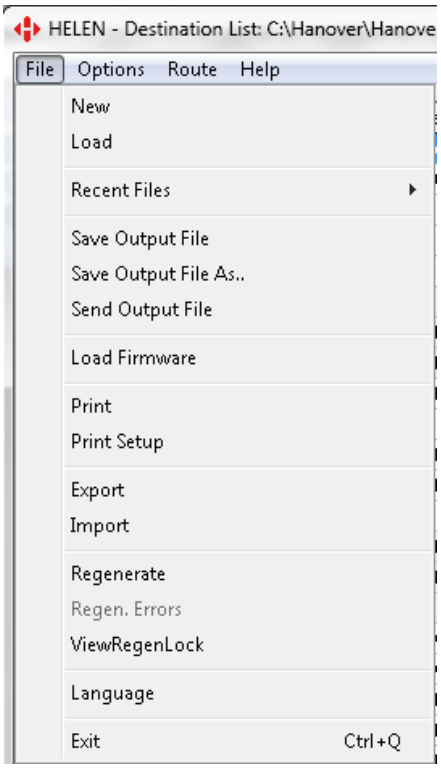
Step	Description	Figure
1	Insert the USB stick into the port in the front of the controller. The DG3 or EG3 will automatically find, transfer and save the database as shown.	
2	When it has finished, a request to remove the USB stick will appear as shown.	
3	The DG3 or EG3 will re-boot once the USB stick is removed and will show the last inputted destination code. However, this number may not correspond with the new list loaded, in which case 'Bad destination' will then be shown: try inputting a number from the new list. If the controller is in 'remote' mode (i.e. the signs are being driven by an on-board computer), its screen will show 'Idle'.	
	Note that if the Eric.BIN file is corrupt, or no valid files can be found on the stick, the controller will show the following message 'Remove USB drive:' and will flash and beep continuously until the USB stick is removed, whereupon the DG3 or EG3 will reboot. This will not make any change to the current loaded file.	

7. HELEN Main Window - Opening Screen Functions



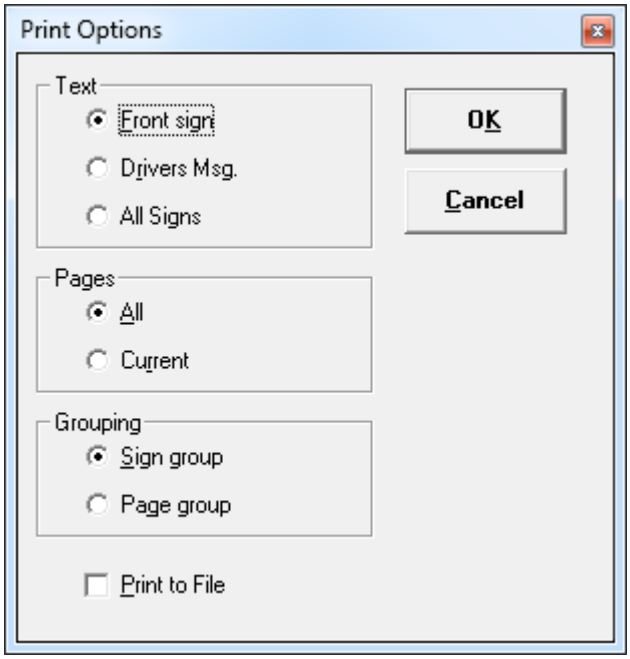
This section covers the list of options available from the opening screen and gives a brief explanation of each.

7.1 File menu



Menu item	Brief description	Refer to section
New	Create new database. **Note:** only one database in any one directory/folder.	4.1 Creating a new directory / folder
Load	Load an existing database	-
Recent Files	Display a number of recently used lists. The number of items displayed is set by MaxNumberOfRecentFiles in Helen.ini – the default is set to 10.	Appendix B: HELEN initialisation file (helen.ini)
Save Output File	Create the file for the controller – usually Eric.bin	-
Save Output File As…	Method to save the load file to a different directory or under a different name	6.2.2 Transferring the database to the USB stick using HELEN
Send Output File	Load file into controller using Key-lo (via Save Output File window if file has not already been saved)	6.2.3 Transferring the database from the USB stick to the DG3 or EG3
Load Firmware	This item will activate a file transfer program (the same one used to send the output file) which gives an easy method to update the controller firmware with a new version of Eric / Deric / DG3 / EG3 software should the need arise.	-
Print	Print the contents of the signs	7.1.1 Print submenu
Print Setup	Set up printer for above	-
Export	Export the list to a CSV file	7.1.2 Export submenu
Import	Import a list from a CSV file	7.1.3 Import submenu
Regenerate	Use existing text to re-create a sign image on a changed or new sign	7.1.4 Regenerate submenu
Regen. Errors	View errors where the text will not fit on the sign	7.1.4 Regenerate submenu
ViewRegenLock	Examine pages on signs that have been locked	7.1.4 Regenerate submenu
Language	Choose operating language	7.1.5 Language submenu
Exit	Close HELEN	-

7.1.1 Print submenu



The Print function generates a hard copy of the contents of the signs.

The Print Options window determines what is printed.

Notes:

- The usual Windows Print dialogue box is not shown.
- For a large database, hard copy printing can use significant amounts of paper.

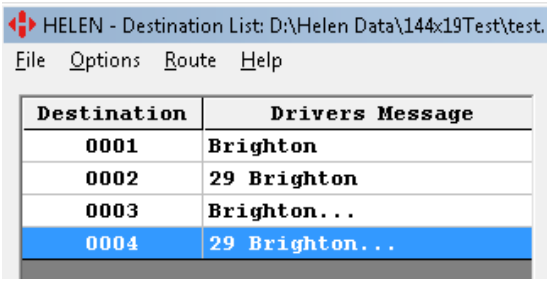
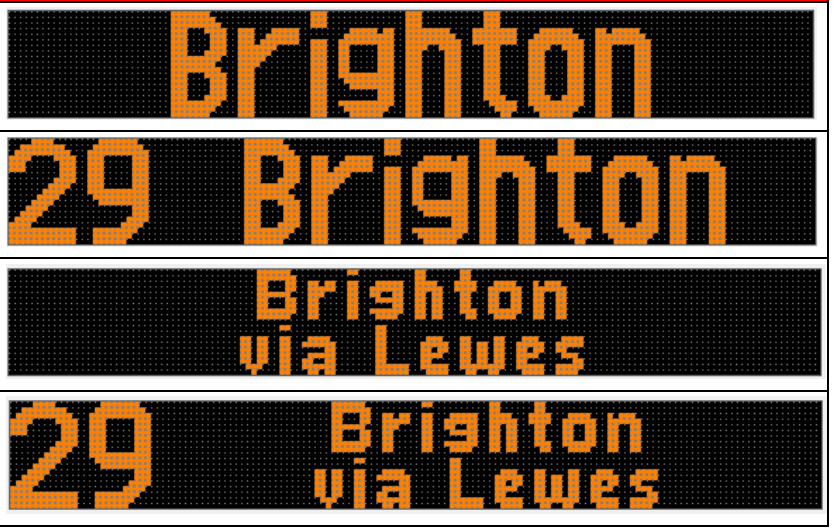
Parameter	Description
Text	Selects from just the front sign or driver's message or will print out all signs.
Pages	Selects either every page for the sign(s) selected or just a single page.
Grouping	Will either group together all pages for a particular sign (Sign group) or will group together all the signs showing a particular page (Page group).
Print to File	Redirects the output to a file rather than a printer. This file can then be printed later if required.

7.1.2 Export submenu

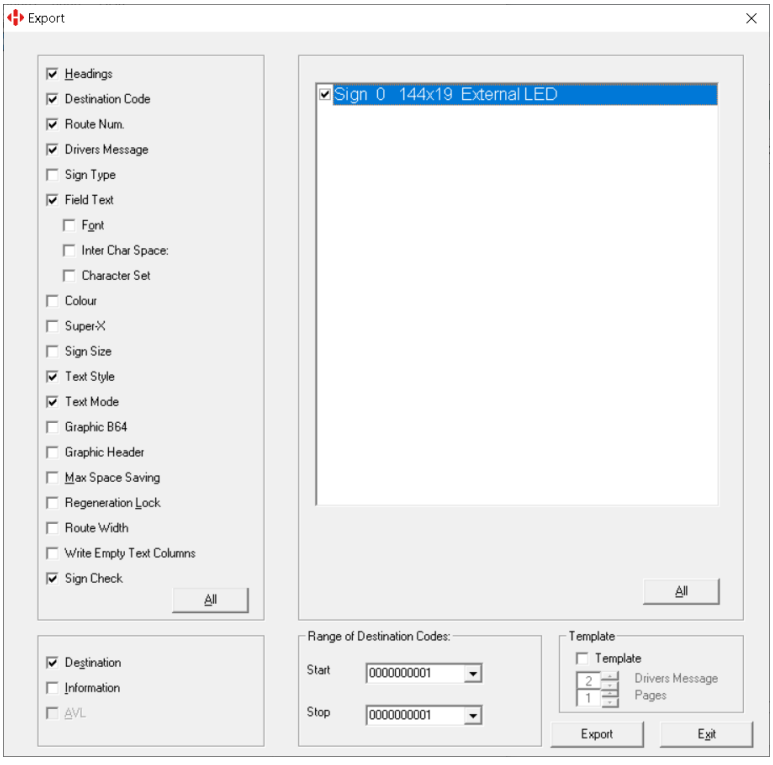
The background to this feature is to able to **Export** the information contained in all the route files into a single **C**omma **S**eparated **V**alue (CSV) file. A CSV format will allow easy modification in a spreadsheet[2].

[2] Open Office Calc is recommended as it does not automatically reformat the data e.g. the leading zeroes for a destination code will not be trimmed and the columns will be displayed in the correct width. Also, very importantly, the handling of quoted cells is handled automatically.

For example:

HELEN – Destination List	Preview
	

By selecting **Export** from the **File** menu, the following window showing a list of sign configurations and available signs will be displayed.



If for example, Sign 0 and then Export are selected, an “EXPORT.CSV” file will be created. Export will by default select the most common items but every item can be selected by clicking ‘All’.

The range of routes to be exported can be set.

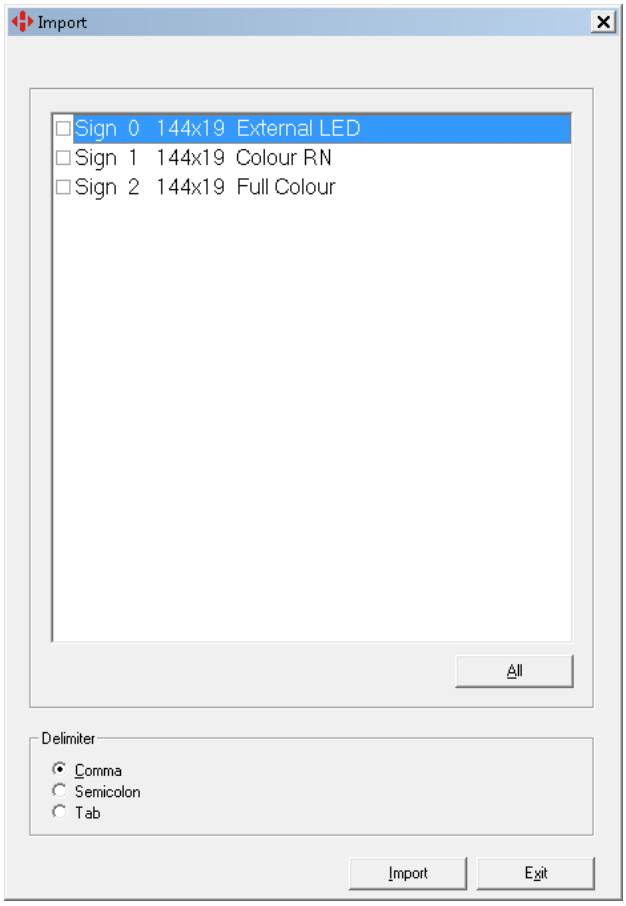
The options for AVL and Information messages will be enabled if such files exist in the list.

Refer to Appendix N: Export Submenu for more information about available export parameters.

7.1.3 Import submenu

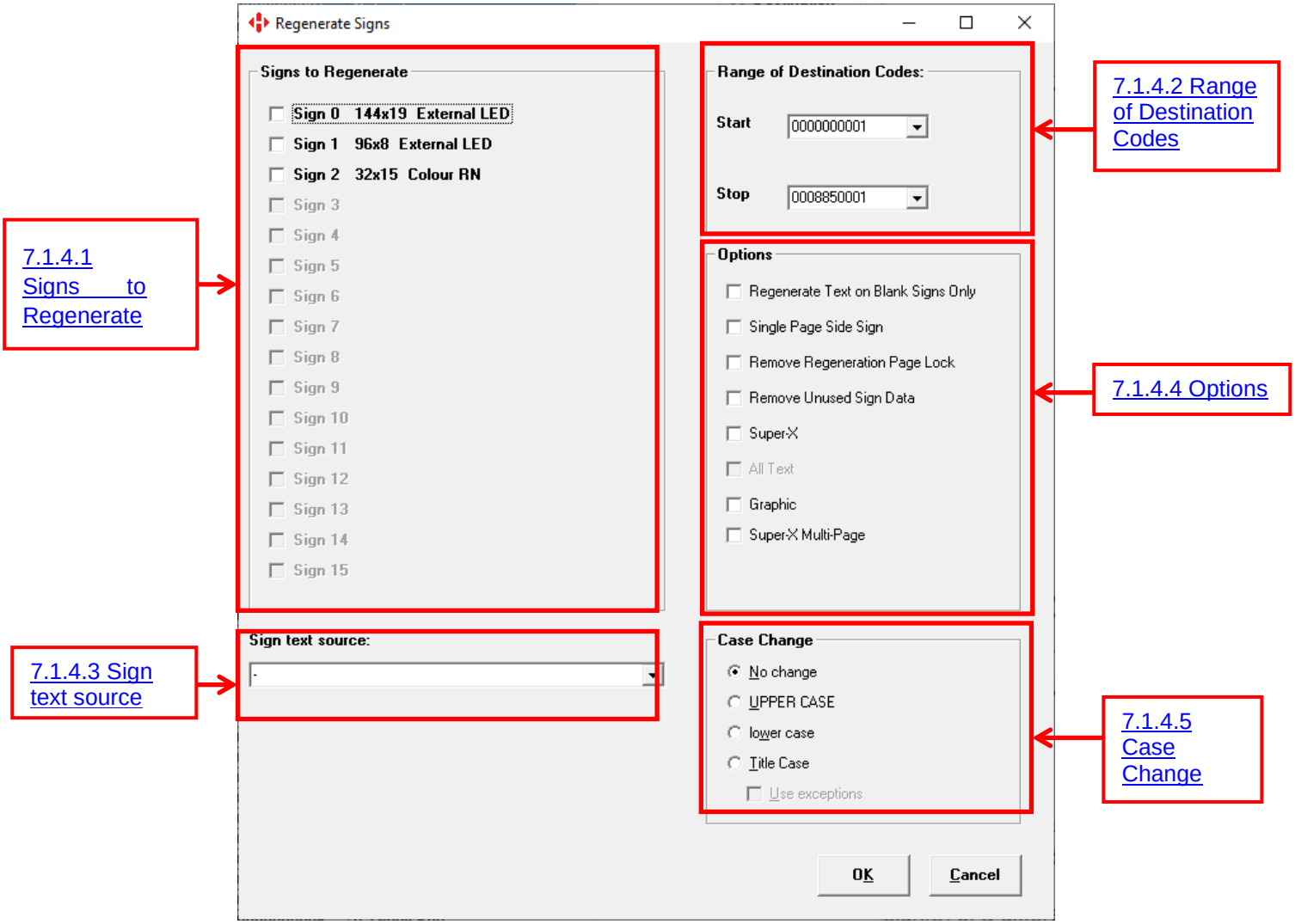
The import feature is effectively the reverse of Export. It will extract information from the CSV file and either update or create the corresponding route files. The importer will only import from columns that exist i.e. if there is not a valid column name, the importer will ignore any data in that column.

When the import menu is activated, a file selection dialogue will display any CSV files in the folder. When the file has been selected, the program will scan the CSV file to determine the most likely separator being used (Comma, Semicolon or Tab) and the number of signs in the file.



The above example shows that a comma delimiter has been detected along with three signs. The importer can import data to update any or all of the signs. Remember that only data correctly stored in the CSV file can be imported and any missing columns will leave the data in the list unchanged.

7.1.4 Regenerate submenu



Regeneration is a useful timesaving feature. It can be used to change the type and / or size of a sign, or add new sign(s) to the system. Regeneration takes the sign text and size / configuration information from one sign and copies it into another sign(s) of a different size / configuration.

Regeneration can be used for:

1) Changing from a flip-dot sign to a LED sign

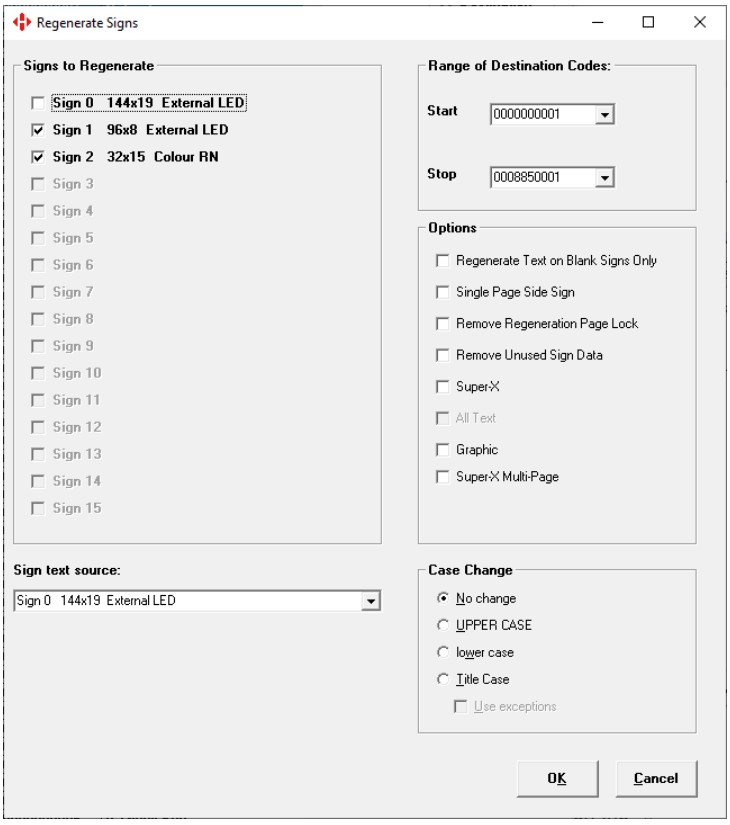
In the Sign Parameter Editor's Sign Address and Size section (refer to 4.3 Sign Parameter Editor), select the existing sign number to be changed and then select the new type. Click OK and then select 'Regenerate' from the File menu.

This example shows how sign 0 of destination 10 can be updated. The default value '-' has been selected in 'Sign text source' which means that sign 0 will take its existing text and place it in the newly-selected sign 0.

2) Copying data from an existing sign to a new sign; this avoids the need to re-enter the same information again for each new sign

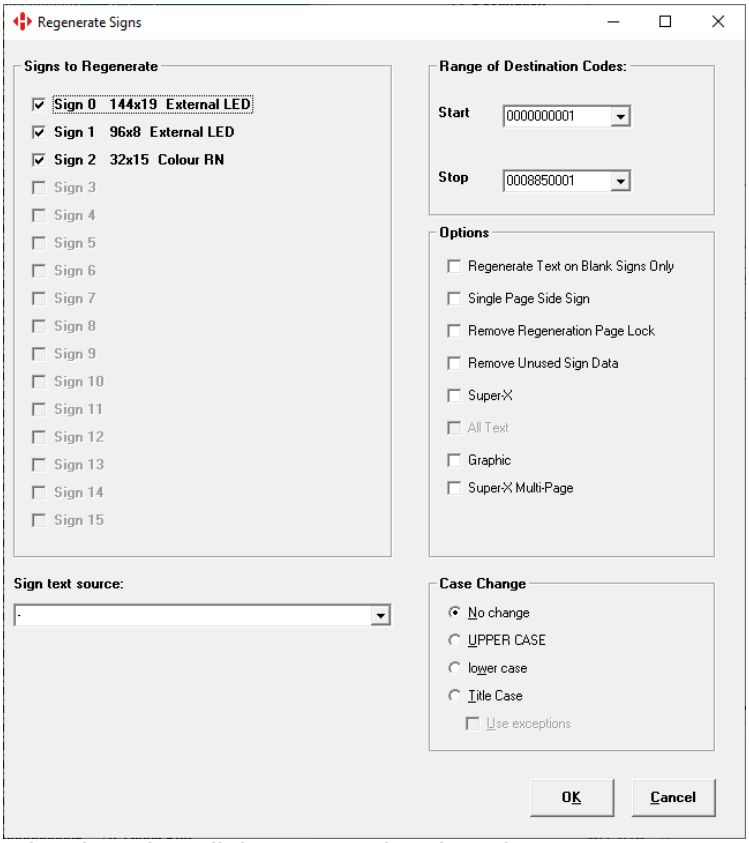
When creating a new database, initially placing all the information in just one sign saves time – for example, sign 0 (usually the front sign). This information can then be copied to any other signs in the system – including one newly-added.

In this example, the information is to be copied from sign 0 (the source sign) so it has been selected in 'Sign text source'. The information on Sign 0 will be copied to signs 1 and 2 which have been checked in the 'Signs to regenerate' section.



3) Altering the size or configuration of a sign; for example, changing the justification of the route number, the extent of any masking areas or the fonts used in a sign

This is similar to above case 1). In the 4.3 Sign Parameter Editor, select the existing sign number to be changed. Sign configuration parameters (such as route number justification) can then be altered.



For example, in Sign Parameter Editor, change the justification for each sign from a left to a right route number field and then select 'Regenerate' from the Destination List's file menu to regenerate each sign.

Again, the default value '-' has been selected in 'Sign text source' which means that all three signs will take their existing text and place it in the corresponding newly-configured signs.

Regeneration can also be used if, for example, only a large front sign exists but a new side sign and / or route number sign are then added. Data from the front sign can be used for regeneration on the side sign. The regeneration process will automatically extract any route number information and place it into a route number-type sign.

4) Changing the case of the sign text; for example, changing all the text on the signs from upper case to title case (i.e. only the first letter of each word is a capital letter).

7.1.4.1 Signs to Regenerate – Selecting the sign(s) on which to regenerate texts

On the 'Regenerate Signs' screen, select the signs that will be taking the regenerated text by ticking or clearing the boxes in the top left of the screen. If only a single page is required on regeneration, tick the 'Single Page Side Sign' box. This is useful if only the route number and destination from a front sign are to be placed in a side sign (i.e. no additional pages containing the via information from the front sign are required on the side sign). It is possible to regenerate only blank signs by ticking the 'Regenerate Text on Blank Signs Only' checkbox. This is useful is it is desired to restrict regeneration to newly-added signs.

7.1.4.2 Range of Destination Codes – Selecting a specific range of destination codes

By default, the entire destination list will be selected but the regeneration process can be limited to a specific range of destinations by selecting the 'Start' and 'Stop' destination codes on the top right of the regeneration screen.

If AVL information is to be regenerated, then AVL must first be selected on the opening screen (refer to 5.1 Creating new destinations) before selecting 'Regenerate' from the Destination List file menu.

7.1.4.3 Sign text source – Selecting the sign from which to take the text

Select the existing sign number the text is to be taken from by using the drop-down list box 'Sign text source'.

The default setting is '-'. This means that for each sign selected in the 'Signs to Regenerate' section, the sign from which the text is to be taken will be the same one that the text is regenerated back to. This is useful

when only the size and / or configuration of a sign is being changed and is explained in the above examples 1) and 3).

7.1.4.4 Options

This section allows some additional control over the regeneration process.

Parameter	Description
Regenerate Text on Blank Signs Only	As described, any existing text will be retained.
Single Page Side Sign	This stops multiple pages being regenerated on a side sign: only the first page will be included.
Remove Regeneration Page Lock	When a page has been edited manually, an automatic regeneration lock is placed on that page to prevent accidental removal. This option allows the page to be overwritten.
Remove Unused Sign Data	When a sign is removed from 'Sign Configuration', its contents will remain in the route files in case the sign is to be replaced later. This option will remove all traces of the removed sign from all the route files.
Super-X	This option will convert graphic text pages to Super-X (on suitable signs) which can save considerable space in the database if there is a large destination list.
All Text	This option will convert graphic text pages on a route number sign into text mode. Again, this is done to reduce the size of the database and is used for flipdot signs that cannot use Super-X. This option is greyed out by default and will only be active when 'enableTextMode' in Helen.ini is set to 'True'.
Graphic	This option will convert Super-X pages to graphic which can give more flexibility.
Super-X Multi-Page	This option will convert a list that has separate pages into Super-X Multi-Pages. This will enable synchronisation between any static and scrolling pages. Refer to Appendix P: Working with Multipage Super-X. **Note:** Any graphic pages will automatically be converted to Super-X.

7.1.4.5 Case Change

Parameter	Description
No change	Leaves the case status as it is.
UPPER CASE	This allows the case of a regenerated sign to be formatted in upper case, lower case or title case (title case is where the first letter of each major word is a capital letter). If 'Title case' is chosen, there is a list of exceptions such as by, of, under, upon, via etc. which can be used (and added to) to exclude certain words from the title case formatting. The 'Use exceptions' checkbox becomes active if 'Title case' is selected; when ticked and OK is clicked, the exceptions list is shown.
Lower case	
Title case	
Use exceptions	

7.1.4.6 OK button – Starting the regeneration process

Check and configure any required regeneration parameters as detailed above, then click OK to start the regeneration process.

The regeneration process will only regenerate the text content of the signs.

Although most signs only comprise text, HELEN does allow hand-drawn images[3] to be included. However, HELEN will only regenerate text content because the results of regenerating such images, particularly if the sign size has been changed, will in most cases be unpredictable and visually undesirable.

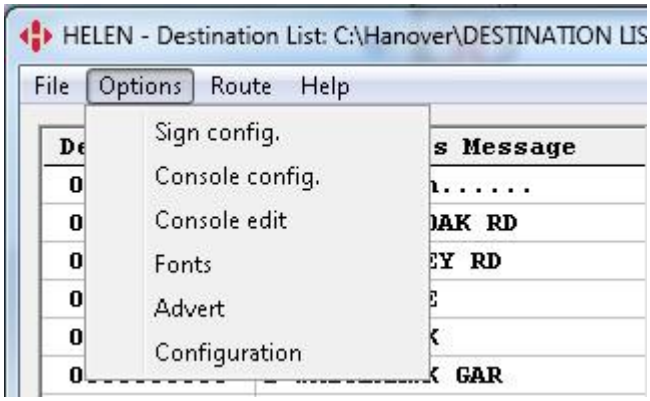
When adding hand-drawn images to a sign in the sign designer, the regeneration lock will automatically be selected for that page. This will prevent the inadvertent regeneration of any signs that include such content (and thereby its corruption) – refer to regeneration lock in 8.2.4 Options menu. However, this can be overridden before regenerating by ticking the 'Remove Regeneration Page Lock' box. Note that this will mean that any hand-drawn images in the sign will be lost and will need to be added back in manually after regeneration.

7.1.5 Language submenu

This feature offers the user a choice of language in which to work. Select the relevant radio button and click OK.

[3] Including any images created in bitmap format

7.2 Options menu



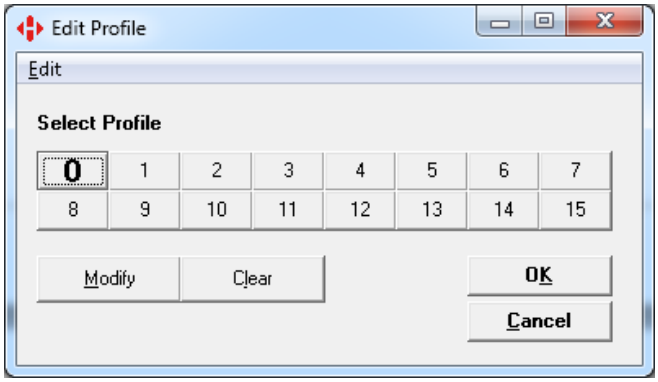
Menu item	Brief description	Refer to section
Sign config.	Select sign type and parameters	4.3 Sign Parameter Editor
Console config.	Select parameters that affect the controller	7.2.1 Console configuration submenu: profiles
Console edit	Edit the configuration parameter string directly	7.2.2 Console edit
Fonts	Edit and create user fonts	7.2.3 Fonts submenu
Advert	In-bus LED sign: 'Next Stop' or Advertising Info	7.2.4 Advert submenu
Configuration	General configuration	7.2.5 Configuration submenu

7.2.1 Console configuration submenu: profiles

HELEN provides a method for changing the configuration parameters of the controller in order to make additional features available: these are outlined in the following sections. Different settings can be applied to these features with different combinations saved as particular profiles. Up to 16 profiles can be configured. It allows a different profile to be set for each of several different 'sets' of vehicle signs - using just one database.

In the Destination List window, select Options → Console config. as shown above.

The following figure showing the 'Edit Profile' window will be displayed:



Profiles appearing in bold are sent to the controller where each can be selected by assigning a value in the range 0 to 15 to the 'PF' parameter in the 'System' configuration menu[4] of the controller. Only profiles marked by a bold number are sent. A profile should always be set in HELEN.

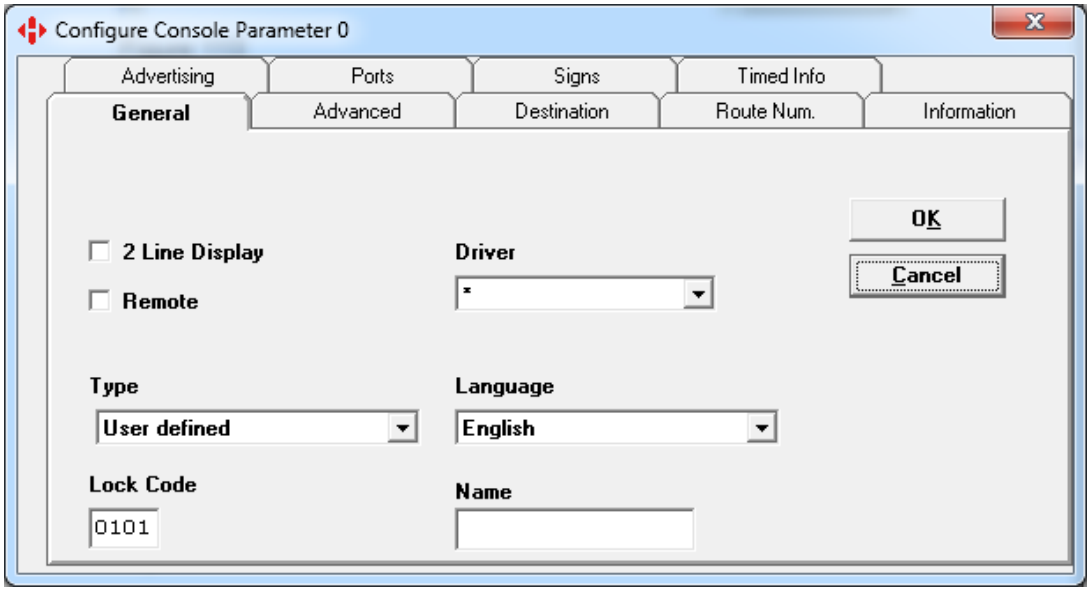
- If no profile is set in HELEN, the last-used settings for the controller are deployed instead.
- If no profile is set in HELEN, and the controller has not previously been used (or has been reset to factory settings) the controller will have only limited functionality. However, profiles can be set manually on the controller - see the relevant controller manual for details.
- If no profile has been set in HELEN, the default profile in HELEN can be activated by selecting Options → Console config. and clicking on a profile number (usually '0'). This will cause the profile to be activated and its number to be shown in a bold face.

Parameter		Description
Edit*	Modify	Refer to ‘Modify’ below.
	Clear	Refer to ‘Clear’ below.
	Copy	Allows to make a copy of an existing profile.
	Paste	This will paste a copied profile onto the selected profile.
Modify		Opens the ‘Configure Controller Profile’ window for the selected profile. Refer to 7.2.1.1 General.
Clear		Clears all the parameters (i.e. settings) of the selected profile.
OK		Accepts the values for each profile parameter (set these via ‘Modify’) and returns to the Destination List window.
Cancel		Cancels any changes made and returns to the main Destination List window.

*Profiles can be edited by either clicking on the ‘Edit’ menu on the taskbar or by right-clicking directly on the profile.

[4] This may require a software upgrade of the controller to increase the maximum number of profiles to 16.

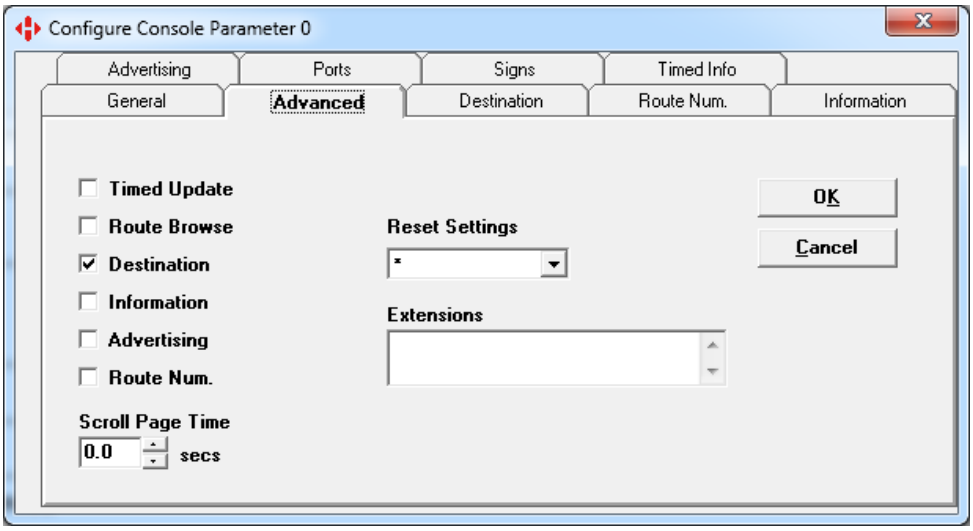
7.2.1.1 General



Parameter	Description
2 Line Display	Normally the controller will show the driver's message on the top line of its screen and the current operating status on the bottom line. Selecting '2 Line Display' uses both lines for the driver's message and does not show the status.
Remote	Enable remote control of the controller, e.g. by the on-board computer. Note that the required protocol must be assigned to the communications port (refer to 7.2.1.7 Ports).
Driver	Select the messages to be shown on the controller from the dropdown list where '*' uses the drivers messages (default) and '0-9 and A-E' use the messages shown on the sign with that number. This can be deployed where it is useful for the driver to be able to see exactly what is viewable on the outside of the vehicle. Note that if the destination sign messages have been generated using Super-X, this feature will not work.
Type	Select the type of controller from a dropdown list. This will set the parameters used to determine its basic functionality. Alternatively, these parameters can be set directly using the Advanced tab (refer to 7.2.1.2 Advanced). • **User defined:** Any features required will need to be selected using the Advanced tab. • **Standard:** The standard configuration allows selection of destination and information messages. This is done by entering the relevant code on the controller's front panel. • **Route Browse:** The destination is selected by first entering the route number and then browsing through the list of destinations on that route using the controller keypad. The information messages are selected as normal. Refer to Appendix D: Route Browse. • **Route Number Only:** Only route numbers may be entered. • **Advert Only:** Only advertising messages can be selected.
Language	Select the language that the controller will use from the dropdown list.

Parameter	Description
Lock Code	Certain controller operations are only available to those who know the four-digit lock code.
Name	This is an optional field when using the controller as a dataloader, for entering a name for the destination list, comprising a maximum of six alphanumeric characters. It will appear on the controller front panel for identification.
OK	Accept the parameters' values shown in each tab and return to the main window.
Cancel	Cancel any changes made and return to the main window.

7.2.1.2 Advanced

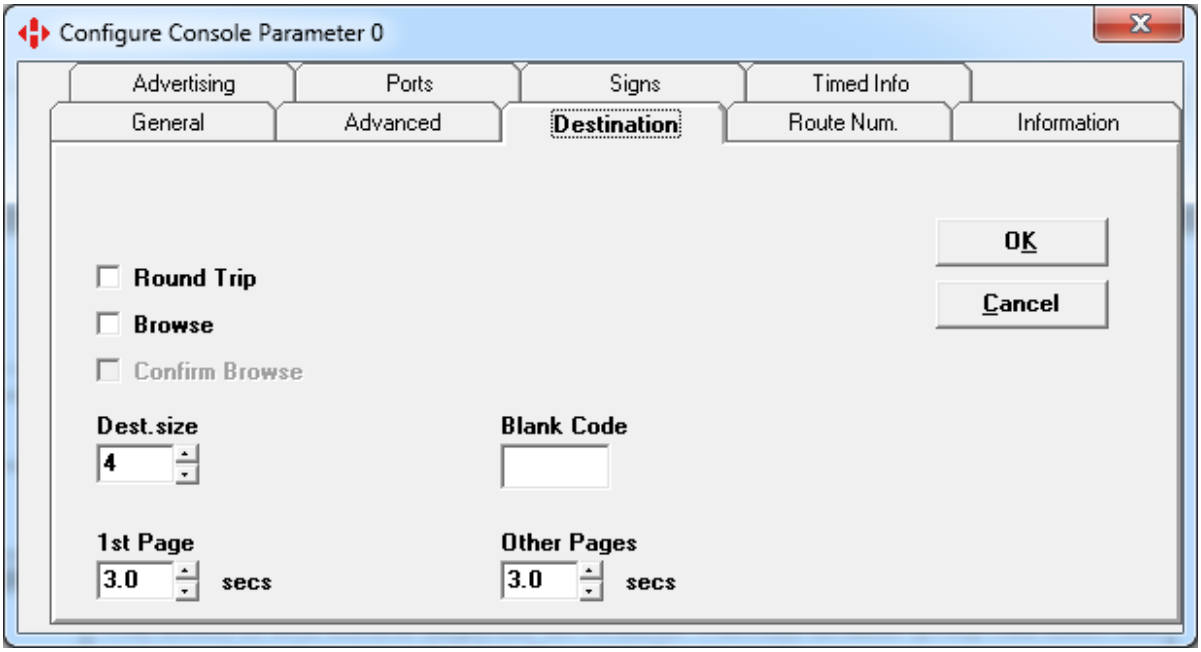


The Advanced tab parameters are set automatically when one of the preset types is selected from the General tab. However, they can be set manually if required.

Parameter	Description
Timed Update	With a suitable Eric+, DG3 or EG3 controller (not Deric models) it is possible to load a new destination list while the existing one remains in use until some pre-determined time and date. At this point, the new list will replace the old one. Timed update will have the same value in all profiles. This feature will require a Real Time Clock to be installed in the controller.
Route Browse	The destination code is selected by first entering the route code and then browsing through the list of destinations for that route using the controller keypad. The information messages are selected as normal. This option cannot be deployed simultaneously with Destination + Route Num. Refer to Appendix D: Route Browse.
Destination	Select and show destination messages by entering a destination code. This option cannot be deployed simultaneously with Route Browse.
Information	Select and show information messages by entering an information code.
Advertising	Select and show advertising messages by entering an advert code.

Parameter	Description
Route Num.	Select and show a route code by entering the route number. This option cannot be deployed simultaneously with Route Browse.
Reset Settings	This controls the values the operational parameters take after a reset or power-on. The effect of this control depends on whether 'Remote Enable' (RM) has been set and is explained in more detail in the controller manual.
Extensions	This is a text box which enables the inclusion of additional features through configuration parameters not provided by the standard configuration window. **Note:** The configuration parameters can be found in the appropriate controller manual (Appendix: Configuration code options).
Scroll Page Time	This will set the time that a Super-X scrolling page is allowed to scroll. This has a special value of 0.0 when it is required to synchronise a scrolling page to a change in page. From HELEN V3.13, the previous method, which required manual insertion of '\rep1' statements and setting this value to '0.0', has now been superseded by Multipage Super-X (Refer to Appendix P: Working with Multipage Super-X).

7.2.1.3 Destination

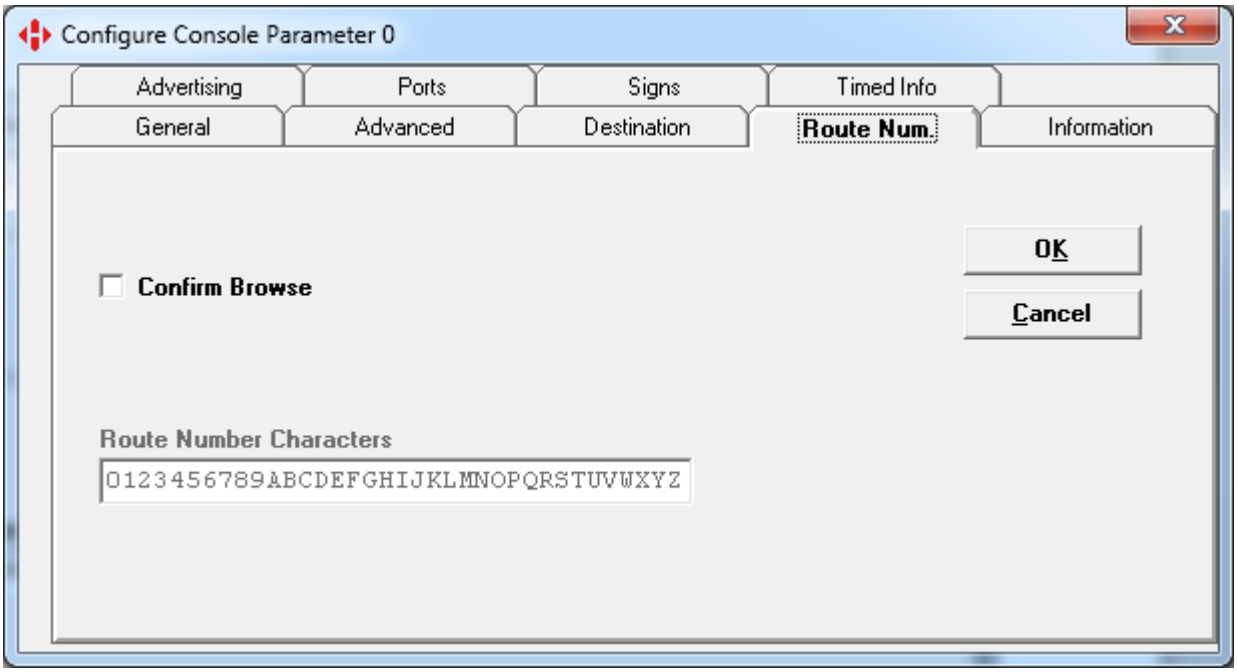


Parameter	Description
Round Trip	Includes a prompt for 'out' and 'return' destination codes which alternate each time a particular controller key is pressed.
Browse	Allows the destination code to be selected by browsing the driver's destination list.
Confirm Browse	Normally the browsed destination is automatically selected after approximately 15 seconds, or when the controller F/E key[5] is pressed. However, it is sometimes a requirement that the driver should positively accept the destination. If this feature is checked, a prompt for confirmation will be shown and the destination only accepted when F/E is pressed.

[5] Certain controllers have separate F and E keys: the E (enter) key is used in such cases.

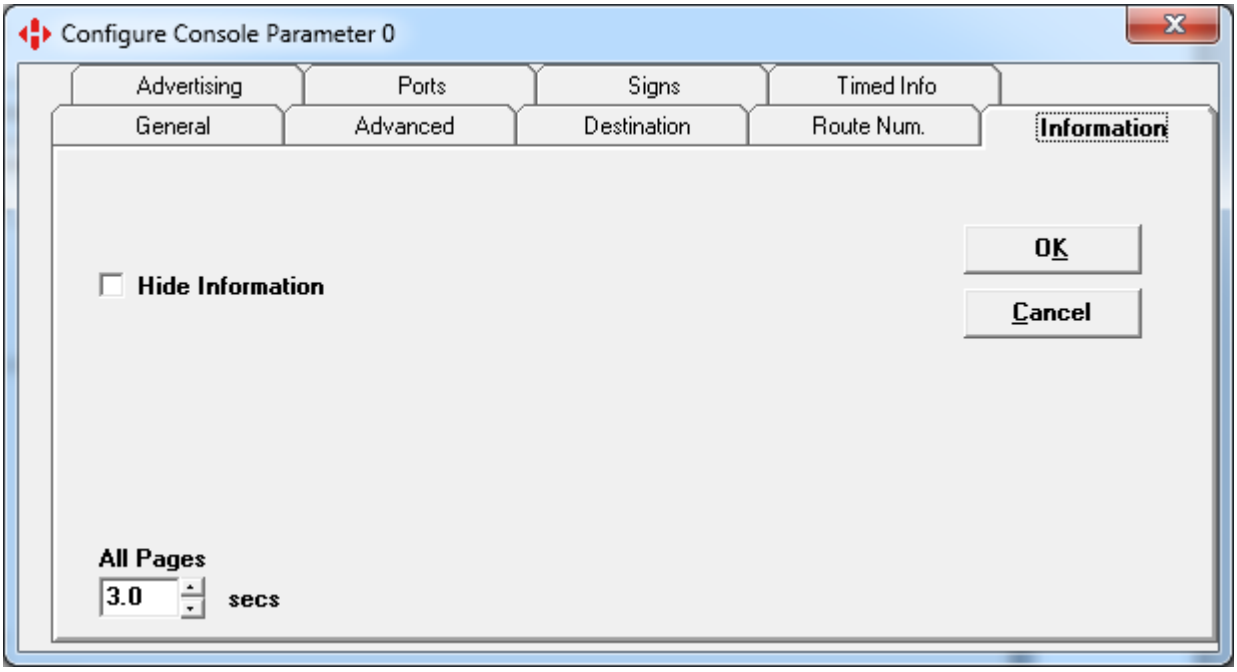
Parameter	Description
Dest. size	Determines the number of characters used for the destination code; normally this will be four but, if required, it can be extended to five or six.
Blank Code	The destination code of the message that will be presented in place of an otherwise blank display. For example, if a non-existent code is selected or the controller is set to an idle state.
1st Page	Set the desired duration in seconds for the first page of a destination message. Note that the actual duration is constrained by the number of signs and the size of the message: graphic text messages take longer to send than Super-X text messages.
Other Pages	Set the desired duration in seconds for pages other than the first page of a destination message. Again, note that the actual duration is constrained by the number of signs and the size of the message.

7.2.1.4 Route Num.



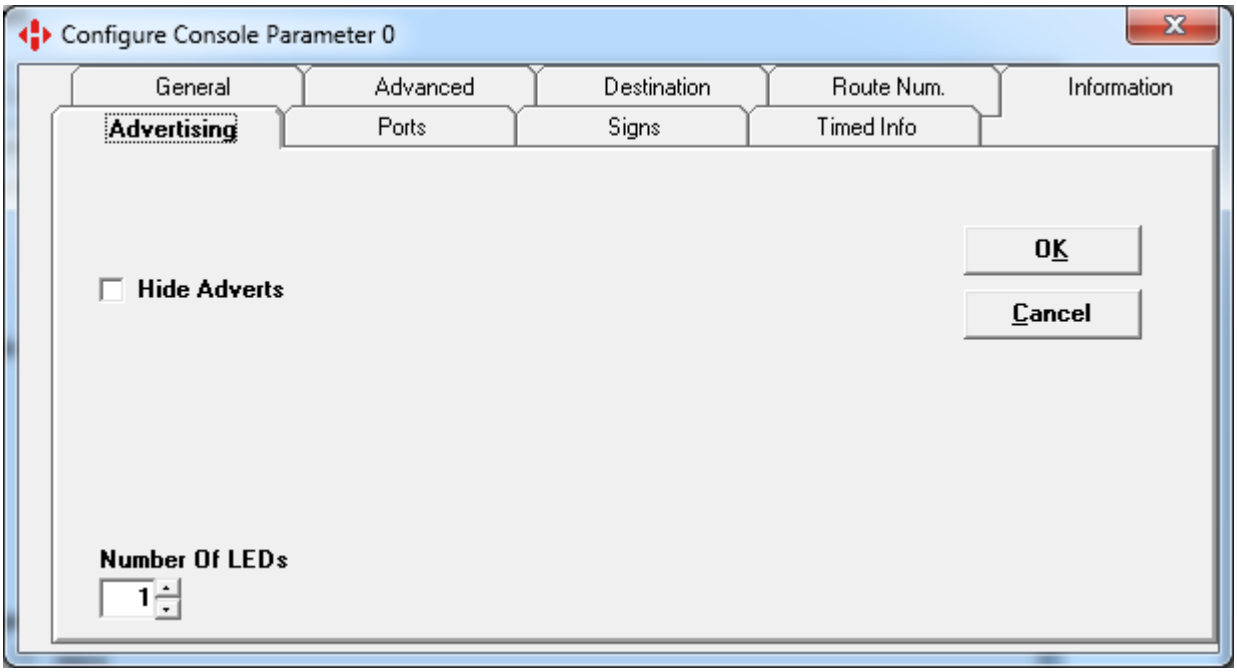
Parameter	Description
Confirm Browse	This is the same option that appears on the Destination tab. Refer to 'Confirm Browse' parameter in 7.2.1.3 Destination.
Route Number Characters	The route number field may use any of the characters in the list 0 to 9 and A to Z. However, if it has been decided that certain characters will not be made available, they can be removed from this list. Note that this only affects the route number field and only then when set by the driver using a controller operating in programmable route number mode. No preset destinations or route numbers can be altered using this feature – i.e. it does not restrict the characters available when programming the database.

7.2.1.5 Information



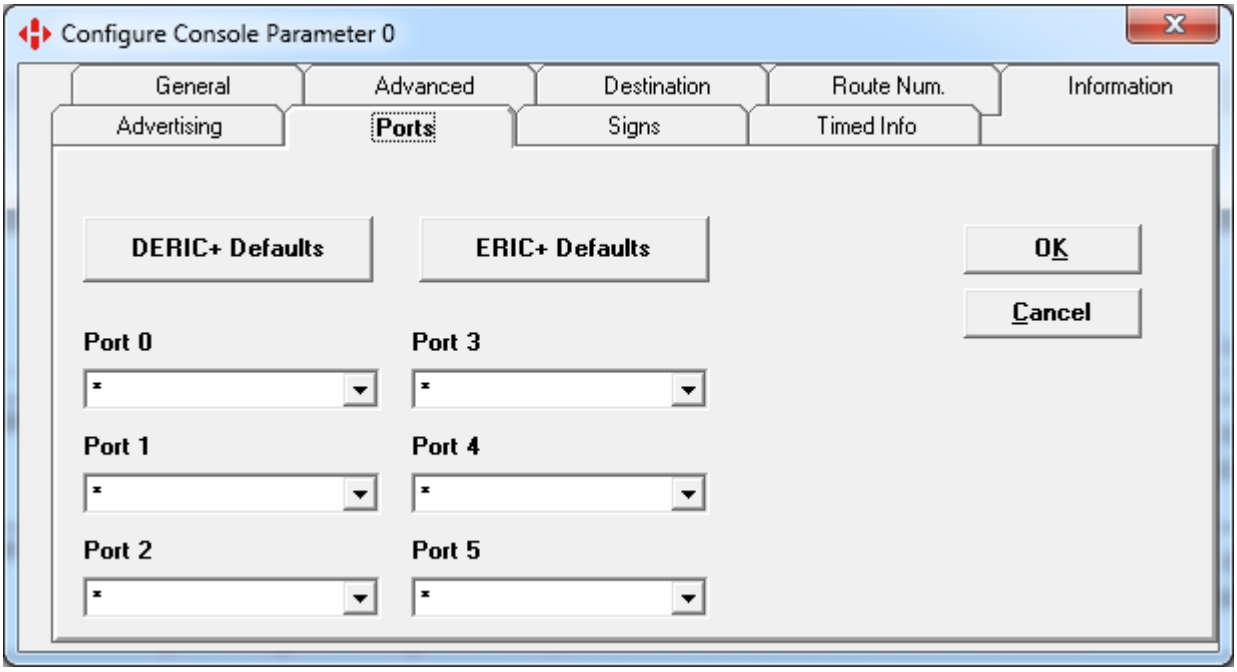
Parameter	Description
Hide Information	If this is checked, the prompt for the information code will require the correct lock code before being issued.
All Pages	Set the desired duration in seconds for each page of an information message. Note that the actual duration is constrained by the number of signs and the size of the message.

7.2.1.6 Advertising



Parameter	Description
Hide Adverts	If this is ticked, the prompt for the advertising code will require the correct lock code before being issued. (Advertising must be selected on the 'Advanced' tab to tick / untick this option.)
Number of LEDs	**Number of in-bus LED signs** The number of in-bus advertising LED signs can be changed from the default of 1 by setting this parameter. A value of 0 disables the transmission of advertising messages although it is still possible to select them from the controller.

7.2.1.7 Ports

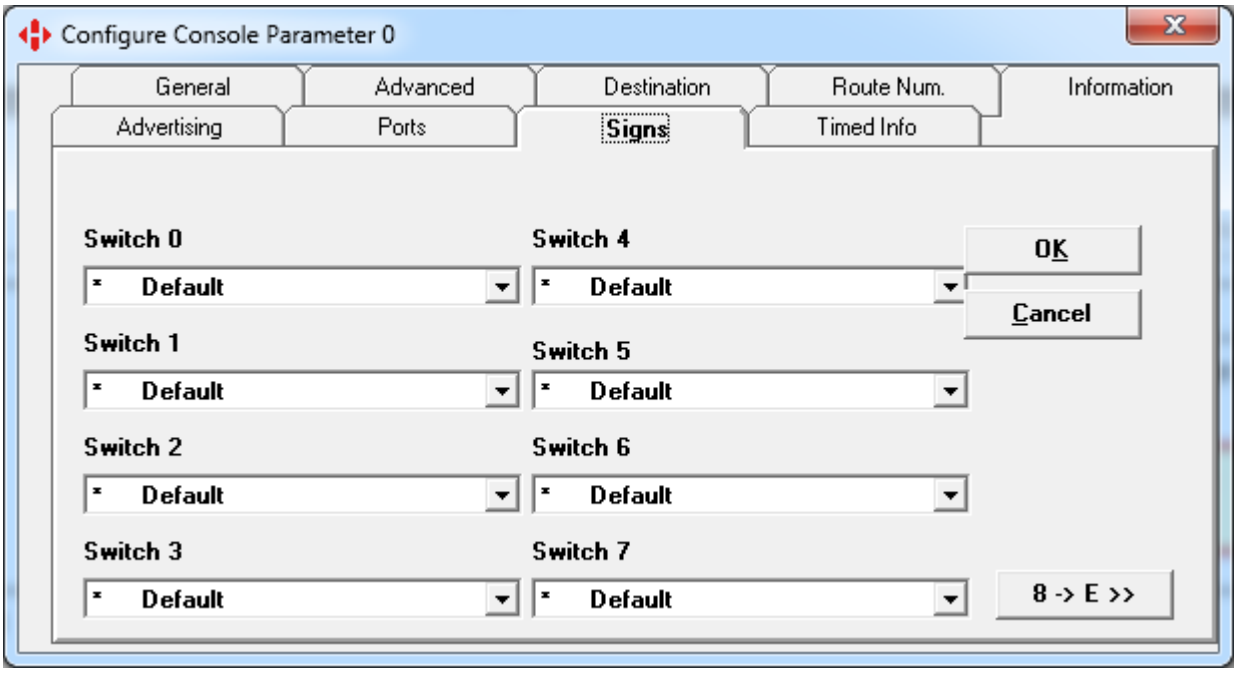


Parameter	Description
DERIC+ Defaults / ERIC+ Defaults	**Default settings for DERIC / DG3 or ERIC / EG3 controllers** Most applications use the controller's default settings automatically so no adjustment is necessary here.

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Port 0
Port 1
Port 2
Port 3
Port 4
Port 5</td><td>
Protocols
However, for situations where a controller is operated remotely to drive the signs, the customer will be advised which protocol to use: it can then be selected from the dropdown list. For all other applications, the settings should not be changed and the default will be used.
Dropdown list of parameters:
<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>*</td><td>Setting unchanged</td></tr>
<tr><td>-</td><td>Disabled</td></tr>
<tr><td>SIGN</td><td>Hanover display protocol (RS485)
Note: Deric controllers – port 0; Eric controllers – port 1</td></tr>
<tr><td>DIAG</td><td>Diagnostic tasks (RS232)</td></tr>
<tr><td>TERM</td><td>Terminal remote control (RS232)</td></tr>
<tr><td>etc.</td><td>Many other protocols can be used in specific circumstances – contact Hanover for more information.</td></tr>
</table>

Do not use the same protocol on more than one port: the results are unpredictable.
</td></tr>
</table>

7.2.1.8 Signs



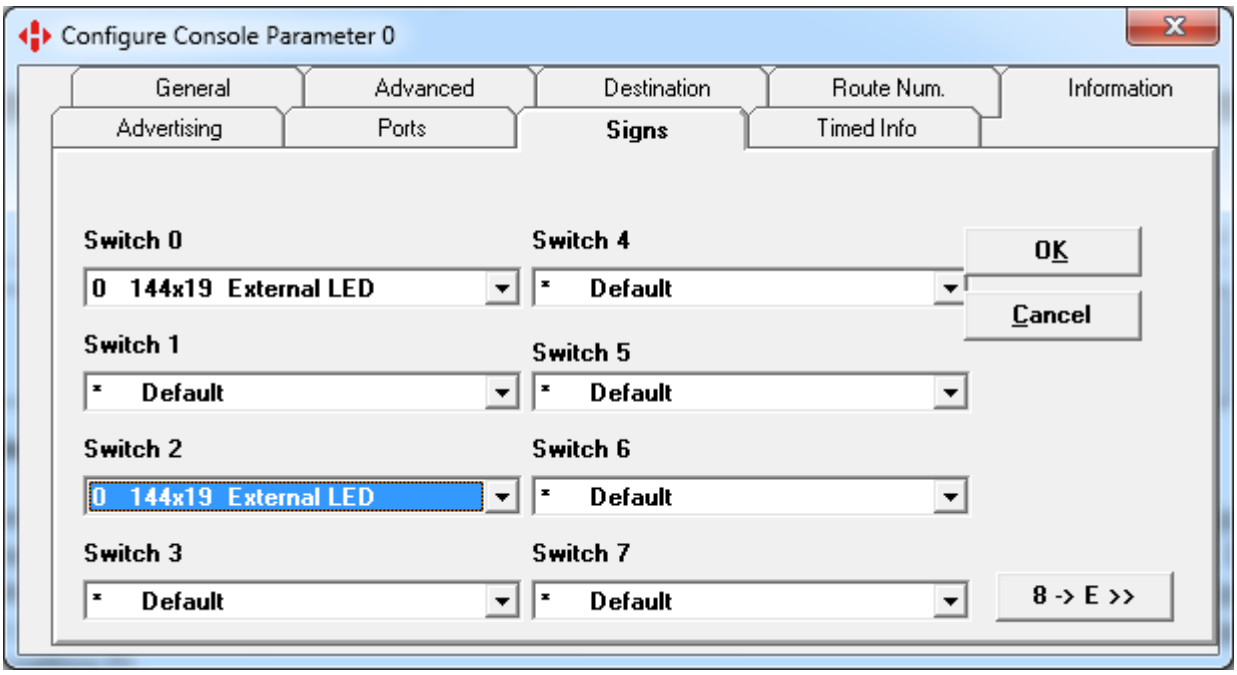
The functions on this tab are used to change the relationship between the physical sign switch setting and the sign setting contained in the destination list.

a) Parameters for physical sign switch positions

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Switch 0
Switch 1
Switch 2
Switch 3
Switch 4
Switch 5
Switch 6
Switch 7
Switch 8
Switch 9
Switch A
Switch B
Switch C
Switch D
Switch E</td><td>For each switch setting in the display itself, select the sign defined in HELEN from the dropdown list:
<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>-</td><td>Disabled</td></tr>
<tr><td>*</td><td>Default: Automatic assignment (physical sign uses data for corresponding database sign)</td></tr>
<tr><td>0-15</td><td>Destination sign selected</td></tr>
<tr><td>RN</td><td>Selects a separate independent sign, showing an operational reference set manually via controller</td></tr>
<tr><td>HANCIS</td><td>On-board Hancis selected</td></tr>
<tr><td>HTC</td><td>On-board HTC selected</td></tr>
<tr><td>@</td><td>In-bus advertising sign</td></tr>
</table>
</td></tr>
</table>

b) Saving space by sign redirection

Normally, there is a one-to-one relationship between the sign settings in HELEN and those in the actual sign itself, i.e. the information in the database for sign 0 will be sent to the sign with switch setting 0. Considerable space can be saved by sending the same information to two or more signs, e.g. if the rear sign (say, switch setting 2) is exactly the same size and requires exactly the same information as the front sign (say, switch setting 0).



The above figure shows how to direct sign 0 in HELEN to the physical signs with switch setting 0 and 2. All the other signs are unaffected.

Note: this could also be achieved by setting the address switch in both signs to position 0 and leaving all items on their default setting; however, this will interfere with the status response as both signs will try to send their status at the same time. This is therefore **not** recommended.

c) Reducing the number of destination lists by using profiles

If there are several vehicles with a different quantity and size of signs fitted, then a destination list could be generated for each bus type, i.e. where each type contained much the same database information but with different sign configurations. An alternative is to create one destination list with all the destinations and all the signs that are fitted across all the buses, using the Profile feature.

This feature makes it easy to manage a fleet of vehicles fitted with many different signs but all using the same destination list - but it is not designed to save controller memory space. That can be done using container files (refer to Appendix C: Container Files).

Example:

The fleet consists of:

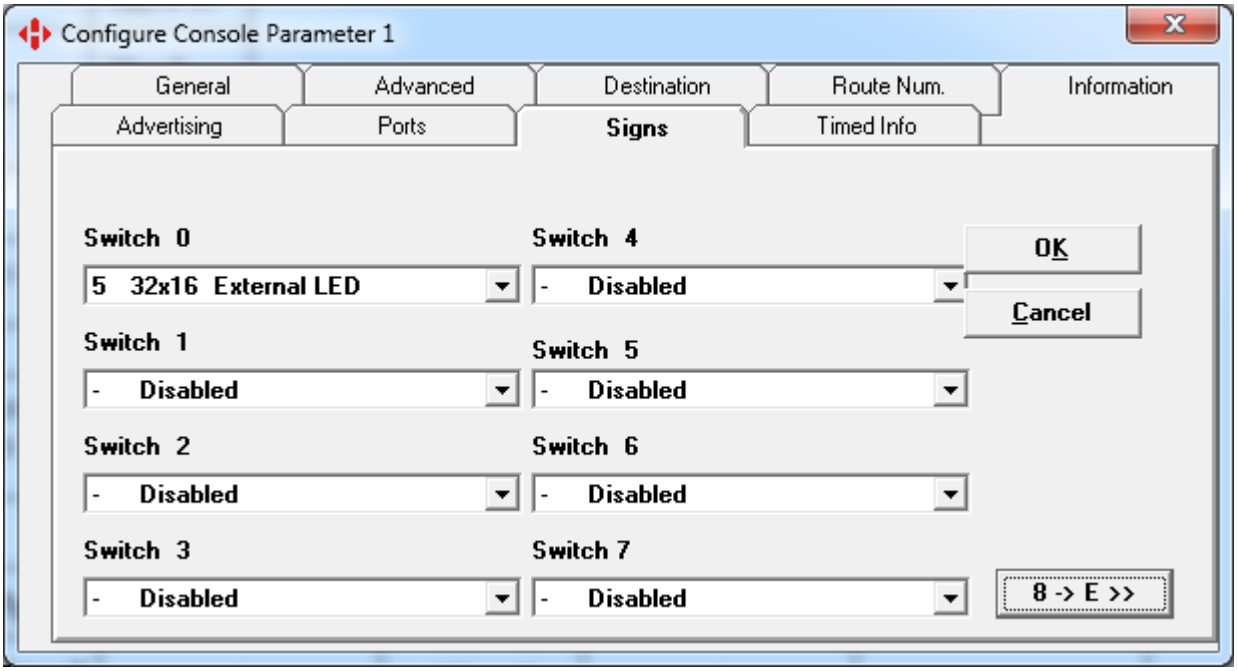
- Type 1 – 32 x 16 front route number
- Type 2 – 160 x 19 front sign + 32 x 17 rear route number
- Type 3 – 192 x 19 front sign + 96 x 8 side sign + 160 x 17 rear sign

Let the signs in the HELEN database be allocated the following values:

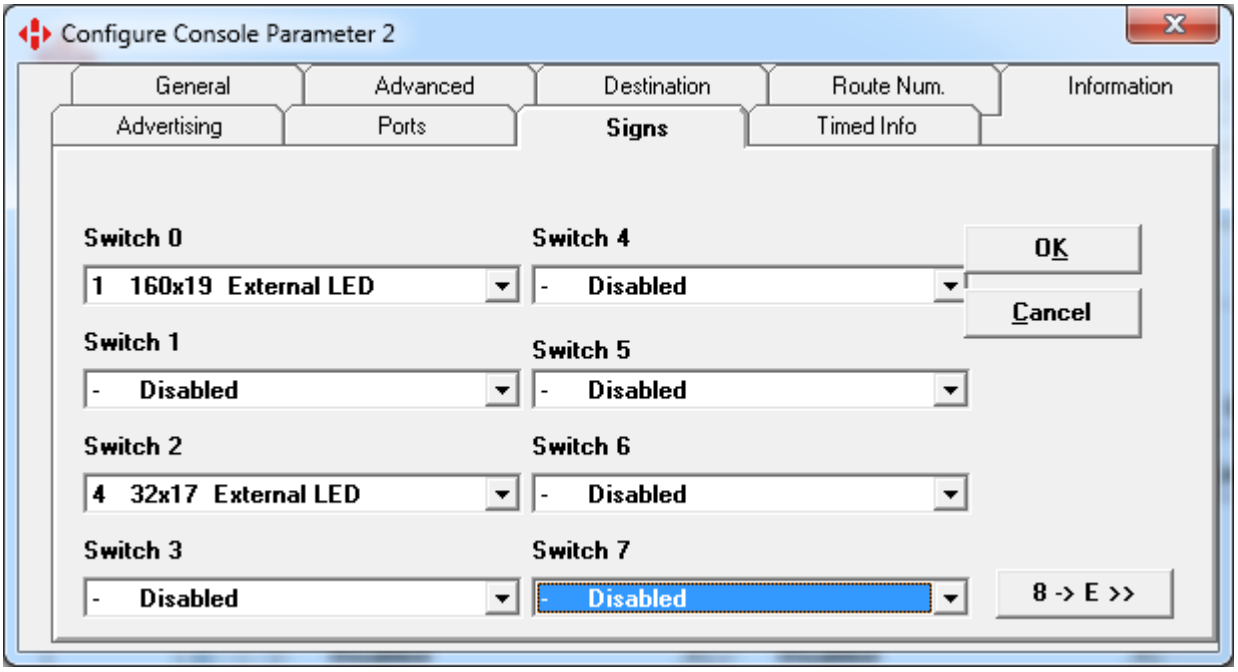
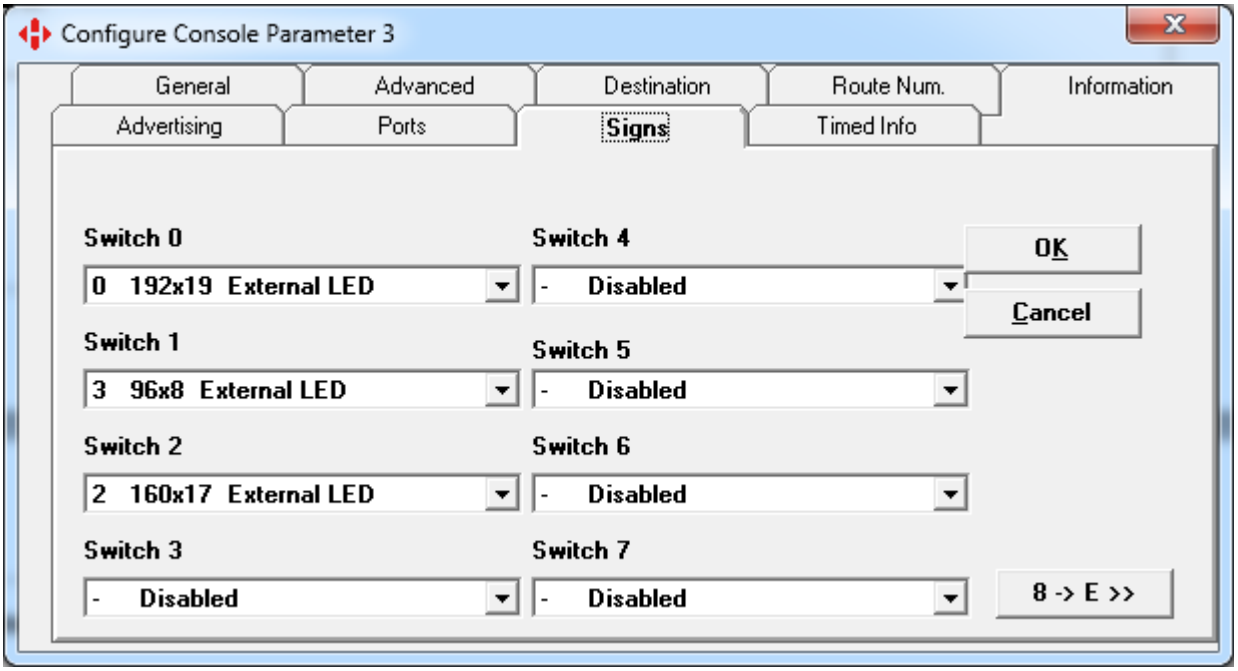
HELEN sign setting	Sign
Sign 0	192 x 19
Sign 1	160 x 19
Sign 2	160 x 17
Sign 3	96 x 8
Sign 4	32 x 17
Sign 5	32 x 16

There are now two options:

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>1</td><td>The configuration is left at the default setting (one-to-one mapping) and the actual sign settings are set as follows:
<table>
<tr><th></th><th>Sign Switch Setting</th><th>Sign</th><th>HELEN Sign Setting</th></tr>
<tr><td>Bus Type 1</td><td>5</td><td>32 x 16</td><td>5</td></tr>
<tr><td rowspan="2">Bus Type 2</td><td>1</td><td>160 x 19</td><td>1</td></tr>
<tr><td>4</td><td>32 x 17</td><td>4</td></tr>
<tr><td rowspan="3">Bus Type 3</td><td>0</td><td>192 x 19</td><td>0</td></tr>
<tr><td>2</td><td>160 x 17</td><td>2</td></tr>
<tr><td>3</td><td>96 x 8</td><td>3</td></tr>
</table>
The advantage of this method is that it is simple: no sign mapping is required and a particular size sign will always have the same switch setting.</td></tr>
<tr><td>2</td><td>An alternative is to have the sign switch setting denote the position on the bus. Therefore the front sign is always switch setting 0, side sign 1 and rear sign 2. In this case, three profiles are needed to redirect information to the correct sign on each of the three types of vehicle in the fleet.

Profile 1:
 

Note: in this profile, apart from sign 5 being redirected to switch 0, all other signs are set to disabled ('-'). This will ensure that the information for the other signs will not be sent out, as this would slow down communications between the controller and the signs and also cause status errors. Accordingly, it is advised not to use the default setting ('*').</td></tr>
</table>

Option	Description
	Profile 2:  Again, all signs that are not fitted have been disabled. **Profile 3:**  All signs not fitted have been disabled. Also in profile 3, 'Switch 0' setting could have been left at the default setting (*), as it is a one-to-one mapping but it is recommended for clarity that the explicit number is used. It is also future-proof because if it is decided later to use container files (refer to Appendix C: Container Files) the results are unpredictable when a sign is left on the default setting.

Option	Description

	Sign Switch Setting	Sign	HELEN Sign Setting
Bus Type 1	0	32 x 16	5
Bus Type 2	0	160 x 19	1
	2	32 x 17	4
Bus Type 3	0	192 x 19	0
	1	96 x 8	3
	2	160 x 17	2

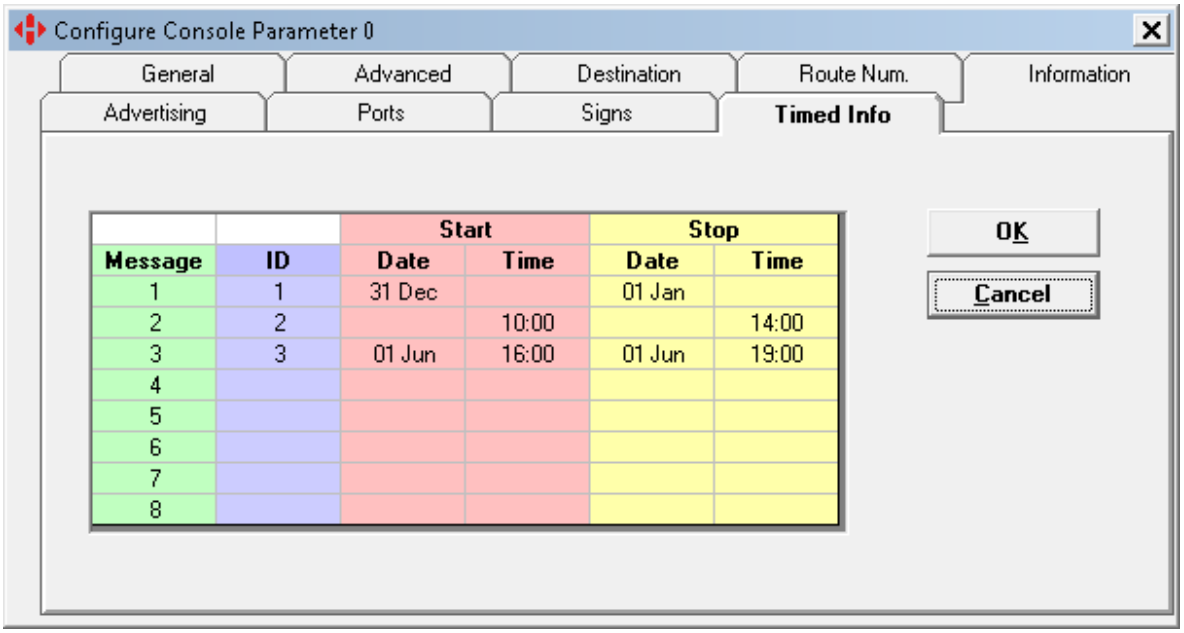
Although option 2 seems more complicated, it saves time and problems as it will only broadcast information to existing signs, thereby avoiding slower communications and status errors.

Important note: Both options 1 and 2 will slightly increase the size of the database - and in some cases may cause a problem by exceeding the memory size of the controller.

7.2.1.9 Timed Info

This feature will allow up to 8 information messages to be displayed for a particular time and/or date.

It is an enhancement to the existing method of enabling an information message to be set for a particular date, which had to be implemented via the extensions box (date only).



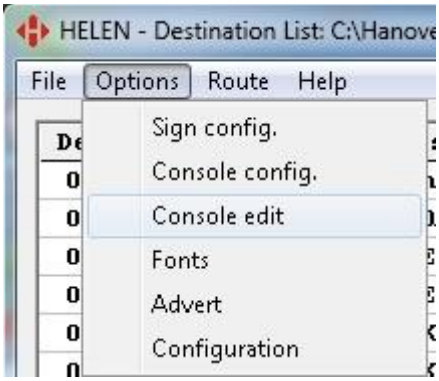
In the above example, there are three information messages set:

- The first message will display between the last day of the year to the first day of the next year (inclusive).

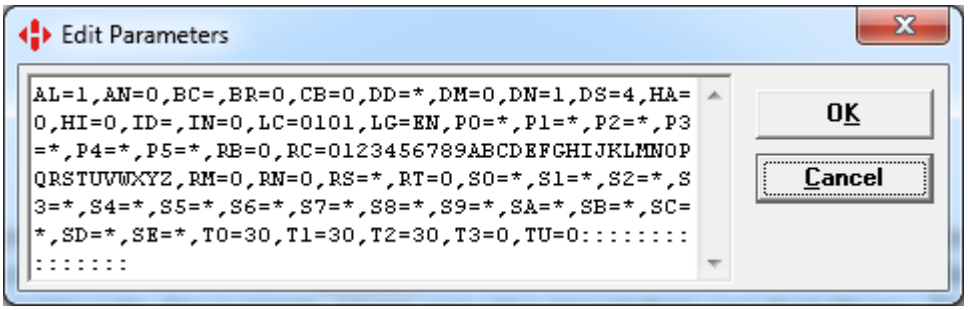
- Message 2 will display everyday between 10 in the morning to 2 in the afternoon.
- The last message will display only on the 1st of June between 4 in the afternoon to 7 in the evening.

It can be seen that the first two messages overlap. In this case, message 1 will display until 10 when message 2 will display until 2 in the afternoon, then it will revert to information message 1.

7.2.2 Console edit



This allows the configuration parameter string to be edited directly.



Note: as no checking is done, the string may not adhere to the required format, or the parameter names and values may be incorrect. The controller ignores anything that is not correct, so it may not behave as intended. **This may cause loss of functionality: only use if additional parameters are required.** Using the Extensions feature is recommended if additional parameters are required (see section 7.2.1.2 Advanced).

7.2.3 Fonts submenu

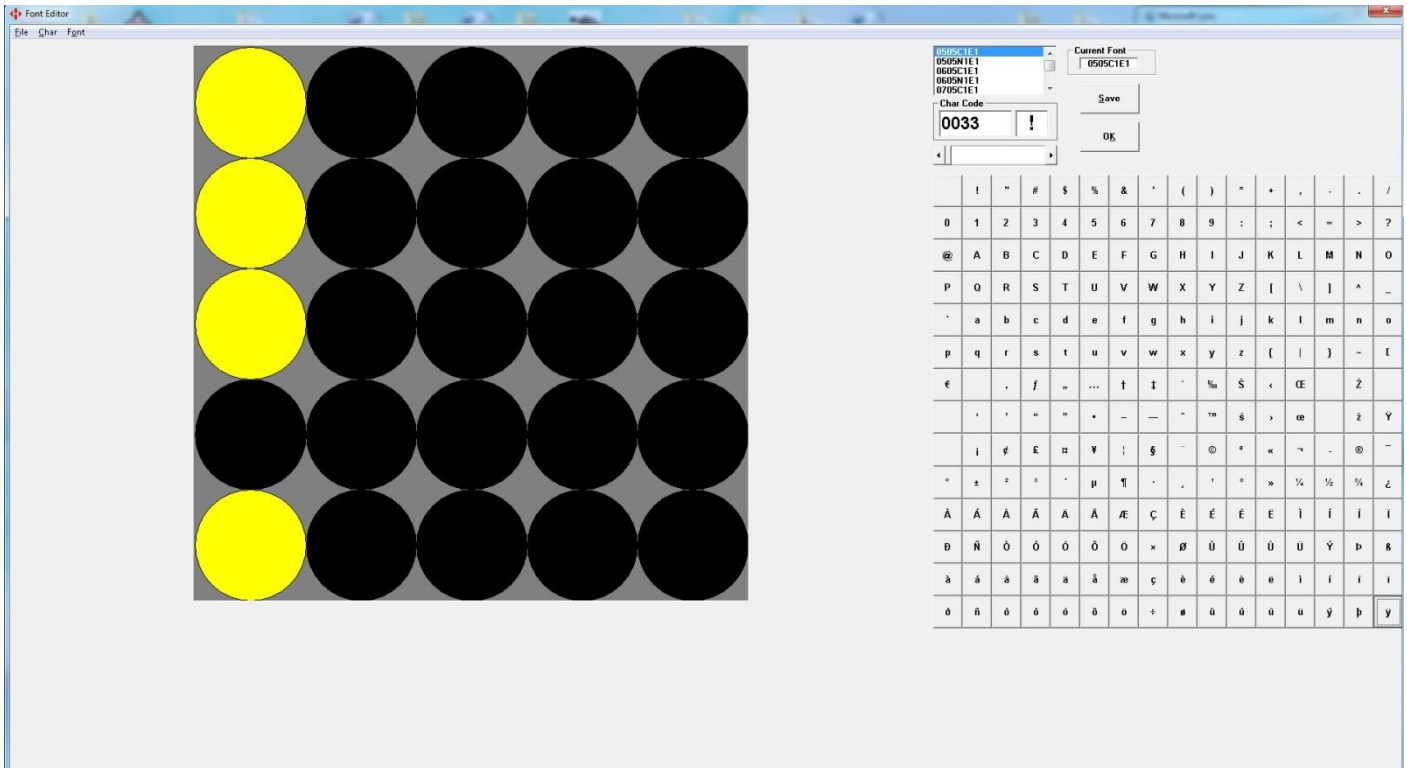
7.2.3.1 The Font editor[6]

Fonts are a fundamental requirement for HELEN to function fully and HELEN can store a range of different font libraries. Hanover's Roman-character font library is Eurofont but others are available to cater for Arabic, Chinese, Greek and Cyrillic character sets, for example. Users can also import their own font library. This section is based on using the Eurofont character set (library).

[6] Fonts are located in font library files in the format fontlibraryfilename.fdb and stored in the following location:
- XP: Documents and Settings\All Users\Application Data\Hanover Displays\HELEN
- Win 7, 8 or 10: Program Data\Hanover Displays\HELEN (which may be hidden)

HELEN has a font editor, with many useful functions for manipulating whole fonts and individual characters within a font. The font editor can be accessed from the Destination List screen by selecting Options → Fonts.

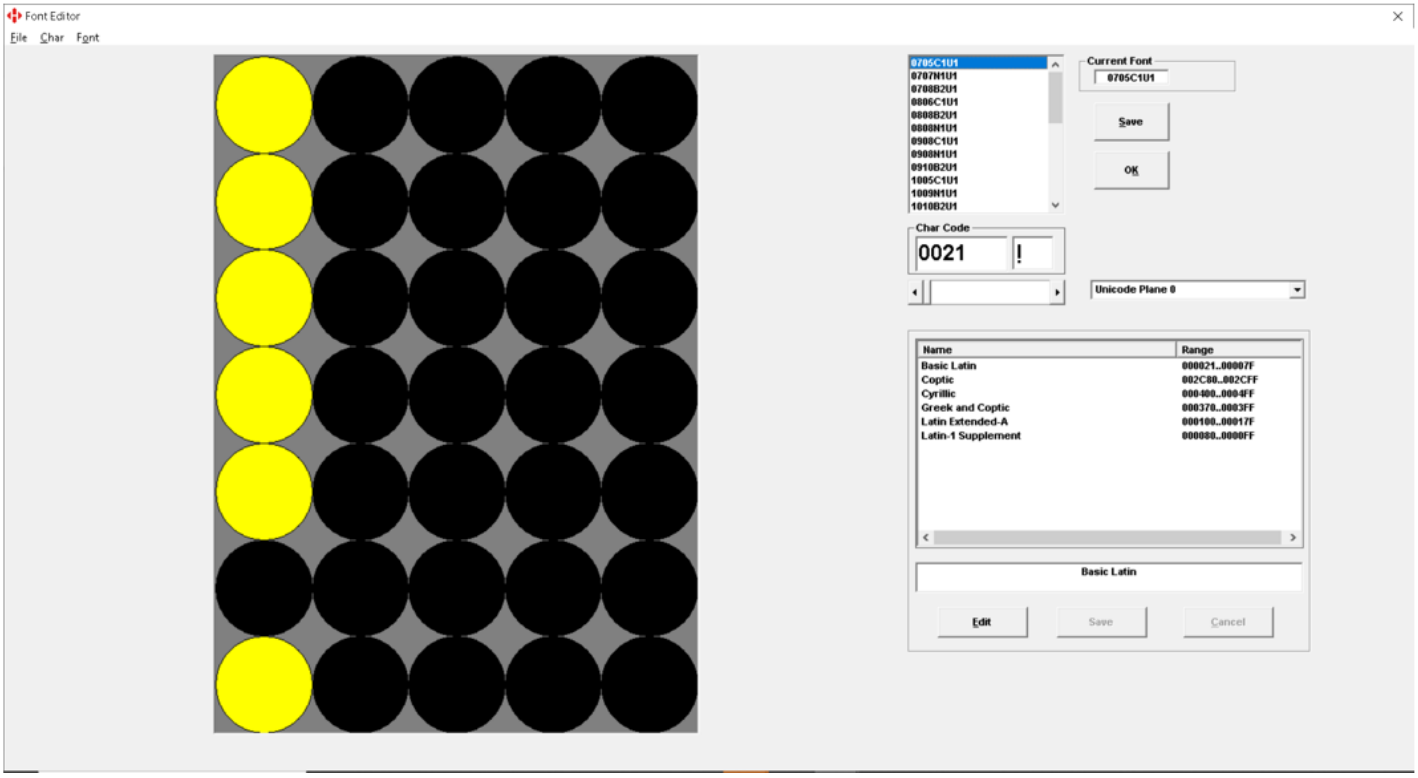
The image below shows the font editor screen for a standard font:



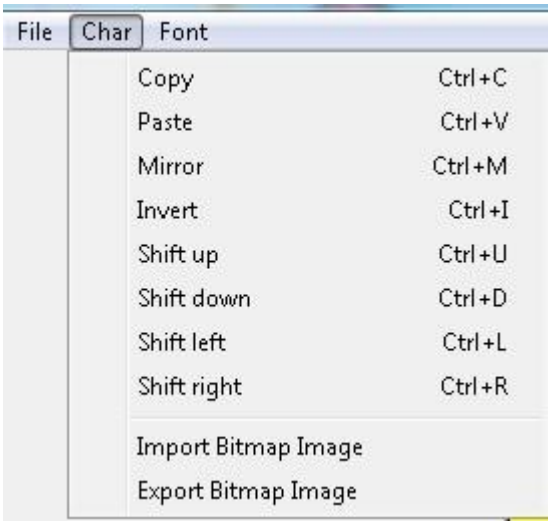
To select particular font to view or edit, click on it from the list situated at the top of the screen e.g. 0505C1E1. To view a specific character in the font, click its button in the character button grid. Alternatively, press the character's keyboard key, scrolling through the fonts using the left / right or up / down arrow keys, or type in the Windows decimal value of the character in the 'Char Code' box.

Note: every character is assigned a unique character code.

Alternatively, the image below shows the font editor screen for a Unicode font:



7.2.3.2 Character functions



The Char menu contains the following functions; all have associated shortcut keys linked to them.

For example, to invert a character, press Ctrl+I. Relevant keys are shown in brackets (remember the Ctrl key):

- **Copy (C)** and **Paste (V)** take the current character to and from a clipboard area[7]
- **Mirror (M)** rotates the current character about the central vertical axis
- **Invert (I)** rotates the character about the central horizontal axis
- **Shift Up (U)** and **Shift Down (D)** move the character in the specified direction by one row
- **Shift Left (L)** and **Shift Right (R)** move the character in the specified direction by one column

7.2.3.3 Mouse operations

- Clicking the left mouse button on a dot turns it yellow
- Clicking the right mouse button turns a dot black
- In both cases, to change several dots, hold down the mouse button and drag it over them
- Shift + left mouse button on the row inserts a row above
- Shift + right mouse button deletes that row
- Ctrl + left mouse button moves the character up one row.

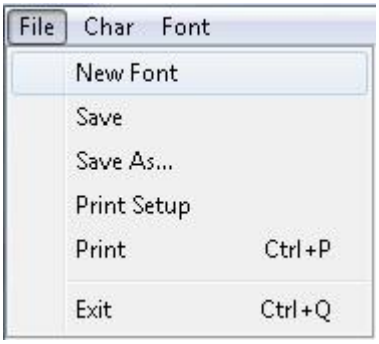
  Note: yellow dots disappearing off the top of the screen are erased so will appear black if the opposite action is then taken.
- Ctrl + right mouse button moves the character down one row.

  Note: yellow dots disappearing off the bottom of the screen are not erased so will appear yellow if the opposite action is then taken.
- Alt + left mouse button anywhere in the character body deletes the column at that point and moves the rest of the character to the right one column to the left.
- Alt + right mouse button anywhere in the character body inserts a blank column at that point and moves the rest of the character to the right one column to the right.

  Alt + left mouse button in the column space therefore reverses the above action. To move a character to the right, insert a blank column at the far left of the character matrix.

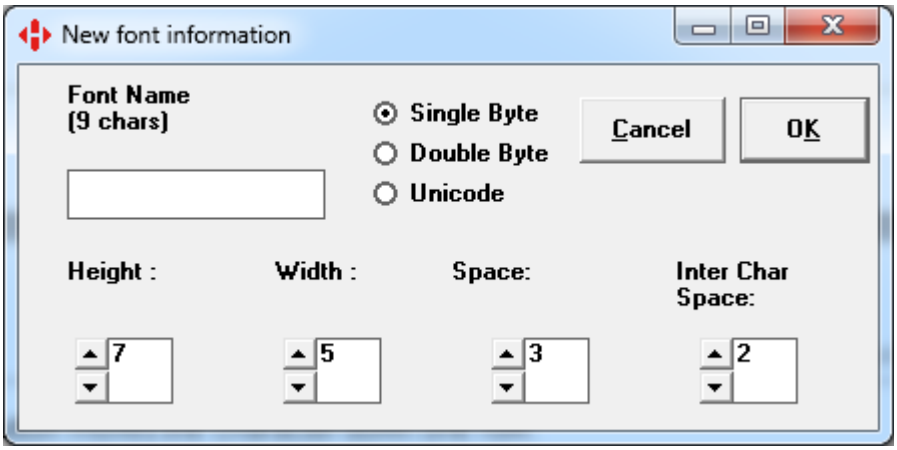
  Note: when using the alt key, yellow dots are erased (turned black) if they are sent off the screen to the left or right.

7.2.3.4 Creating fonts



[7] **Note:** this is not the standard Windows clipboard.

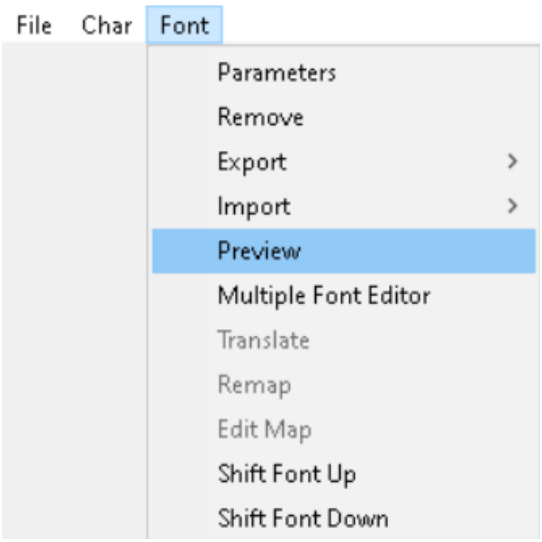
To create a new font, click File → New Font and the 'New Font Information' window will appear as shown below:



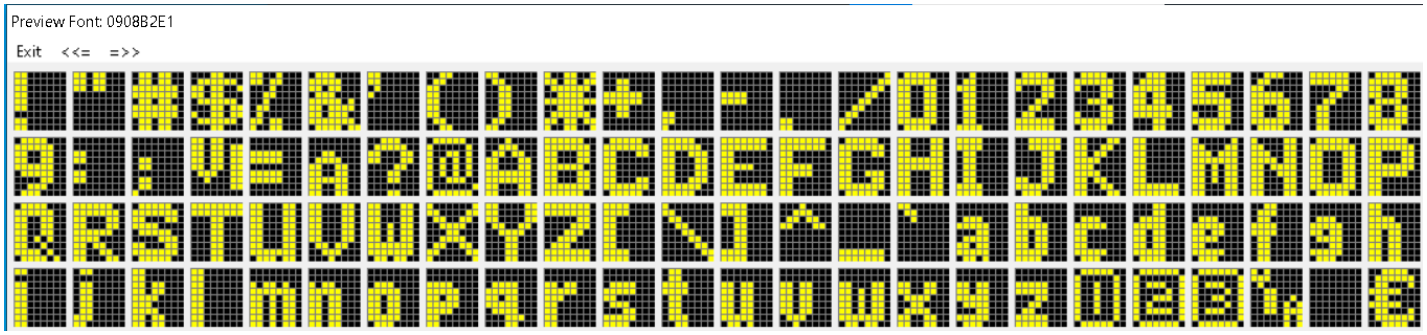
Parameter	Description
Font Name (9 chars)	Enter a font name (e.g.1612N2E1) using the convention given in 4.3.3 Selecting fonts for the sign. This nomenclature is useful as it describes the characteristics of the font – however, any name can be used (no more than nine characters long).
Height / Width / Space / Inter Char Space	Adjust the height, width, space and inter-character space using their respective up / down arrow buttons. The width parameter defines the maximum width allowed for any character of that font: it does not mean that every character has the same width. Space refers to the width of the space character of the font in dots. Inter Char Space relates to the number of dots between characters in a string. Adjustment decisions should be based on the size of the font required for use. The height value is chosen according to the sign size e.g. a 19 LED-high sign could be used for showing two lines, each 9 LEDs high (with a row of dots as a line space in between) so the height should be set to 9 in this case. The width can then be estimated – select a value that will accommodate it: if it is slightly larger, it will still fit; too small and it will not. **Note:** this process will need to be repeated (along with any editing) for each font size chosen (different sign sizes are likely to need different font sizes).
Single Byte / Double Byte / Unicode	Select either 'Single Byte' or 'Double Byte'. Single Byte refers to a font set comprising a maximum of 256 characters; it is recommended to select this option. Double Byte is used for fonts that can contain over 65,000 characters. They are used for Chinese and other Far Eastern fonts. Unicode is the current computing industry standard for handling most of the world's writing systems.

Parameter	Description
Cancel / OK	Another and probably easier way of creating a new font is to base it on one that already exists. To do this, first select the font the new font will be based on. Then select File → Save As and enter a unique font name and click OK (Cancel aborts the operation). Once a valid name has been entered, this new font will be exactly the same as the one from which it has been copied: it can then be edited in the manner described above.

7.2.3.5 Previewing fonts

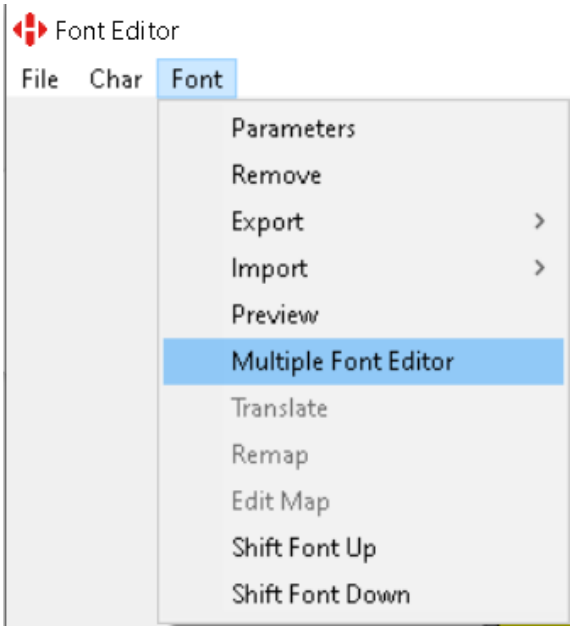


Font → Preview displays the currently-selected font library.



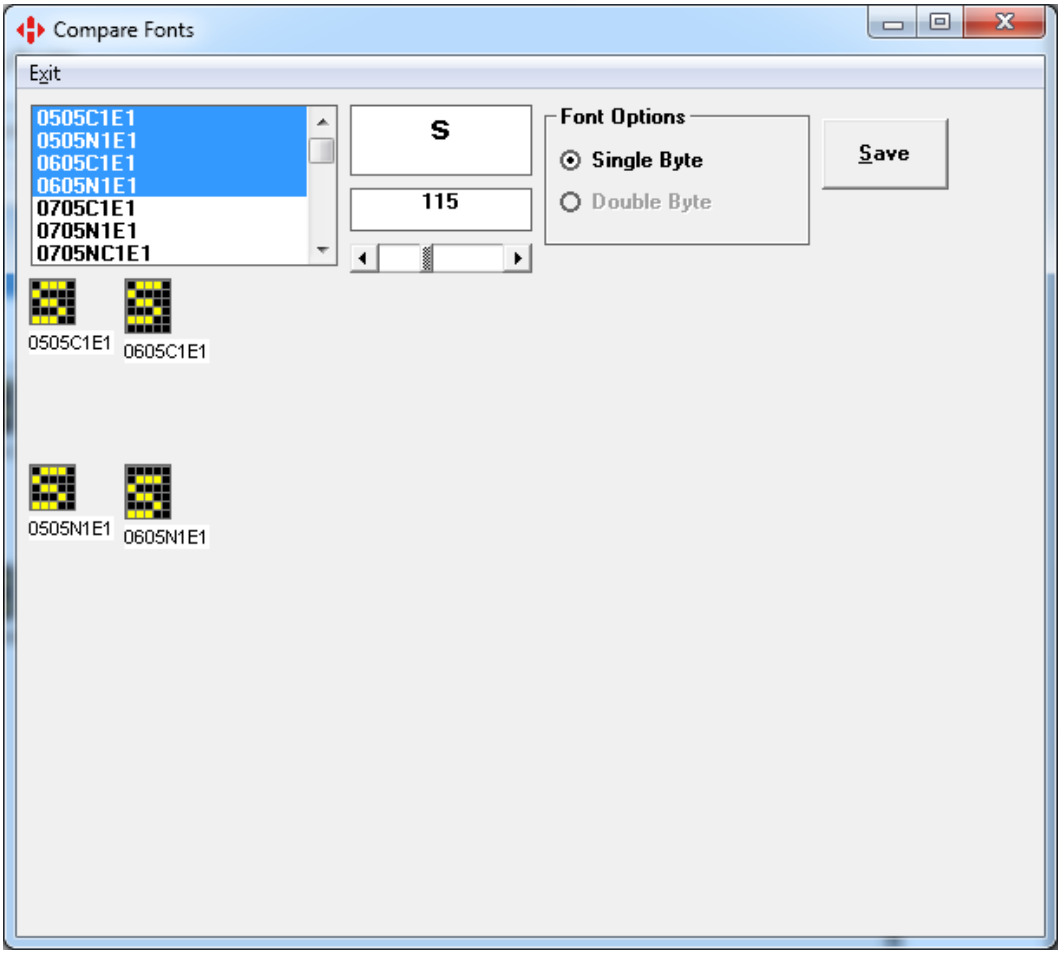
Click on 'Exit' in the top left corner to return to the font editor. Alternatively, double-click on a character to show that character.

7.2.3.6 Comparing fonts



Font → Multiple Font Editor enables the viewing and editing of characters from any number of fonts.

The following figure shows the Multiple Font window with four selected fonts from the list box:

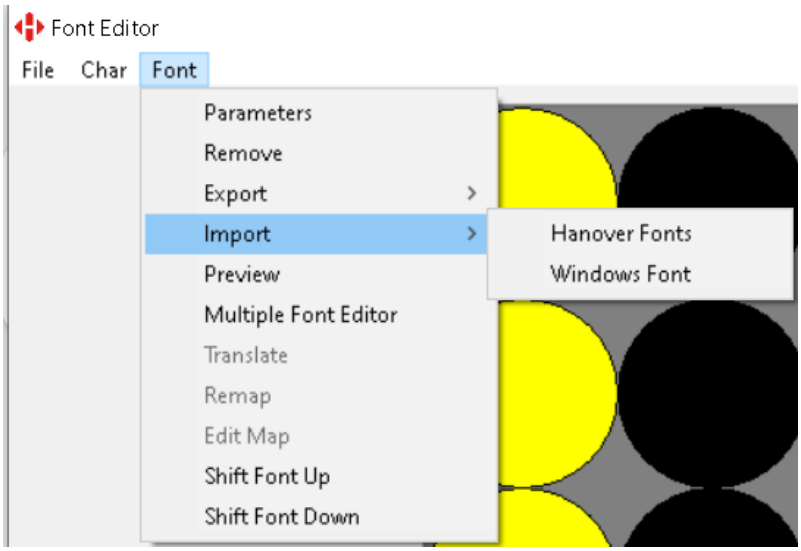


Drag the mouse over the font names to select consecutive fonts. Hold the control key and click to select individual fonts.

To view a specific character in all of the selected fonts, press the character on the keyboard. Extra fonts can be shown by using the control key and selecting them from the font list. If the character is not available on the keyboard, hold down the Alt key and type in the relevant decimal code (e.g. <alt>+155 will show the fonts' representation of the '¢' character).

The 'mini-fonts' can be edited directly. To do so, click the left or right mouse button to change a dot to yellow or black respectively or hold the button down and drag the mouse over the desired area. The window can also be resized to allow for more fonts to be viewed at one time.

7.2.3.7 Importing fonts



a) Importing Hanover fonts

From within Font Editor, select Font → Import → Hanover Fonts. Locate the Hanover font to be imported and click OK. This feature is used when a more up-to-date version of a standard Hanover font is required (e.g. containing additional characters) or where an additional font is needed. Contact Hanover in these instances. In the case where an updated font is being imported, the details of any user-created characters should be saved elsewhere as these will, of course, not be part of the standard Hanover font in question and will have to be recreated.

b) Importing Windows fonts

This feature can be used to extend an existing Hanover font or to create a completely new one. When using Windows 'True Type' fonts in the Sign Designer screen, HELEN will automatically resize the characters when the text is 'dropped' in order to provide the best fit. If required, characters must be altered individually every time this is done. By importing a Windows font into the Hanover font library, the alterations need only be done once and, in this way, a complete customised 'Windows-style' font can be created by the user.

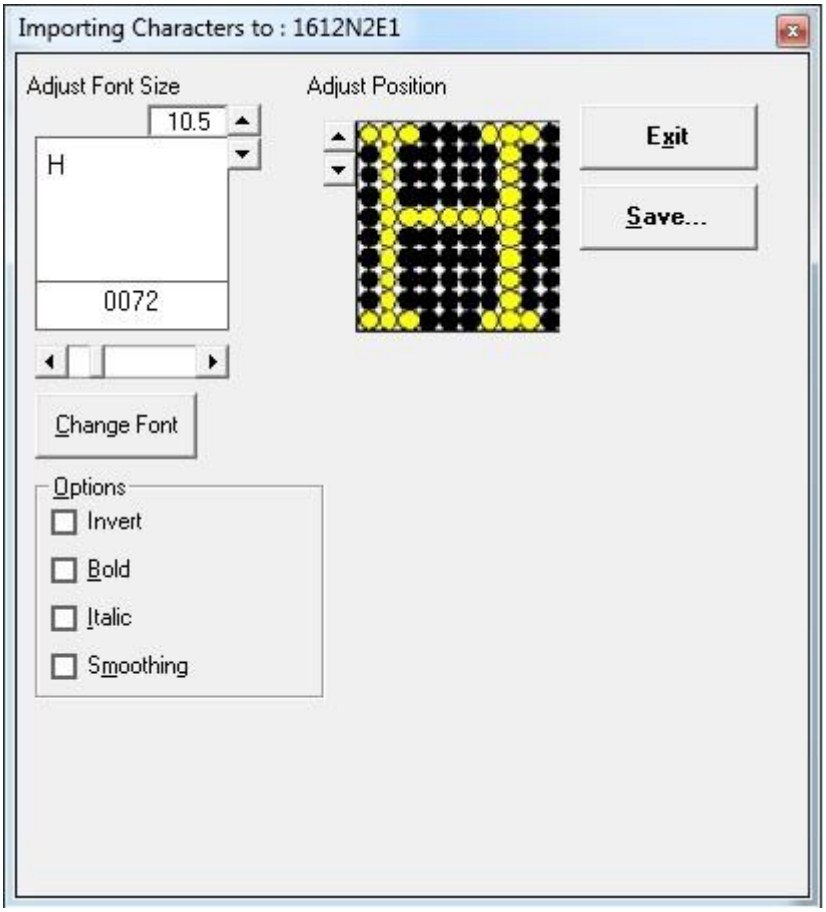
To extend an existing font, first select it from 7.2.3.1 The Font editor or, if creating a new one, go through the procedure at 7.2.3.4 Creating fonts and again select the font from the list.

From within Font Editor, select Font → Import → Windows Font. The Font Importer window will appear as shown below.

Click Change Font and select the Windows font to be installed, along with its style. Choose a smaller size at this stage: the final size can be adjusted later. Individual characters can be viewed by clicking on the scroll bar slider (it will then start flashing) and entering the chosen character.

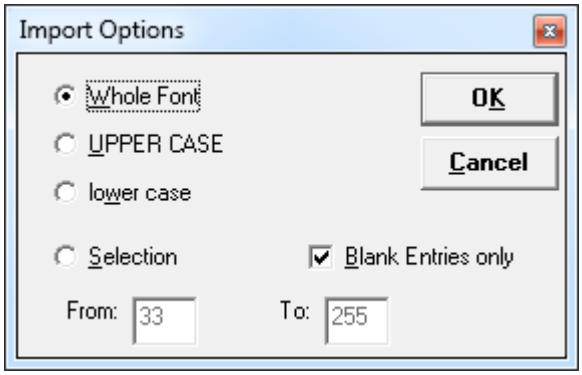
The height in dots of the font must be checked to make sure it fits into the space available ('Adjust Font Size'). As the font size increases, the font position will need to be adjusted vertically. Windows fonts do not generally display satisfactorily on the smaller height signs: sizes of 16 LEDs or higher are the most appropriate.

Tip: start with an upper case 'W' as this is generally the widest character.



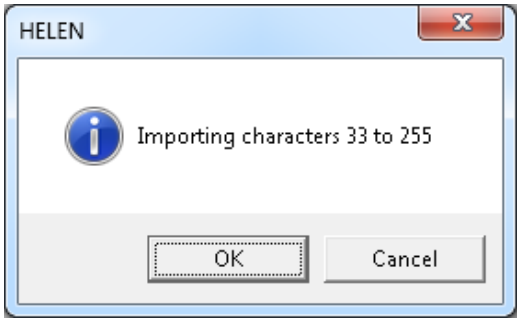
Note: it is important to ensure that all characters will fit: for example, it is a good idea to check that the descenders of characters 'g', 'j', 'p' & 'q' (the lower parts), the ascenders (top parts of certain characters) and accents on accented characters are all shown satisfactorily.

Once the necessary checks and adjustments have been made, click Save and the following Import Options dialogue box will appear.



A single character, a range or the complete character set can be imported. Click OK to convert it to a HELEN format.

A confirmation window as shown below will appear – check the details and if correct, select OK. This font is now editable in the Font Editor.



By default, the whole font is imported but if only certain characters (or a range of characters) were included, additional characters can be added to the font later by repeating the process.

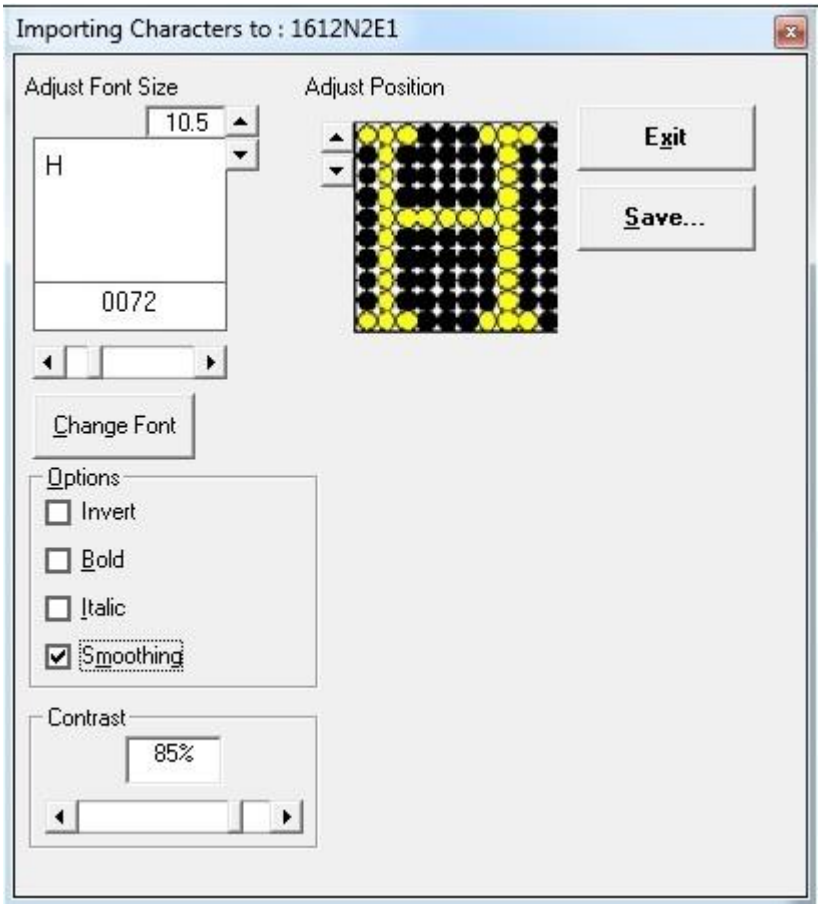
Ticking the 'Blank entries only' checkbox will ensure that any existing characters within the HELEN font will not be overwritten when importing a range of characters which may overlap with them. (This function is based on character codes, i.e. regardless of how the character might have been edited, a 'new' character 045 will not replace an existing 045: it will simply not be imported.)

c) Smoothing

In most digital representation of letters, numbers and symbols, the character edges are not perfectly smooth but are 'treated' to look as though they are when viewed at the intended size. These characters are comprised of dots, pixels, small squares etc. An example of this can be seen in the following figure where the edges have additional shading and colours applied.

A similar approach is taken in HELEN with the smoothing feature, where some characters represented are not just drawn only in black and white but (in the coding) use grey dots to make the curves of the character look more realistic.

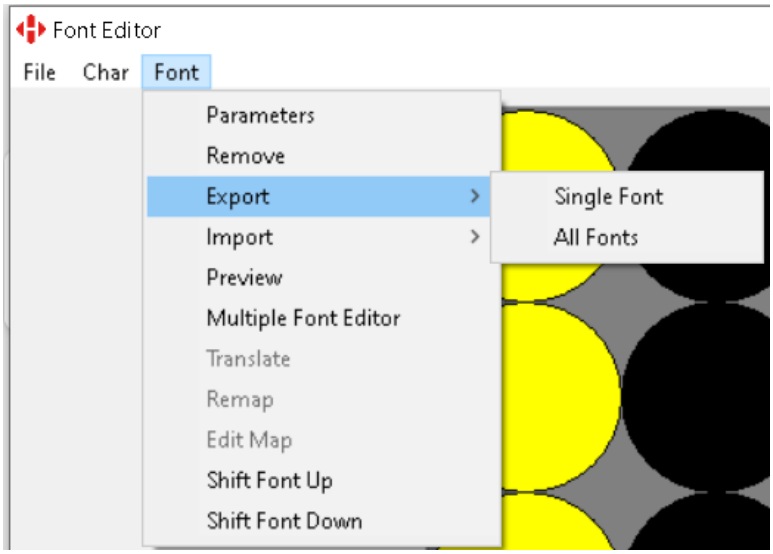
These images are not viewable by the user. By default, the Windows font importer switches off this 'smoothing' (it is restored to its original setting when closing the font importer) but it may be switched back on.



When 'Smoothing' is selected, an extra panel becomes visible in the 'Importing Characters' dialogue box. The 'Contrast' scroll bar will determine the point at which the grey dots are recognised.

Smoothing may, under certain circumstances, give a better character representation. However, as with Windows True Type fonts, it is only advisable to use this technique on large-sized signs as the result can be undesirable on smaller sizes.

d) Exporting HELEN fonts



Having selected a font, select Font → Export from within Font Editor. In the Export Font dialogue box, specify the file location where the font is to be saved.

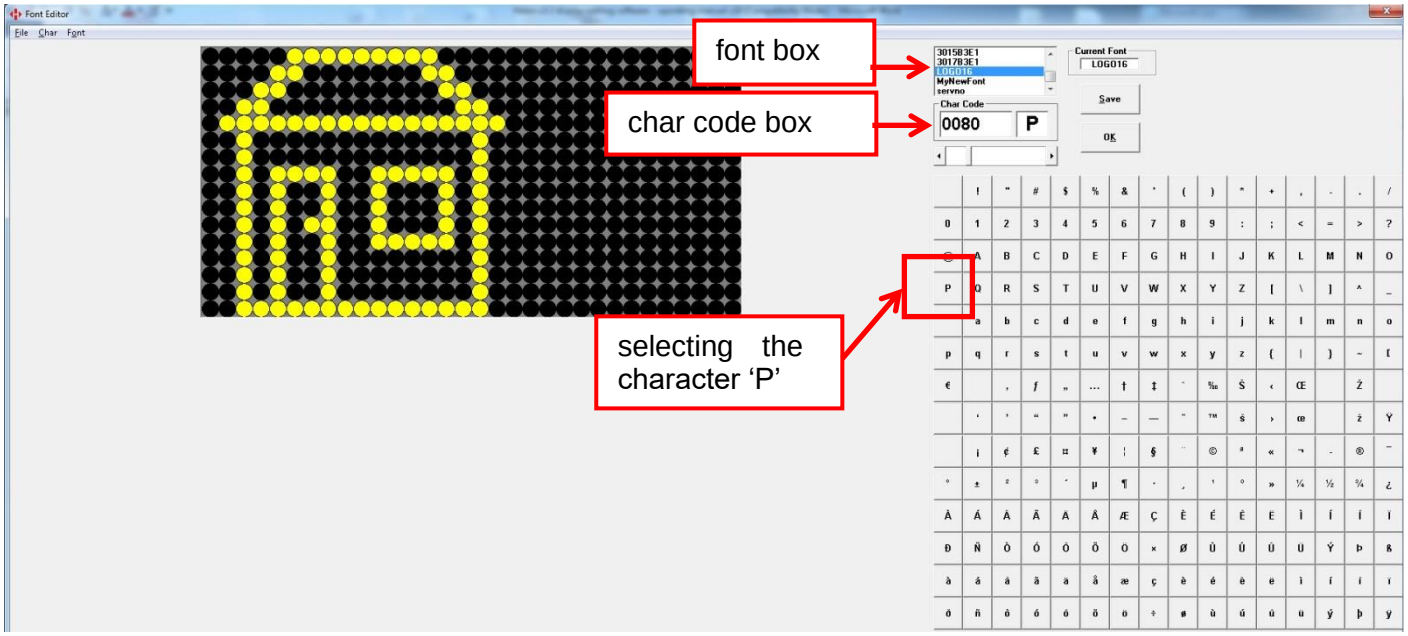
There is an option for exporting the selected font or exporting all the fonts from within the library.

This feature is useful if new fonts have been created and HELEN is to be re-installed (e.g., where an updated version is to be used). HELEN will not, of course, have any user-added fonts as standard so exporting and saving them prior to re-installation will allow them to be added back in (refer to 7.2.3.7 Importing fonts).

7.2.3.8 Creating new characters

a) Creating new symbol characters

New symbol characters can be added to any of the LOGO fonts directly from within Font Editor.



Open Font editor from the Options tab in the main window and select one of the LOGO fonts from the font box. Select a currently unused character from the grid - say, P - this will appear in the character code box.

A new symbol can then be created simply by 'drawing' on the blank matrix on the left: left-clicking the mouse generates a yellow circle whilst right-clicking changes it back to black.

Alternatively, a new symbol can be based on one already existing. As before, open Font editor from the Options tab in the main window and select one of the LOGO fonts from the font box. Select the desired symbol so that it appears in the matrix and click Char → Copy. This copies the symbol to the clipboard. Find an unused character in the grid and click on it (ensure this delivers a blank matrix) then click Char → Paste: the chosen symbol appears on the matrix and is allocated the corresponding alphanumeric or symbol character. The new character can then be edited as required.

Whichever method has been deployed, when drawing / editing the symbol has been completed as required, click File → Save and the new symbol will be added to the relevant font set under the chosen grid character.

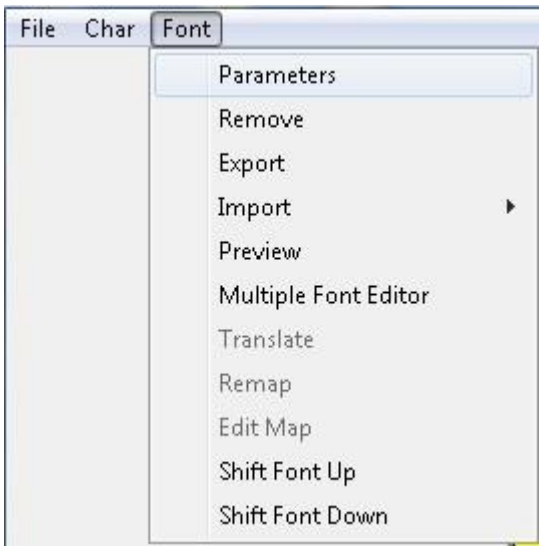
b) Creating other characters

The process described in *a) Creating new symbol characters* above can be applied to any character set, using spare character buttons in the grid (though the user will need to remember which button has been used as they cannot be marked).

Open Font editor from the Options tab in the main window and select the desired font from the font box. Create and save the new character as described above. Alternatively, select the relevant character so that it appears in the matrix and click Char → Copy. (**Note:** this source character can be copied from a completely different font or font library if required.)

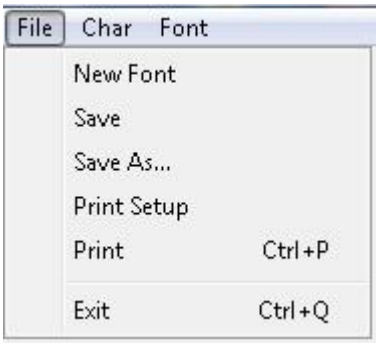
7.2.3.9 Other functions

- **The Font menu**



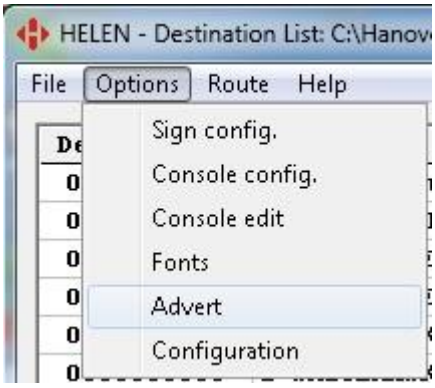
Menu item	Description
Parameters	Select Font → Parameters to switch the font between a single and double-byte font and also to adjust the character height, width of the space character and the inter-character space.
Remove	Select 'Remove' to delete the currently selected font.

- **The File menu**



Menu item	Description
Save	Saves all changes made to the current font.
Save As…	Saves the current font as a new (identical) font usually for editing.
Print Setup	Allows print options to be set.
Print	Prints the currently selected fonts. **Note:** no print dialogue window opens (options must first be set using 'Print Setup').

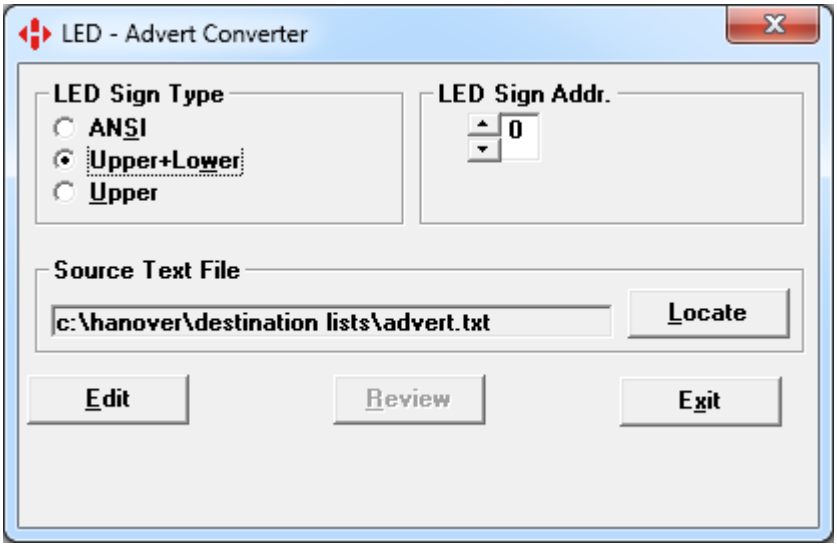
7.2.4 Advert submenu



7.2.4.1 Editing advert.txt

All the text for the adverts must be contained within a file called 'advert.txt' which must be located in the same directory as other HELEN data files, e.g. for destination messages. To edit this file, the relevant destination list database will need to be loaded. In the Destination List window, select Options → Advert.

The following LED – Advert converter window will be displayed:



Parameter	Description
LED Sign Type	Leave the database type to Upper + Lower.
LED Sign Addr.	The 'LED Sign Addr.' setting is only used if embedded graphics are required.
Edit	To change the adverts, click Edit to be taken into the standard Windows notepad editor, where the advert messages can be altered.
Review	If an LED sign is connected to a serial port on the computer, the messages can be seen on the sign by double-clicking one of the entries in the review list. To do this, an RS232 / RS485 adaptor and appropriate cable will be needed to drive it directly from the computer's serial port.

7.2.4.2 Advert text and control sequences

Except for accented characters, any upper or lower case character up to 'z' can be used in an advert message. In addition to the actual text characters, it is possible to use special control sequences which alter the appearance of the message as it is shown on the LED sign.

7.2.4.3 Sign control sequences

Each sequence is of the form: \x where 'x' is a single lower case letter. Each sequence should start at the beginning of a line.

The sequences are the same as those used in the standard Hanover in-bus LED sign software.

The various control sequence letters and their functions are listed below:

- **General sequence control characters**

Character	Description
\b	blanks sign for one second after a static message; multiples can be used to increase blank display time
\d	clears display as soon as last character of present text enters display
\e	scrolls text until current text leaves display
\f	toggle causes text to flash
\g…g	embed graphic from HELEN information message
\gXX.PPg	where XX is the info number 1-99 and PP is the page number 1-16, e.g. \g1.2g will embed the graphic for info 1, page 2 (from the current LED sign addr. setting)
\l	scrolls static text down to clear display
\n	set normal font
\p	short pause - pauses display for 1 second after a static message; multiples can be used to increase display time
\P	long pause - pauses display for 2 seconds after a static message; multiples can be used to increase display time[8]
\r	spells out text in a static sign (letter by letter)
\s	shows static message (limited to 14 characters)
\u	scrolls static text up to clear display
\w	set wide (bold) font

- **General sequence control characters**

Character	Description
\\	Is converted to a literal '\'

- **File control**

Character	Description
\#	comment - anything following on this line is ignored
*	end of message (good practice is to place this on its own line)

[8] Control characters are not case-sensitive: if 'P' is required, a setting needs to be changed in Helen.ini

Note:

Each of the above control sequences must be on the same line as the text which it controls. The text itself must not be split across two lines. Additionally, any trailing '\' will be treated as a literal '\'.

With the rules above, blank lines, new lines and comments can be used to make the source text file more understandable.

For in-bus LED software, the message body text can contain any ASCII character in the range '(space)' to 'z' inclusive and the control sequences are sent as '\x' (i.e. with the '\' character - see above).

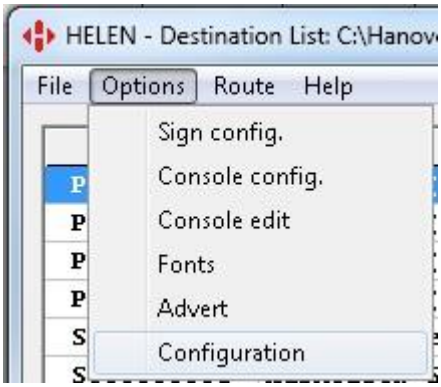
When using these control sequences it can sometimes be difficult to imagine exactly how the display will appear so it is worth viewing new text on an actual display before loading the new definition into all the sign systems.

Example:

```
\# This is a comment and this line is ignored
Here is an Advert \sThis is static \p\p\d and here is some more scrolling text
\*
\fThis is the 2nd advert\f \wThis bit is in wide\n
\*
This is the 3rd advert
```

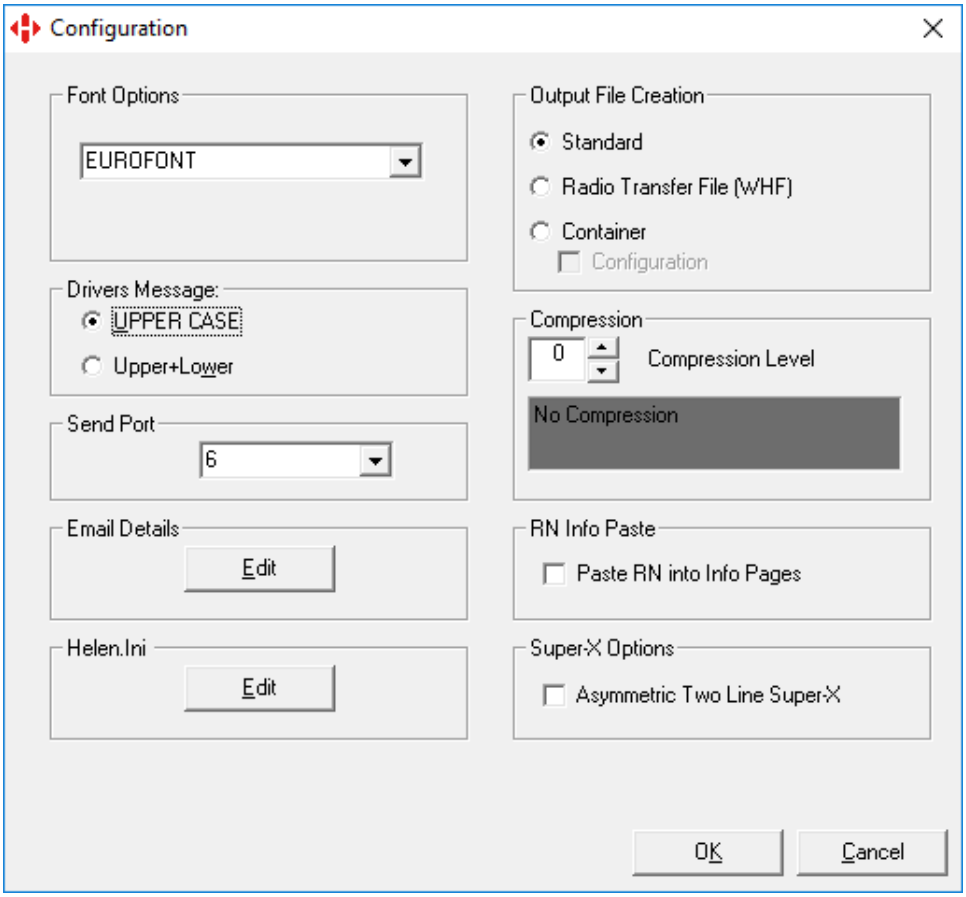
Once the list is complete, it must be converted to binary. This is achieved by clicking Review which also allows the list to be previewed.

7.2.5 Configuration submenu

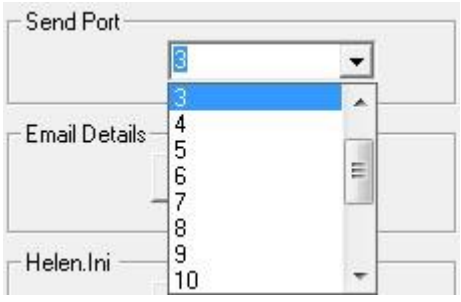


In the Destination List window, select Options → Configuration.

The following Configuration window will be displayed:



Prior to HELEN version 2.0o, most of these options had to be set in the helen.ini file.

Parameter	Description
Font Options[9]	The dropdown box enables the selection of alternative font libraries. The default is EUROFONT.
Drivers Message	The default is to have upper case only. Some older controllers were unable to have drivers' messages with lower case characters.
Send Port	Send Port defines the port on the user's PC which will be deployed by HELEN when linking with other devices such as loading a dataloader (this may be when a controller is used as a dataloader). The dropdown list enables the user to select the correct port as determined by the PC. Ports 1 to 16 are available although this value can be manually edited (in helen.ini) for values above 16. **Note:** this value is also used when driving a sign directly from the computer for test purposes (via the 'Messages' option in 'Preview'). 

[9] The font files are located in font library files (.fdb) stored in the following location:

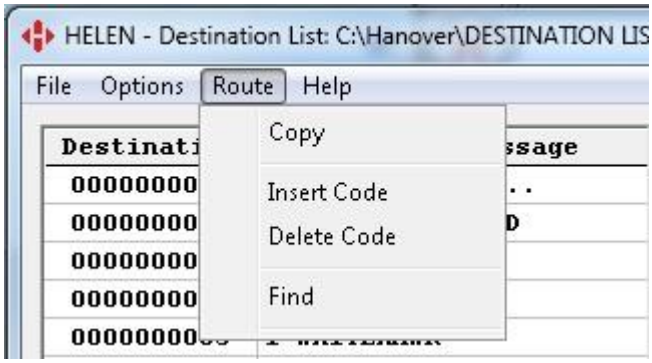
- XP: Documents and Settings\All Users\Application Data\Hanover Displays\HELEN
- Win 7, Win 8, Win 8.1 or Win 10: Program Data\Hanover Displays\HELEN (which may be hidden)

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Email Details</td><td>This is a feature whereby the working database list can be compressed and the Zip file can be sent to Hanover Displays for inspection. The button will enable the inclusion of the user's name, company and telephone number, which will be added to the file to enable Hanover to assist the customer more easily.</td></tr>
<tr><td>Helen.ini</td><td>This feature allows direct access to Helen.ini where various options can be set. This file is no longer installed in the application folder and its location is operating system-dependent. HELEN may have to be restarted depending on which parameters have been modified.
For more details, please refer to Appendix B: HELEN initialisation file (helen.ini).</td></tr>
<tr><td>Output File Creation</td><td>
<table>
<tr><th>Feature</th><th>Description</th></tr>
<tr><td>Standard</td><td>By default, HELEN will create the standard 'Eric.bin' file for sending to a dataloader or Key-lo.</td></tr>
<tr><td>Radio Transfer File (WHF)</td><td>A special compressed 'Eric.whf' file is created for transferring via a radio link or wifi.</td></tr>
<tr><td>Container</td><td>Selecting 'Container' will enable 'Configuration'. Refer to Appendix C: Container Files.</td></tr>
</table>
</td></tr>
<tr><td>Compression</td><td>There are cases where the database is too big into the controller even when using container files. It may be possible to improve the situation by compressing the Eric.bin file[10] (the default is to have no compression). Compression level 1 provides quick compression, whereas level 2 will take much longer to process although will give slightly better compression than level 1.
However, this should only be regarded as a temporary solution as the extra capacity offered by level 2 is minimal; the feature is best used as a warning that the size of the database is too large and must be reduced. Methods for doing this, including the use of profiles, are covered later in this manual.
Note: all current Deric+, Eric++, DG3 and EG3 controllers can handle compressed files although very old models may need a firmware upgrade for which Hanover must be contacted.
Therefore, use level 2 only if level 1 has failed to produce a loadable database. The amount of compression achieved will depend mainly on the type of data being compressed. For example, graphic data will compress well but text messages (including Super-X) will not be compressed.
Level 3 compression (gZip) has been optimised to work with full colour signs.</td></tr>
</table>

[10] Note: This technique is different from the compressed file used for radio transfer (Eric.whf).

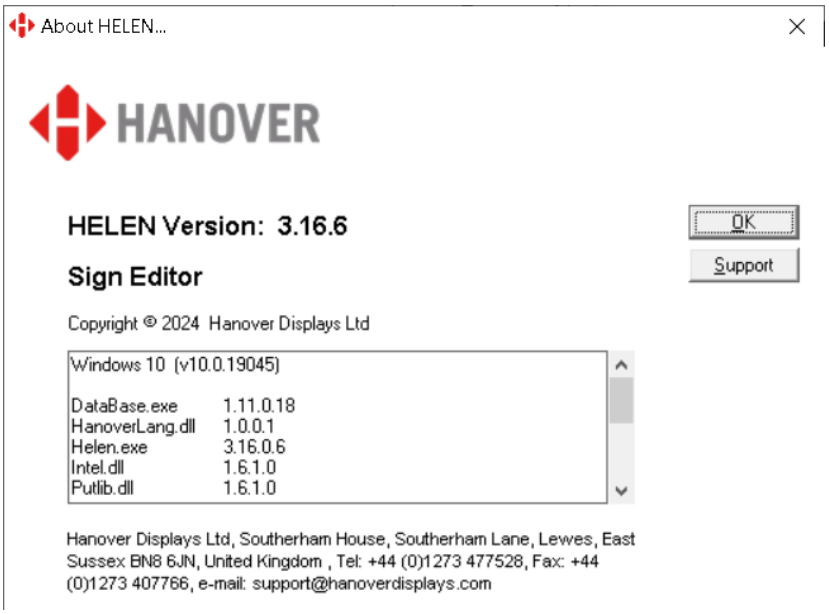
Parameter	Description
RN Info Paste	When this box is ticked, the image in the route number (RN) field is copied into an 7.5.2 Information page, thus keeping the route number visible while the information page is being shown. In addition, the character '%' should be placed into the route number field of each information message that is displayed with the current route number. Refer to Appendix L: Programmable route numbers and Appendix Q: Pasting a Route number into an Information page. This reserves a fixed amount of empty space where the route number will be displayed. The amount of space reserved is the space configured for the route number field in the HELEN sign configuration window.
Super-X Options	The Asymmetric Two-Line Super-X option is specifically to create a larger top destination field which will ensure that externally-viewed signs meet UK disability discrimination legislation when using two lines on certain height signs. **Note:** A more elegant solution can be achieved by increasing the height of the destination field by a single row for 17 and 19 high signs.

7.3 Route menu



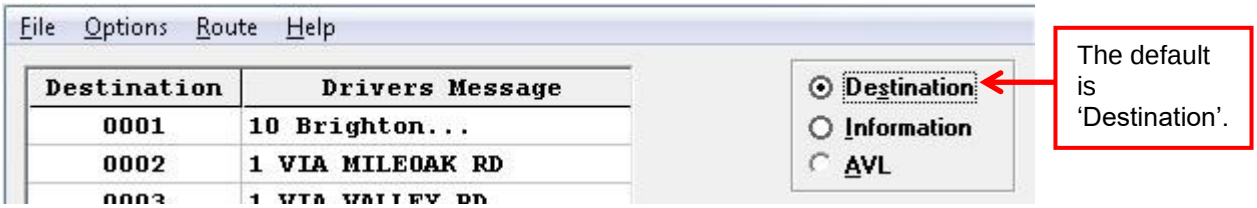
Menu item	Brief description	Refer to section
Copy	Make a copy of an existing destination (or route) code. Useful if the new code is to be similar to an existing one.	-
Insert Code	Used when inserting a new code within a list. If the code number at the insertion point already exists, it (and subsequent codes) will be incremented by one until there is a gap. The new code should then be given the number pertaining to the space thus generated at the insertion point.	-
Delete Code	Same function as the main 'Delete' button on the initial window. **Note:** 'Delete Code' is not the opposite of Insert Code. 'Delete Code' will not decrement – it just deletes, renumbering the remaining codes.	5.4 Deleting an existing destination
Find	Quick way to find an existing destination in a long list.	5.3 Editing an existing destination

7.4 Help menu

Menu item	Brief description
About Helen…	 Gives details of the HELEN version number and contact details. It will also show the version number of all the files used by HELEN. This can be useful for diagnosing particular problems. This pop-up also contains the Support button to automatically compress all the files in the working list to make it easier to send to Hanover for inspection.

7.5 Destination / Information / AVL radio buttons

7.5.1 Destination

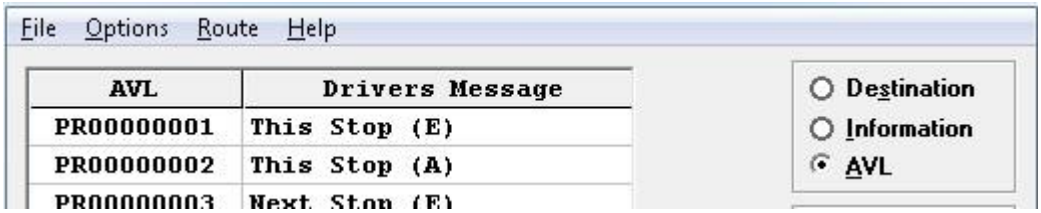


This will show the destination codes (numbers) and the driver's message. If there are trailing dots following the driver's message, this indicates that there is more than one page. Any item in the list can be edited by double-clicking.

7.5.2 Information

Information messages are a useful way of showing information which is not route-specific such as 'Happy New Year'. An information message is presented as an additional page after a standard destination message.

7.5.3 AVL



If an AVL database is being deployed, this will show the preambles, stop messages and triggers.

7.5.3.1 Overview

Hanover's Automatic Vehicle Location (AVL) system is designed for in-bus LED signs only. It formerly used the AVL edit system in HELEN but this has been superseded by Hanover's ASE software. The ASE program will create an ase.bin file which can then be integrated into the load file (eric.bin). However, the ASE software has been primarily designed for western languages and not complex scripts such as Arabic or Chinese. These scripts cannot be represented by simple text and therefore a graphical system needs to be used.

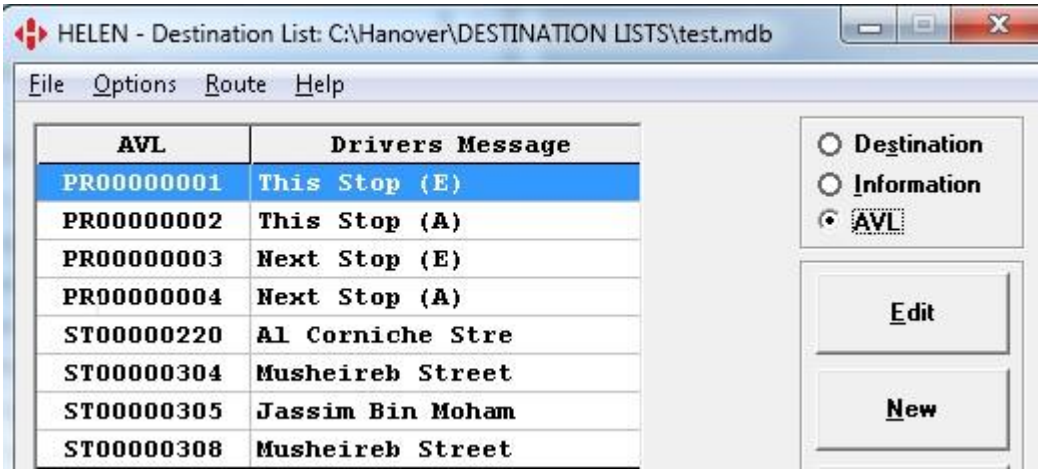
Please note that if using an AVL system driven by a sign controller, it must be an Eric model with AVL firmware installed. Please consult Hanover who will be able to advise.

7.5.3.2 Destination list

The destination list window in HELEN is the starting point for most HELEN activities. This window can show three different lists; a destination list (entries beginning with 0s) an Information list and an AVL list for in-bus LED sign messages. The latter comprises two types of message:

- Preambles (entries beginning with PR)
- Stop-name messages (beginning with ST)

The figure below shows a typical AVL list:



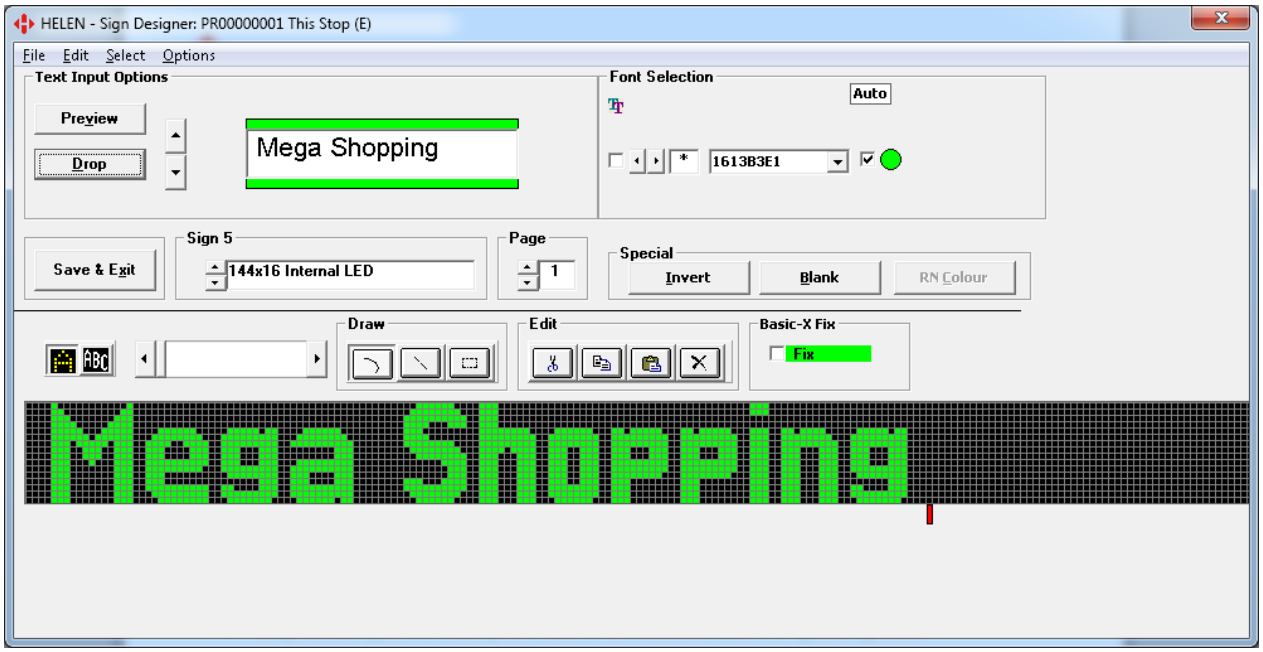
To create a new item, select the AVL radio button and click New.

There is now an option to create a Stop, Preamble or Other (user-defined) file (the ST or PR prefix will be added automatically).

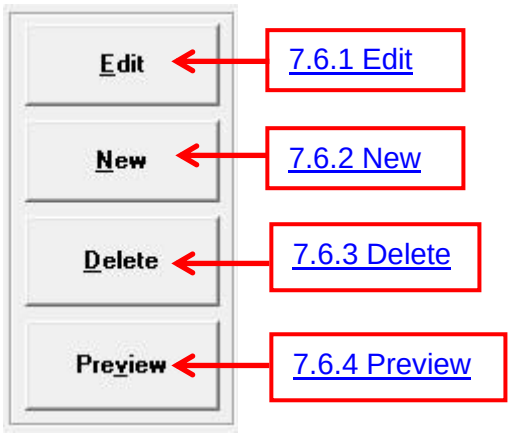
7.5.3.3 Editing LED messages for AVL

When editing a message, only message data for an in-bus LED sign that has been configured by HELEN should be entered (in the example below, sign 5). Each message page can have either

- graphic data (use the button) for Arabic or Chinese characters or special symbols
- or text data (use the button) for Latin characters – though this option should not be necessary as non-graphic data can be created in the ASE program.



7.6 Edit / New / Delete / Preview buttons



7.6.1 Edit

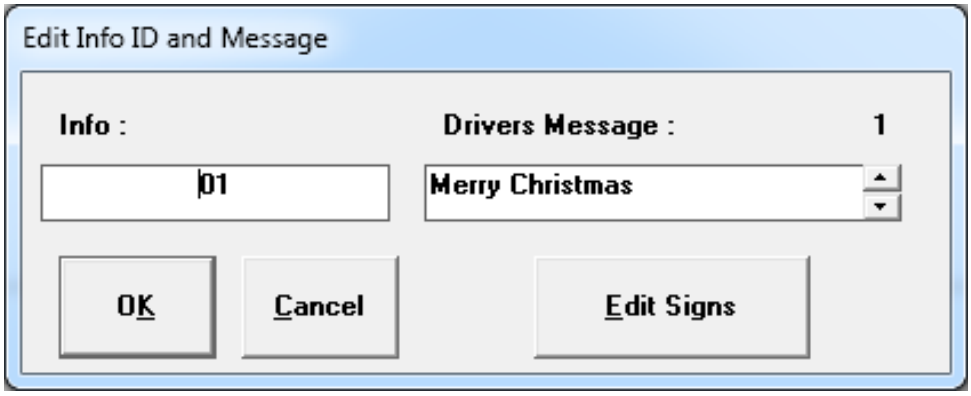
Select an item on the list and click Edit to edit it. This has the same effect as double-clicking the highlighted list item.

Depending on whether Destination, Information or AVL has been selected, the following window will be displayed:

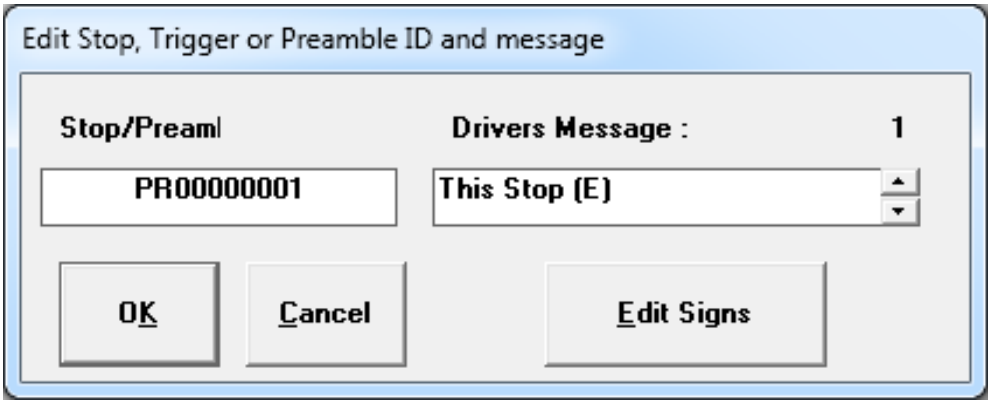
- Destination

The destination code and driver's message can be changed from this window or Edit Signs can be clicked to edit the sign.

- Information



- AVL



7.6.2 New

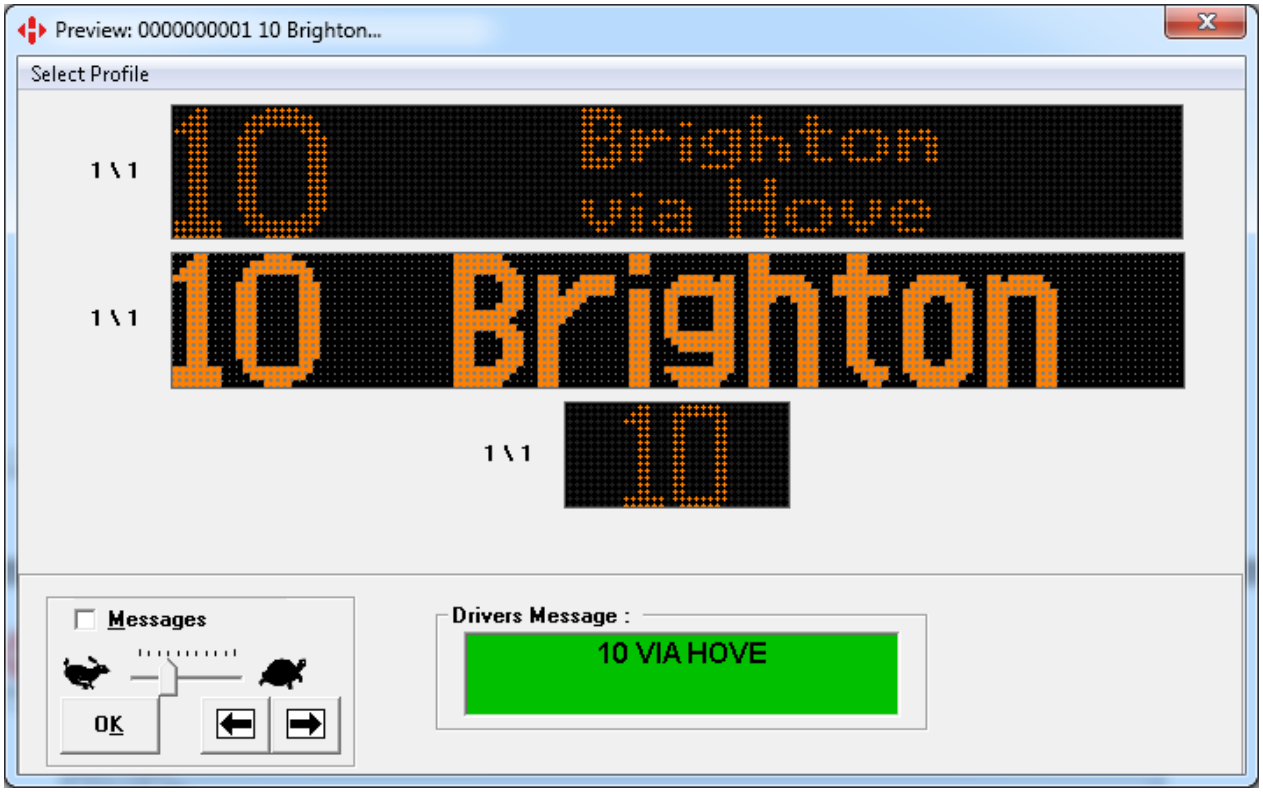
The New button enables the creation of a new destination (or information message or AVL message). For more information, please refer to 5.1 Creating new destinations.

7.6.3 Delete

The Delete button deletes the item highlighted on the list.

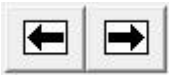
7.6.4 Preview

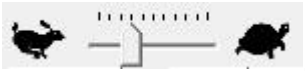
The Preview button reveals how the destination (or Information / AVL message) will be shown on the signs.



As described previously, the preview screen shows, dot for dot, the image that will be created on the signs when the corresponding destination code is entered on the driver's controller. It will also show the driver's message (text only). The driver's message preview will use the configuration parameters to show either one or two lines and to determine whether to convert to uppercase or leave in mixed case.

If any amendment is required, double-click on the sign to be taken to the Sign Designer (refer to 8 Sign Designer). Also, double-clicking the driver's message leads to either the 'Edit Route Code and Name' or 'Edit Info Id and Message' pictures in 7.6.1 Edit depending on whether Destination or Information is being shown.

The next or previous destination can be previewed by clicking the left or right arrows:  .

If there are multiple pages, the preview screen will change pages at an interval determined by the timer. The interval can be adjusted by the slider bar:  .

The default is three seconds. Moving the slider to the left will speed up the paging but the leftmost position will freeze the sign for easy inspection.

The Messages box is useful for driving a sign directly from HELEN (normally where it is not installed in a vehicle). For a standard sign, an RS485[11] adaptor and an appropriate cable will be needed to drive it directly from the computer's serial port.

[11] This and other communication connections are available from Hanover.

8. Sign Designer

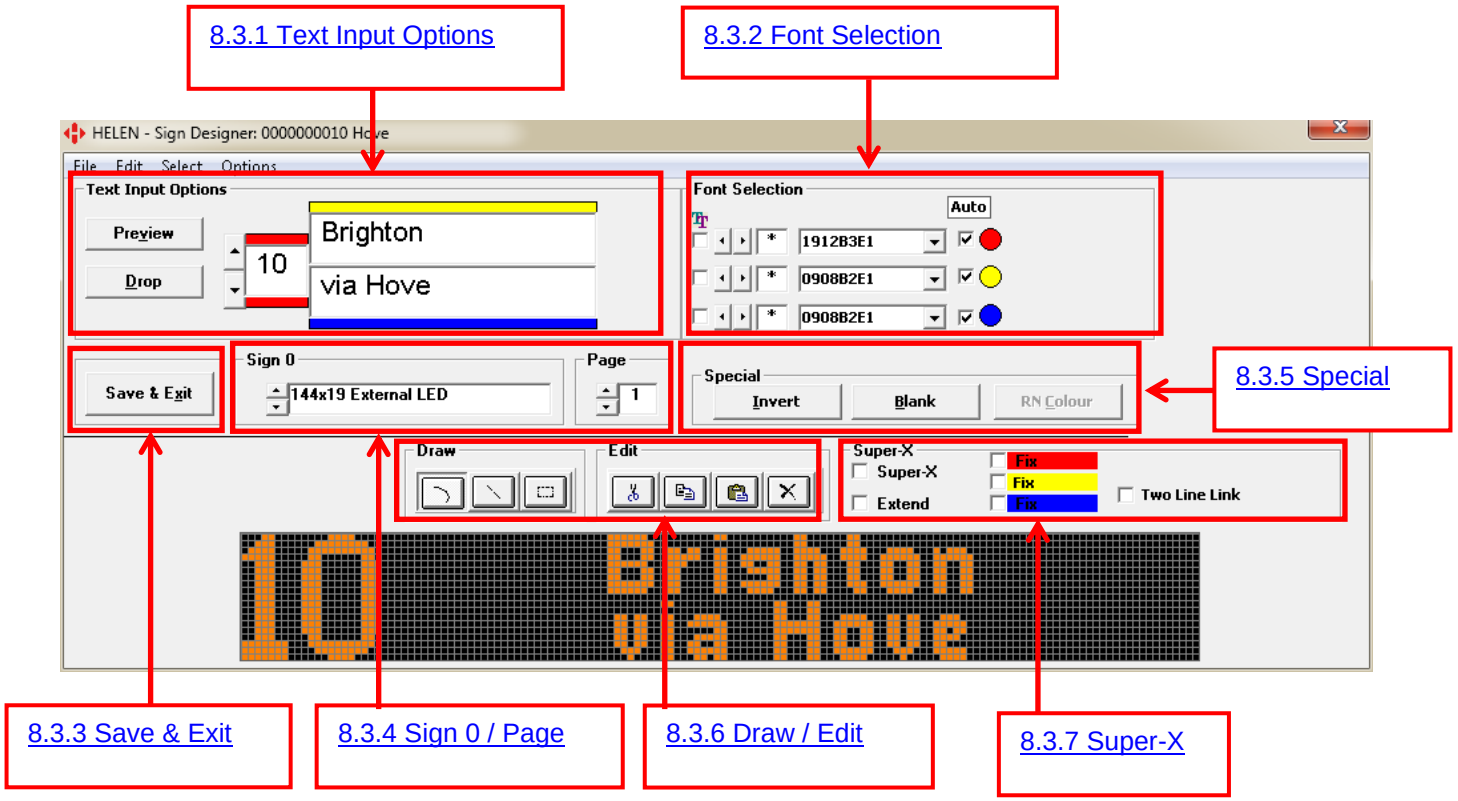
8.1 Introduction

There are two ways to access the Sign Designer screen from the Destination List window. Highlight the destination sign to be edited, then

1. Either click Edit (or double-click the highlighted sign). When the Edit Route Code and Name window appears, click Edit Signs.

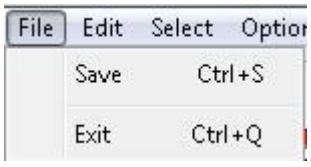
2. Or click Preview and double-click on one of the sign images. The sign designer will be loaded with the first page of the sign that has been double-clicked.

The following Sign Designer screen will be displayed:



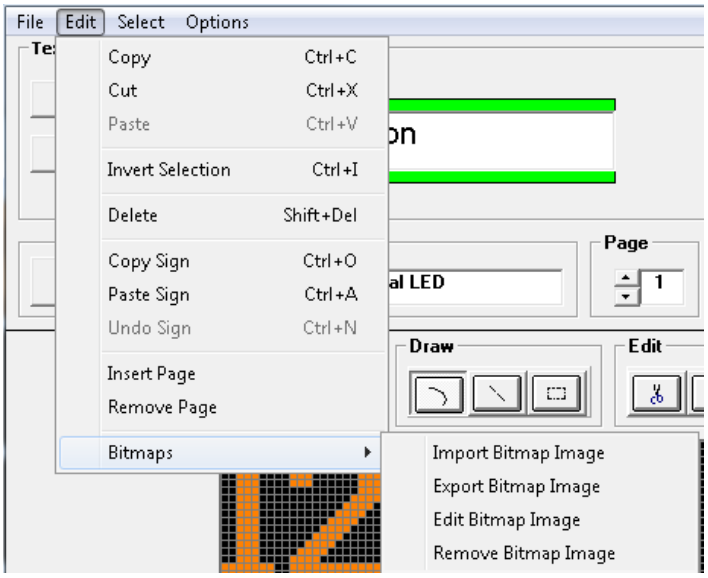
8.2 Sign Designer – Opening Screen Functions

8.2.1 File menu

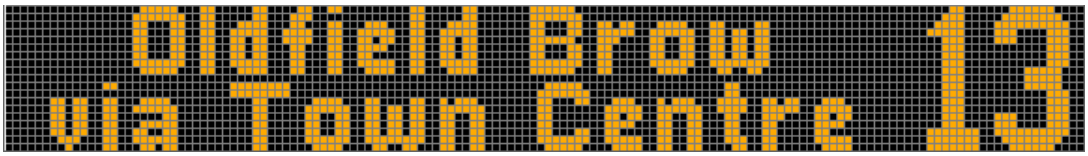


Menu item	Brief description
Save (or Ctrl+S)	Saves all sign images within the current destination code.
Exit (or Ctrl+Q)	Asks whether any changes made should be saved and then returns the user to the previous screen.

8.2.2 Edit menu



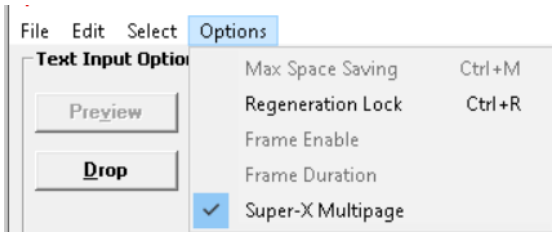
Menu item	Brief description
Copy Sign / Paste Sign / Undo Sign	This function allows the copying and pasting of complete sign images. By selecting Edit → Copy Sign, the sign image and the text in the text boxes will be copied to a clipboard area and Edit → Paste Sign will then paste this information, either to a different sign or another page of the same sign. In this case, as there is no specific area to move (nothing has been selected) the whole sign is pasted with the top left-hand corner of the original sign aligned to the top left-hand corner of the new one. **Note:** a difference in the sign size will not affect the 'Paste Sign' function: it will be pasted dot-for-dot. For this specific function, Edit → Undo Sign allows the 'Paste Sign' action to be undone, restoring the original image. **Note:** this 'Copy Sign' function copies an image to a separate clipboard from the standard Windows 'Cut' and 'Copy' clipboard.
Insert Page/ Remove Page	This feature allows the easy insertion or deletion of a page. **Note:** useful particularly for colour signs.

Menu item		Brief description
Bitmaps	Import Export	This feature is the use of the bitmap format. It is possible to create and import bitmap images of signs, which can be edited by (exporting to and using) a bitmap editor such as Paint. When creating a sign as a bitmap, it is important that the height and width attributes in pixels of the entire bitmap match those of the sign in dots. This is because each dot must be represented by one pixel in the bitmap image. It is also important that the bitmap image is made in black and white. To see what a sign looks like as a bitmap, export a sign image and view it in a bitmap editor. Here is an example: This is the sign represented in HELEN.  Selecting Edit → Bitmaps → Export Bitmap Image will give a standard Windows 'Save as' dialogue box. Save the file in .bmp format and open it in Paint. It will look like this: Editing can then take place and the file re-imported to HELEN using Edit → Bitmaps → Import Bitmap Image. Newer versions of Paint have gridlines available in 'View'. Using this principle, individual pixel-type images can be added to any of the LOGO fonts by importing any (monochrome) bitmap image. It must be a maximum of 16H x 32W (LOGO) or 14H x 32W (LOGO 16) and can be saved to a 'spare' character in the chosen font's character set. Appendix I: Alpha to symbol converter (Hanover fonts) shows the pre-installed characters in these two fonts. Completely new characters can be added to any of the LOGO fonts from within Font Editor – refer to a) in 7.2.3.8 Creating new characters.
	Edit	Facility to directly edit the bitmap via 'Paint' called from within the program. A menu item will launch 'Paint' with an Open File dialogue to select the BMP required.
	Remove	Feature to delete the bitmap from that page.

8.2.3 Select menu

Menu item	Brief description
Next Page / Previous Page	Up to 16 pages[12] of a particular destination can be created for any sign. Navigating to the next page up or down can be done by: • pressing PgDn / PgUp • or clicking 'Next Page' or 'Previous Page' from the 'Select' menu.
Next Sign / Previous Sign	To switch between configured signs: • press Ctrl + PgDn / PgUp, • or click 'Next Sign' or 'Previous Sign' from the 'Select' menu.

8.2.4 Options menu



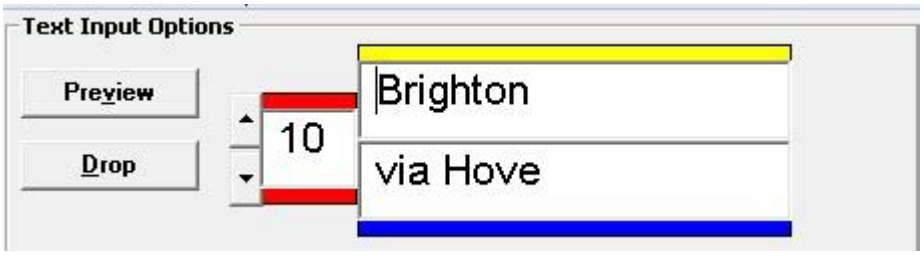
Menu item	Brief description
Max Space Saving	This feature can be chosen from the 'Options' menu. A tick to the left of 'Max Space Saving' means that it is turned on. When a sign is first chosen, a certain amount of space is automatically allocated for the route number, depending on the sign size (it can also be adjusted manually) with the number aligned in the centre of this space. However, this can mean that some of the space is wasted. 'Max Space Saving' sets the route number to the leftmost (or rightmost) column of the sign, thereby freeing up space for the remaining text. This option is set automatically when the destination is first created (note that older versions of HELEN did not turn this option on by default).

[12] 16 is the default which can be changed in helen.ini.

Menu item	Brief description
Regeneration Lock	This feature prevents the current page from being altered upon regeneration. This is useful if the destination list requires regenerating but graphical edits have been made to fit messages on certain individual pages. Selecting 'Regeneration Lock' from the 'Options' menu ensures that no automatic edits can take place on that particular page. The regeneration lock will be activated automatically if any graphical edits have been made. For more information about sign regeneration, please refer to 7.1.4 Regenerate submenu.
Frame Enable	FrameEnable is a switch on feature to enable multi-page messages to be sent to a sign - first used with full colour signs with enhanced memory. Normally switched off as this feature is presently not available in standard signs.
Frame Duration	Amount of time a frame (page) is displayed on the sign.
Super-X Multipage	This will set all the pages for this destination to be treated as one multipage message, rather than a series of separate pages. It has the advantage that the sign will now handle the timing of the pages and synchronise any scrolling messages. **Note:** This can only be set on the first page – all subsequent pages will be set automatically (refer to Appendix P: Working with Multipage Super-X).

8.3 Functions of Sign Designer features

8.3.1 Text Input Options – Presenting text as a graphical image



The sign designer has a number of features that allow editing so that it can show any image required – this includes the text itself (presented as an image). The main method is to enter text in the text input box and 'Drop' it on the sign mimic below.

Select the style of sign layout (refer to Appendix R: Layout Configurations), using the up and down arrows to the left of the sign text boxes (or Ctrl+Up / Down arrow) then type the text into the boxes. Different layout styles can be tried; any text typed into the text boxes will remain there until either Drop and Save & Exit are clicked. At that point, only the text in the boxes for the selected layout style is kept.

Note: dropped text will be overwritten by new dropped text.

The Preview button shows the text image on the sign mimic in red. The Drop button shows the text in yellow for a flip-dot sign, amber for an LED destination sign and green for an in-bus LED sign. Preview images are not saved.

Both the text input box and that on the sign mimic can be edited directly. Once the desired result is achieved in the mimic, clicking Save & Exit will save it.

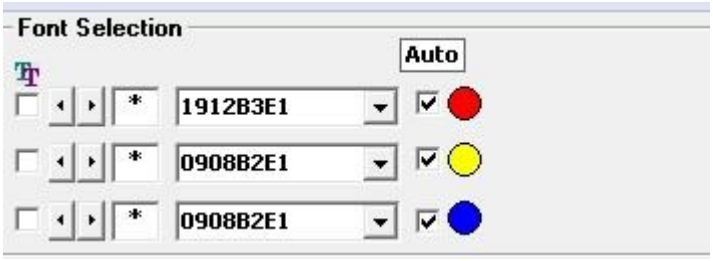
If required, edits can be discarded simply:

- by closing the Sign Designer window if Save & Exit has not been clicked (using the 'X' in the top right-hand corner) or
- if no changes have been made to the text input boxes, by clicking the Drop button.

Note: the drop button only relates to what is in the text box and that pressing Drop (or Enter) after an unsaved graphical change will erase the graphics.

Special characters (i.e. those not directly available on the keyboard) can be inserted in the text box by pressing Alt+code where code is the decimal code for the required character. Many lists of these can be found on the internet but one of the most comprehensive is at 'The World of Stuff' (http://www.theworldofstuff.com/characters/).

8.3.2 Font Selection



8.3.2.1 Selecting Hanover fonts

By default, font selection is automatic and the fonts are chosen from the 20 fonts that were picked when the sign was selected (refer to figure in 4.3 Sign Parameter Editor). An improved appearance might be achieved manually by selecting another font.

In the font selection section, there is a drop-down font list for each of the sign's text input boxes. Fonts are selected by clicking on the font name and browsing the list by using the up and down arrows. Any font can be selected for each of the input boxes – as long as it will fit: selecting a font 16 dots high will produce an undesirable result if the sign is only 7 dots high. Fonts shown in red are manually-selected fonts. Check the 'auto' box to return it to an automatic font. Click Drop to reproduce the sign image with the chosen font. This will also cause the identity of the 'auto' font to be shown.

If a certain part (or all) of the text is not then represented on the sign, this may be for two reasons:

- either the message in the text box is too large to be reproduced,
- or the characters in the message are not represented in the font database.

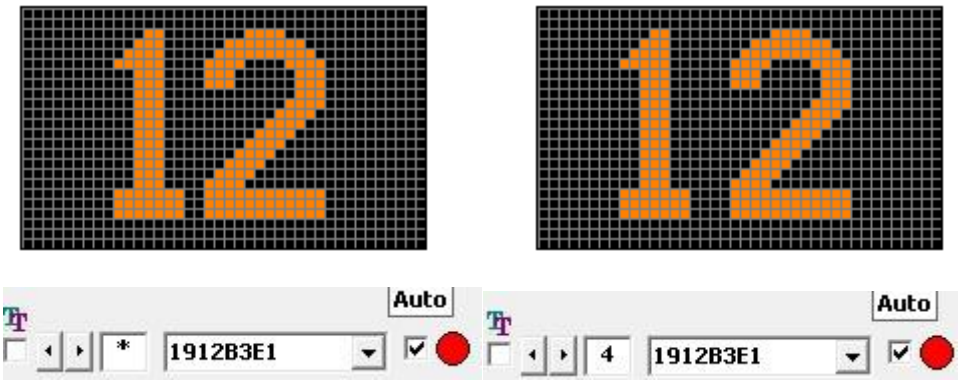
Solve the first problem by:

- either reducing the number of characters in the message (and maybe deploying a second page),
- or using Max. Space Saving (refer to 8.2.4 Options menu).

The second problem can be resolved by using the font editor (refer to 7.2.3.1 The Font editor).

8.3.2.2 Inter-character space

The asterisk to the left of the selectable fonts is the inter-character space selector.



The figure on the left shows the default inter-character space of 2 dots for this font (1912B3E1) where '*' is the default. The space between the characters can be increased (by up to 10) or decreased (down to 1) by using the left / right arrow keys.

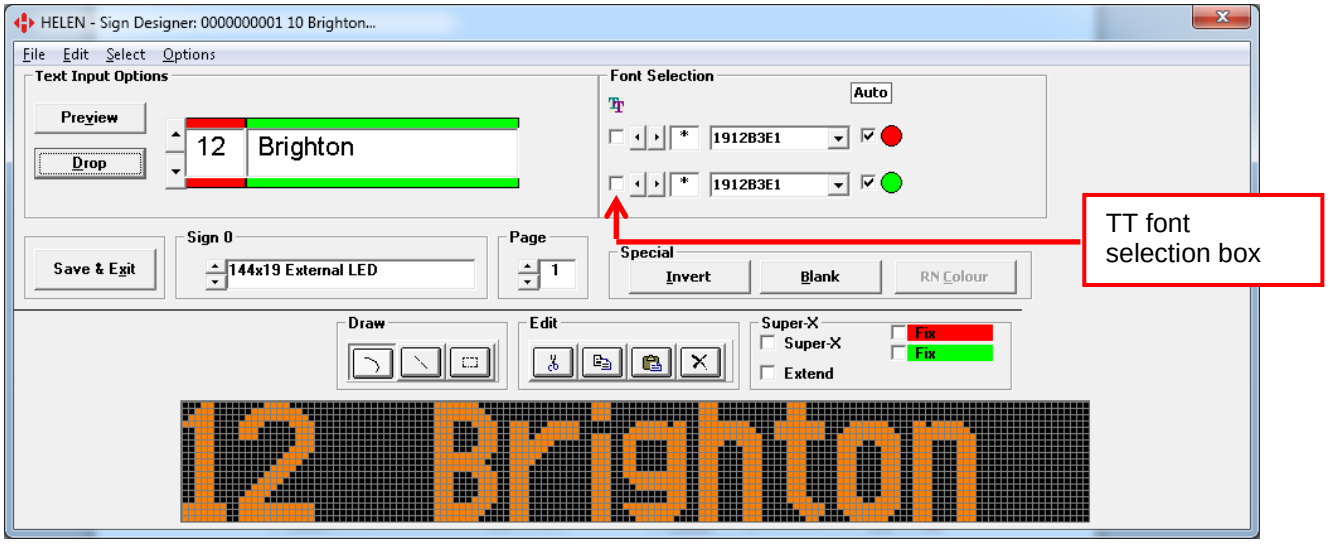
The figure on the right shows the result of increasing the value to 4.

Note: the space between characters cannot be altered using this method if they are in a Windows font. However, if this case, the required adjustment can be made using the selection function, once the text is in place. Please refer to 8.3.6 Draw / Edit.

8.3.2.3 Selecting Windows fonts

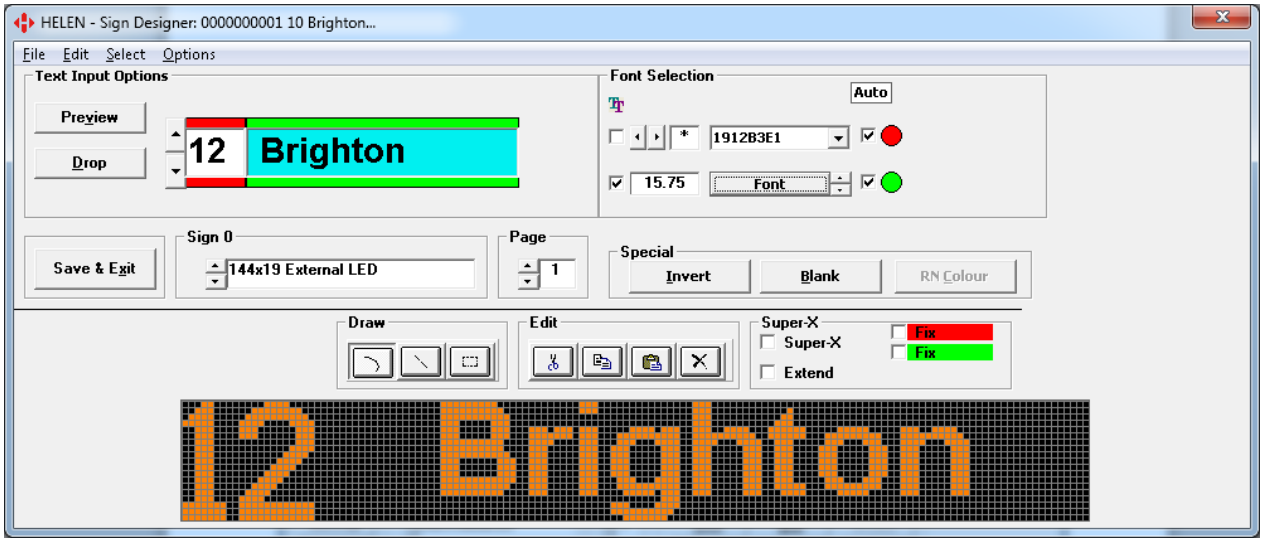
From HELEN version 2.0o, there is an additional method of font selection. Rather than using individual characters stored in a font database, this method uses the Windows fonts on the computer. It uses a scanned graphical method which works best on larger-sized signs. For smaller signs, the previously-described Hanover font system will give better results.

Here is an example:

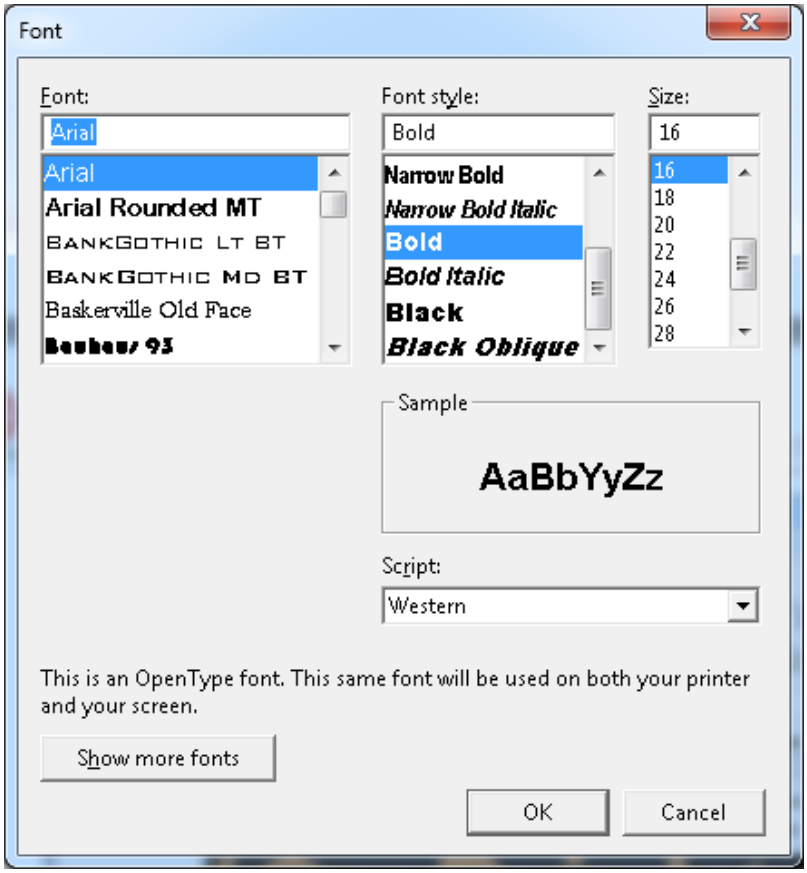


Tick the TT font selection box for the required field (in this example, the destination field – colour-coded green) and then click Drop.

The following window will be displayed:

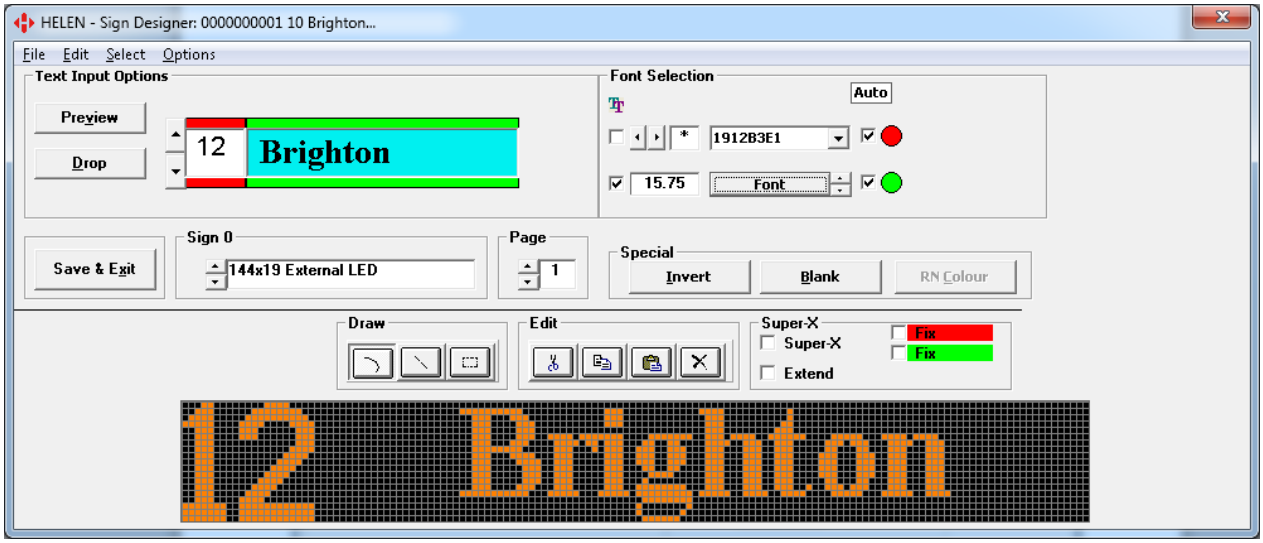


The destination field has turned turquoise. The sign is in a different font and the font selection box has changed. Clicking Font will activate the following font dialogue box which will show that the default selected font is Arial.



For this example, try selecting another font – say, Times New Roman. Click OK and then Drop. The destination is now shown in that font.

Note: once a particular Windows font has been chosen, HELEN will remember it the next time a Windows font is used.



The largest size of font will be automatically selected to fit the available space. A manual adjustment to the font size can be made using the up / down arrows to the right of the Font button.

8.3.3 Save & Exit

Save & Exit saves the current destination messages for each sign and returns the user to the previous screen.

8.3.4 Sign 0 / Page

To switch between configured signs, click the up / down arrows next to the sign box.

Up to 16 pages[13] of a particular destination can be created for any sign. Navigating to the next page up or down can be done by clicking the up / down arrows next to the page number box.

[13] 16 is the default which can be changed in helen.ini.

8.3.5 Special

8.3.5.1 Invert button

Invert turns black dots amber (or yellow or green) and vice versa for the whole sign. This may be required if a bitmap image is imported with a black image on a yellow background – or simply for effect.

Note: moving text and numbers using the selection button will not work on inverted text; text should be moved first and then inverted.

8.3.5.2 Blank button

Pressing Blank turns all dots black for the current sign.

8.3.5.3 RN Colour

When a monochrome sign with a colour route number has been selected, the 'RN Colour' button becomes active and a thin white line is used to separate the colour and monochrome sections of the sign. By default, the colour section will mimic the monochrome section.

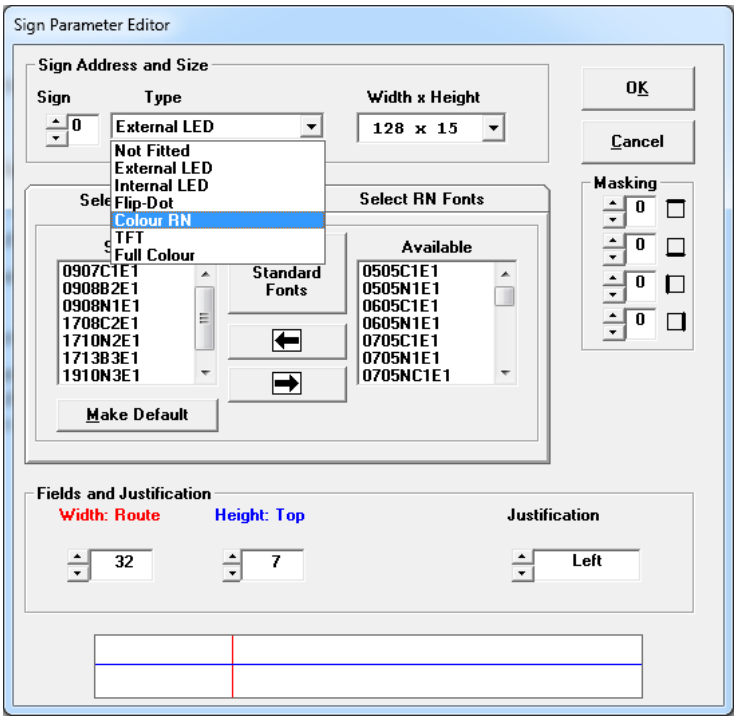
Hanover produces two types of colour signs:

- a monochrome sign with the route number in colour (colour route number-only signs are a subset of these)
- a sign with all the information in colour

A route number can be given emphasis by the use of colour. The Hanover system has an initial palette of 64 colours which allow a choice of coloured foreground and background plus an optional stripe and character outlining option. A colour route number can be included in a destination sign or deployed as a separate route number sign.

a) Selecting a route number sign

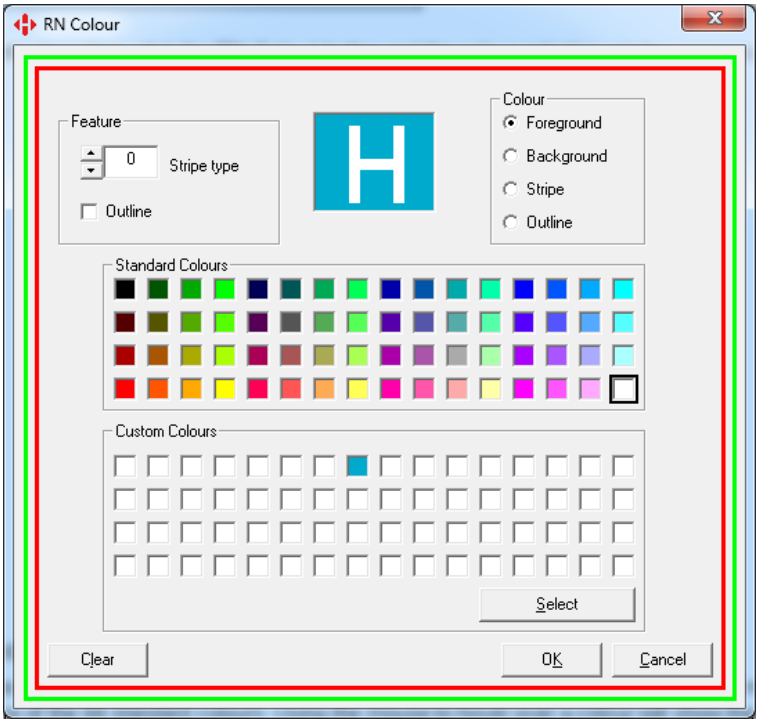
Coloured signs are selected from the dropdown box of the Sign Parameter Editor window (refer to 4.3 Sign Parameter Editor).



The following figure shows a 128 x 15 monochrome sign with a colour route number selected (Colour RN):

The width field of the route number is fixed as it relates specifically to the chosen sign. If two rows of information are to be shown, there are options available for varying the height of the rows, subject to the sign's overall dot height. Obviously the left and right justification can only work with the colour panel in the appropriate position. The justification must be specified when ordering the sign from Hanover.

To select a particular colour, click the 'RN Colour' button and the colour selection window will appear as shown:

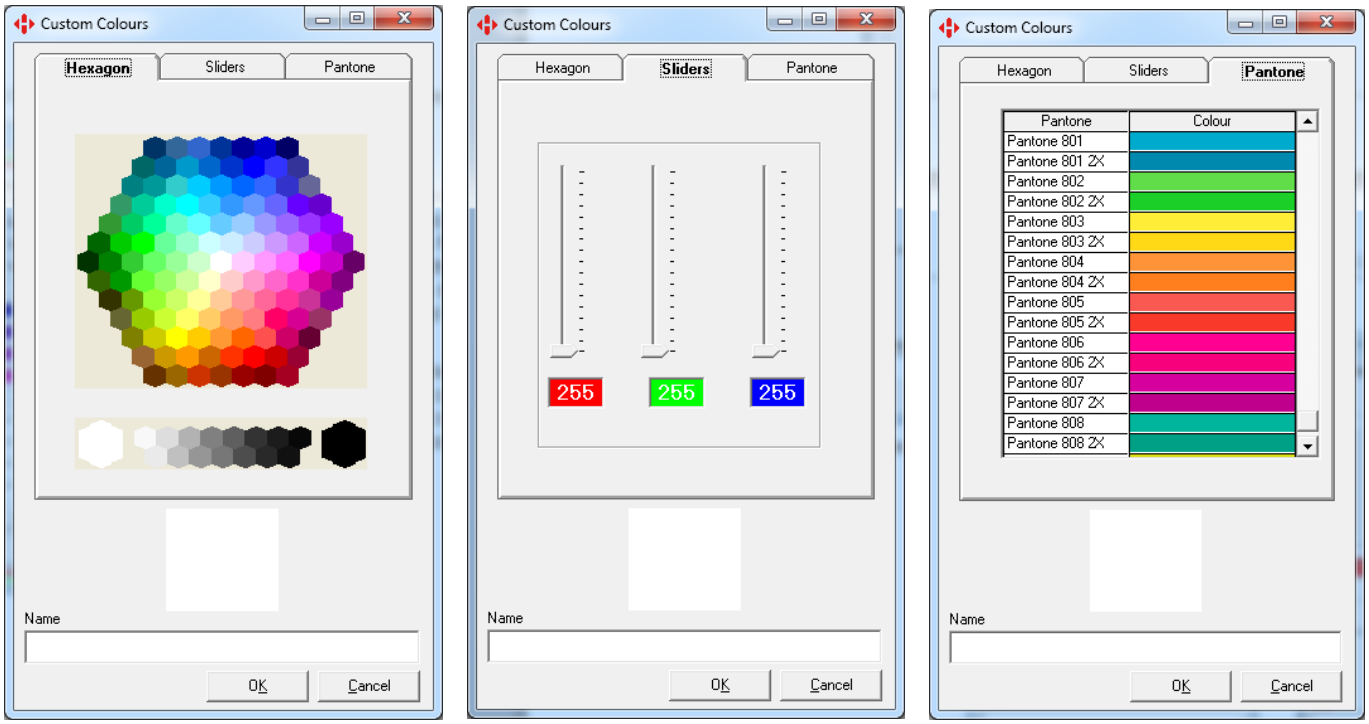


b) Standard Colours

The colour selector will draw a number of different ways to select a particular colour. The simplest method is to pick from one of the 64 standard colours. Using the mouse to hover over a colour will show the specific combination of red, green and blue hues used to create that colour.

c) Custom Colours

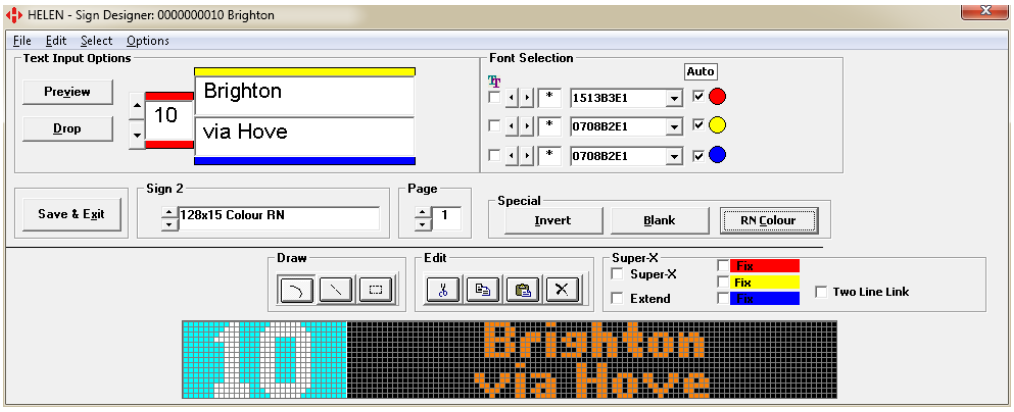
To generate additional colours, either double-click one of the custom colour boxes (or click on one of the custom colour boxes and click Select) and then choose from the colour options available.



The Custom Colours form gives three methods of selecting a colour:

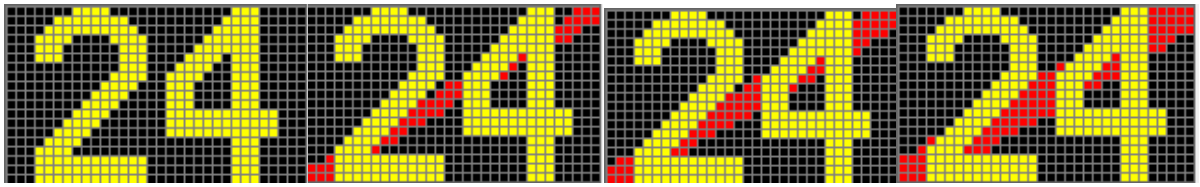
Tab	Description
Hexagon	The colour hexagon gives a standard method of choosing from 127 colours plus a grey scale. **Note:** beneath the palette, the upper box shows the new (selected) colour and the lower box the original colour.
Sliders	Sliders will combine 256 values of red, green and blue which give a total combination of over 16 million colours.
Pantone	The Pantone method gives an approximation to a given Pantone number.

The result can now be previewed as follows:

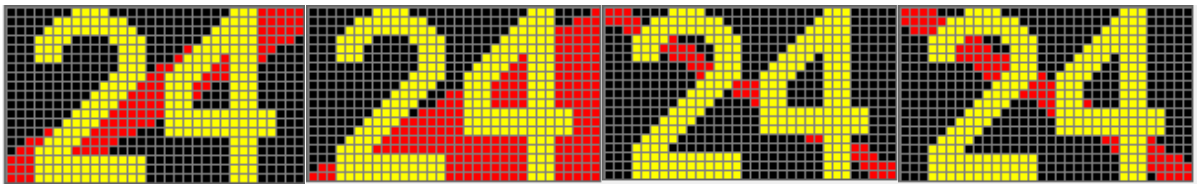


d) Stripe feature

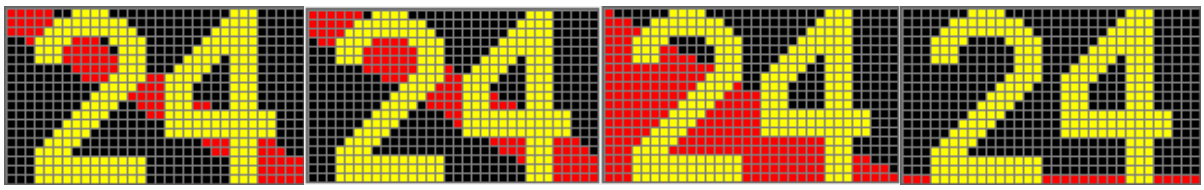
The stripe feature can be used to give extra information about a particular route. At present, there are 15 stripe styles. The stripe colour shown below is red but can be any of the available colours.



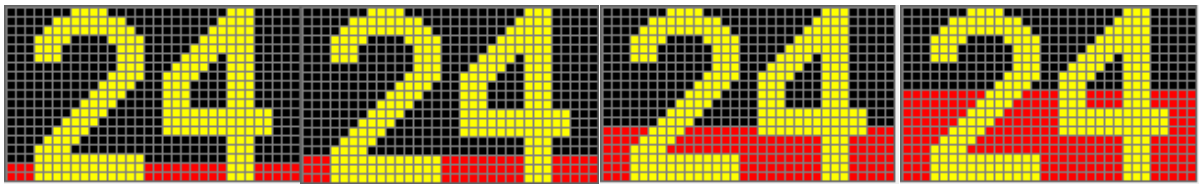
stripe type 0 stripe type 1 stripe type 2 stripe type 3



stripe type 4 stripe type 5 stripe type 6 stripe type 7



stripe type 8 stripe type 9 stripe type 10 stripe type 11

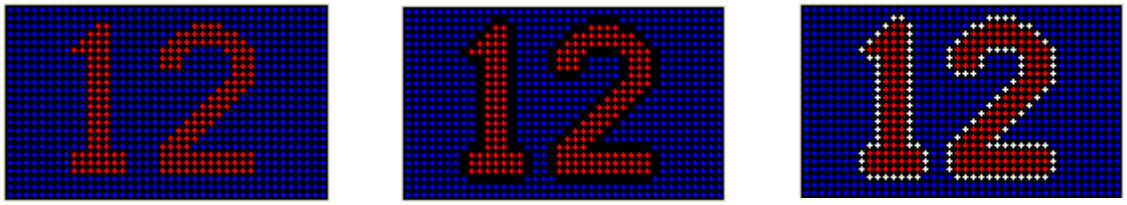


stripe type 12 stripe type 13 stripe type 14 stripe type 15

e) Outline feature

The outline feature can be used to improve the readability of the colour signs.

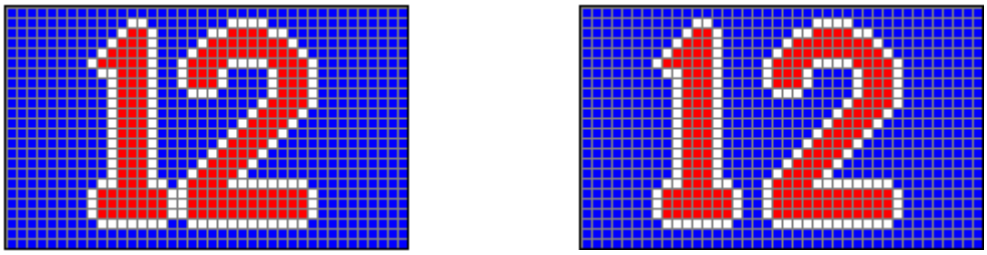
For example:



The above figures show the mimicked representation of a colour route number with and without outlining.

The outline can be done with any of the available colours but tends to work best with either black or white.

The method of outlining is done by surrounding an existing character with the outline colour. However, this can cause a problem with the inter-character spacing.



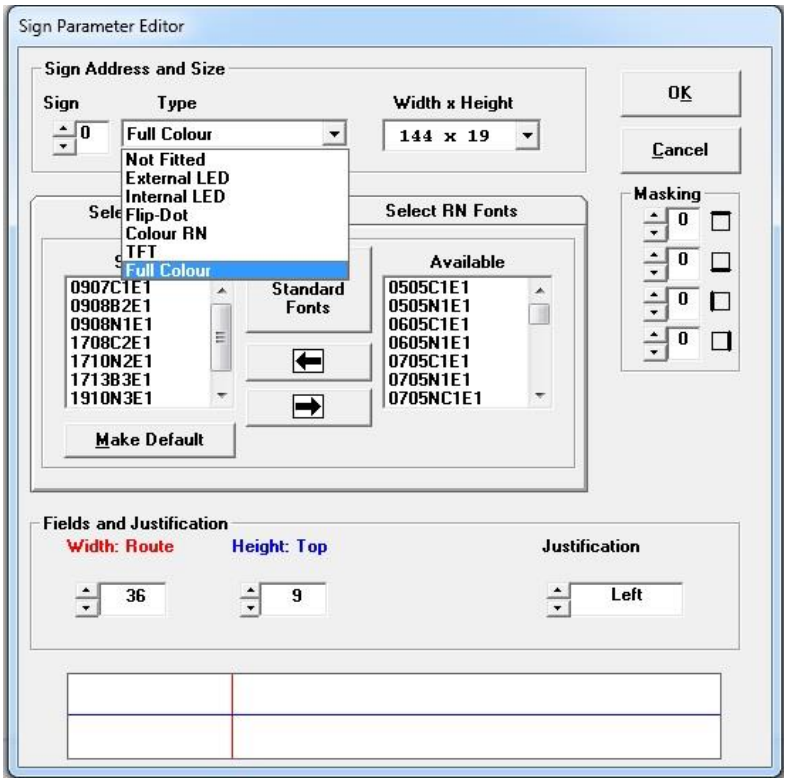
The above left figure shows the standard (for this font) inter-character space of 2 between each character. As it can be seen, the outline around each character takes up to two-dot space at the bottom causing the numbers to merge. This gives an undesirable result.

By adjusting the inter-character space from the default value of 2 to 4 (refer to 8.3.2.2 Inter-character space), the extra two dots are re-introduced and the characters are now separate (refer to above right figure).

8.3.5.4 Palette (Full Colour)

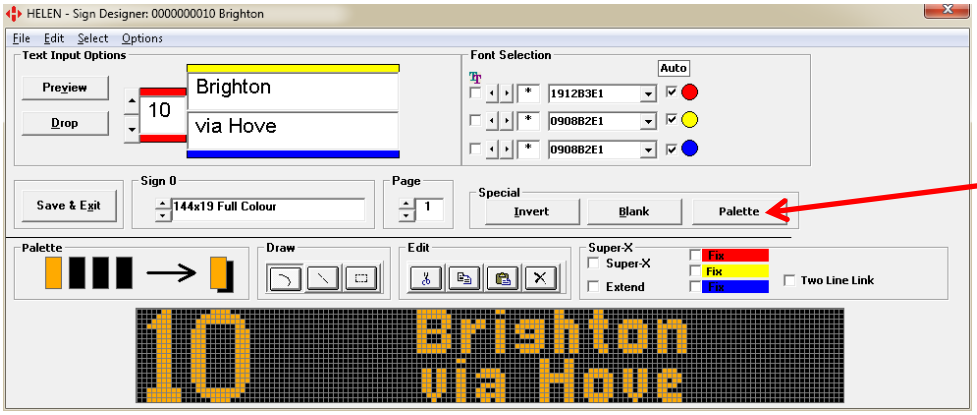
'RN Colour' button has been renamed 'Palette' whilst the default colour is set to mimic the colour of the standard monochrome LED sign.

A sign with all the information in colour is an extension of a monochrome sign with a colour route number. Almost all the characteristics of the colour route number sign apply to the full colour sign.

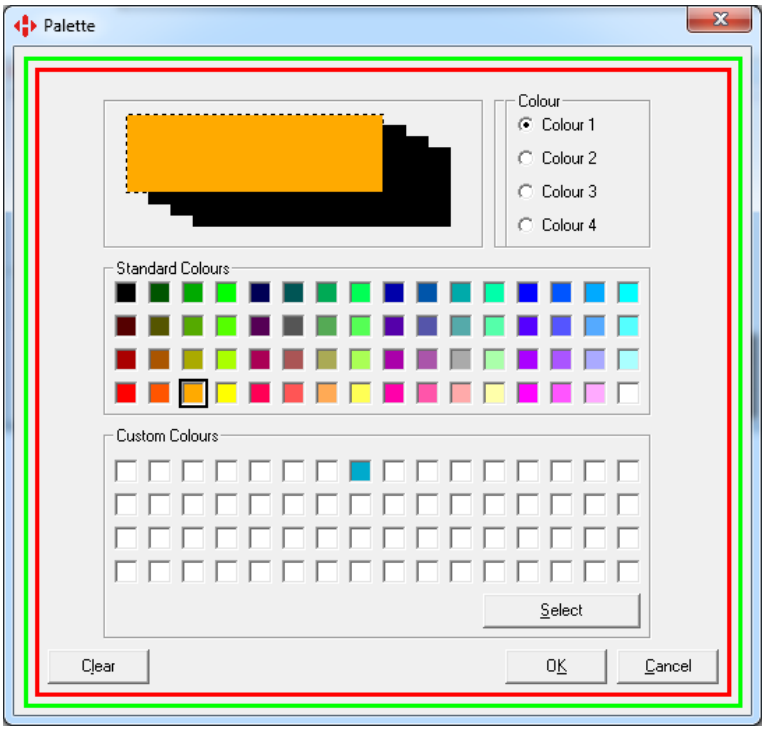


Full colour signs are selected in the same way as other signs using the Sign Parameter Editor (refer to 4.3 Sign Parameter Editor).

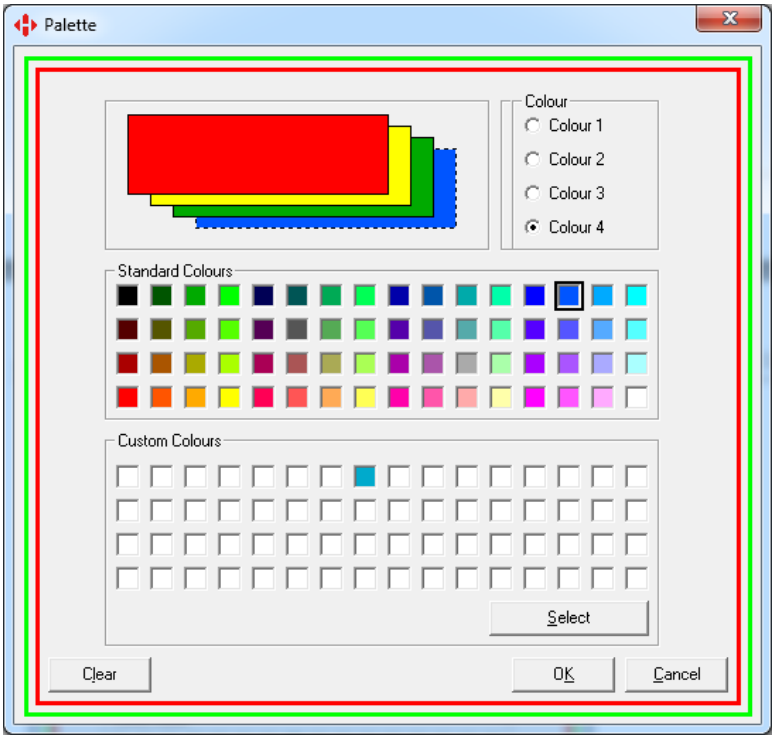
This figure shows the selection of a 144 x 19 full colour sign.



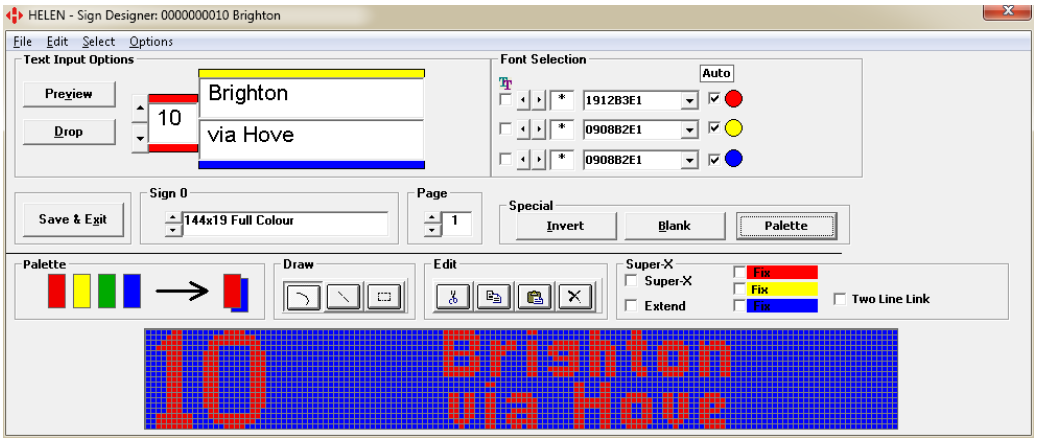
Note: RN Colour has been renamed Palette whilst the default colour is set to mimic the colour of the standard monochrome LED sign.



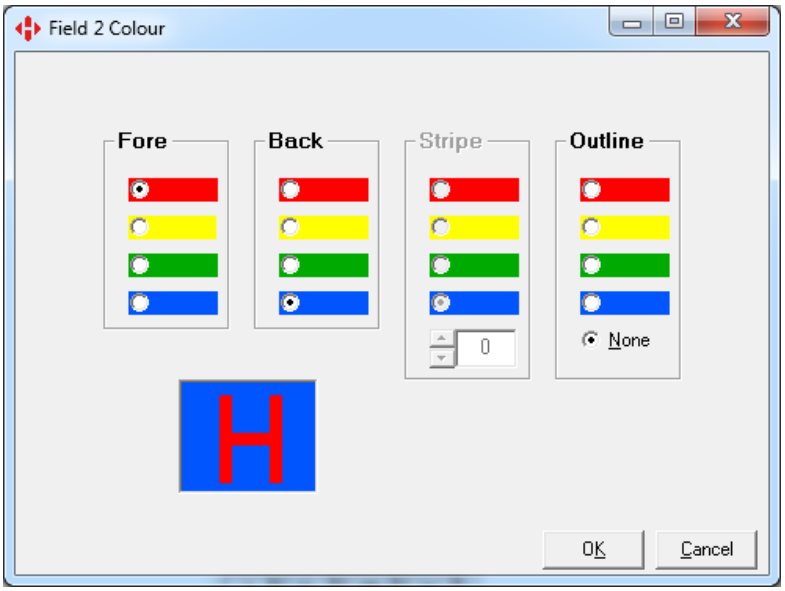
When Palette is clicked, a palette of four possible colours for each individual sign page is displayed. Each of the four colours is chosen in the same way as for the colour route number.



This figure shows the result of choosing four colours: these now comprise the palette which will be used for applying colour to the sign.

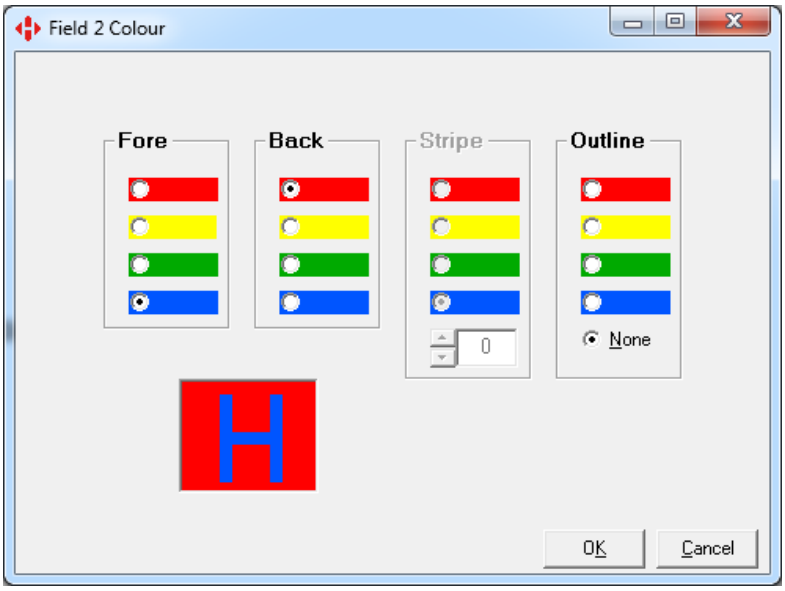


This figure shows how the Sign Designer is displayed after two colours are applied from the new palette.

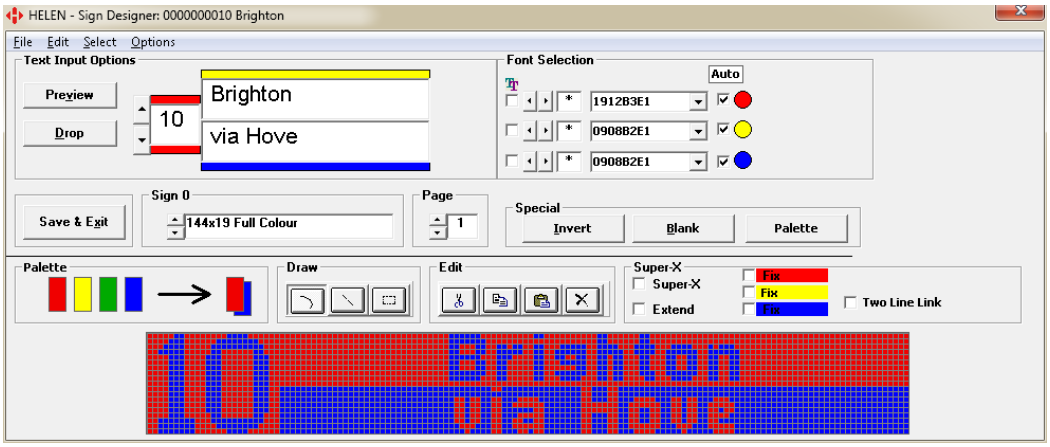


Double-click a particular text input field to set the properties.

This figure shows the options for the ‘Destination’ text field (Field 2).



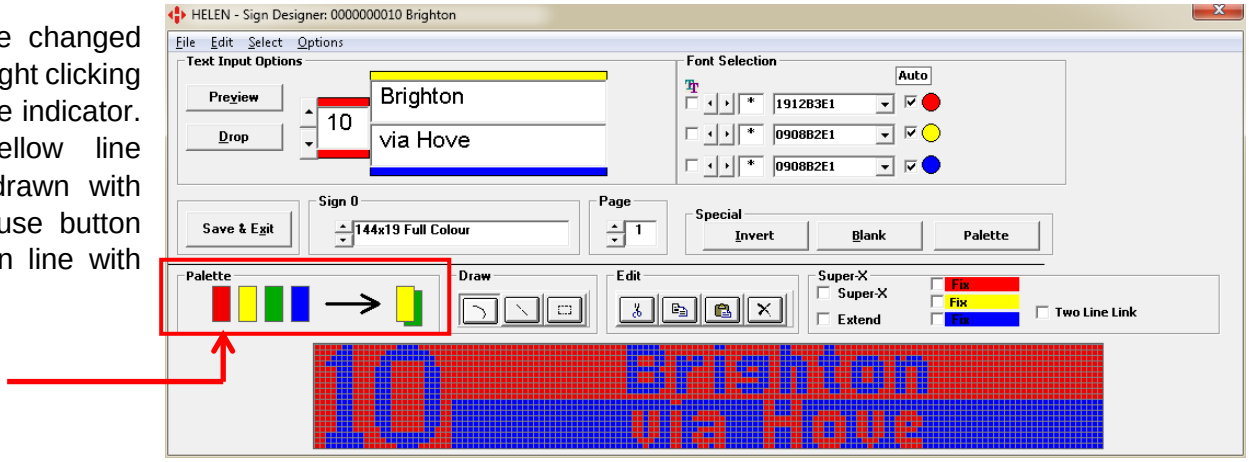
The colours for the foreground, background, stripe and outline can now be modified. A sample of the colourway is shown in the field properties panel.



This figure shows the result.

The drawing tools can be applied using the left and right hand mouse buttons to determine the colours. In the above example, a red line would be drawn by holding down the left mouse button and a blue line with the right mouse button. The left and right simply reflect the relative position of the two colours as shown in the palette indicator.

This can be changed by left and right clicking in the palette indicator. Now a yellow line would be drawn with the left mouse button and a green line with the right.



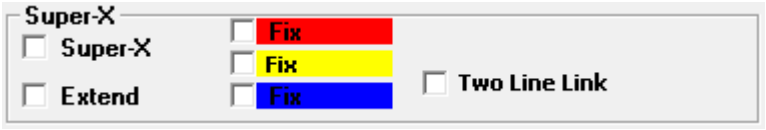
8.3.6 Draw / Edit

Signs can be also edited using a number of drawing methods.

Feature	Description
Freehand draw	Allows freehand drawing on the sign by holding the left mouse button and dragging the cursor over the sign image. Holding down the right mouse button and dragging it over the drawn area deletes it.
Line draw	Provides for straight lines to be drawn horizontally, vertically and diagonally by holding down the left mouse button and dragging the cursor in the desired direction. Again, the right mouse button can be used to delete any drawn lines.

Feature	Description
Mark text	Allows selection of a rectangular area of the sign by right or left-clicking the mouse and dragging it over the desired area. The following actions can then be carried out: a) Move the selected area by: • using the up / down / left / right arrow keys to locate a new position for the area, then pressing the return key to accept it • dragging it with the left mouse button b) Invert the area (turn black dots to yellow / green / amber and vice versa) by • pressing Ctrl + I • or selecting 'Invert Selection' in the Edit menu c) Delete the area by • pressing Shift + Del • or selecting 'Delete' from the Edit menu • or pressing the delete button d) Using the buttons in the 'Edit' panel; cut or copy the area on the computer's clipboard. It can then be pasted to any sign and be moved in the same way as in a) above. As mentioned above, the selected area can also be completely deleted by pressing the delete button e) De-select the selected area by right or left-clicking the mouse in the area

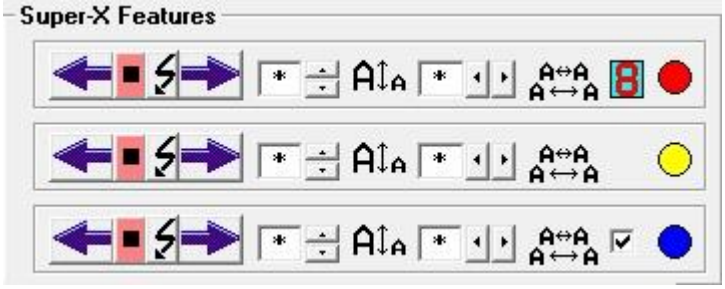
8.3.7 Super-X

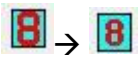


8.3.7.1 Super-X features

Super-X is a tool which allows the user to add more variation in how messages are presented on a sign. It has a number of features which allow flexibility and scope such as:

- Scrolling text
- Up to four fields
- Independent scrolling of fields
- Left and right scrolling
- Text justification in field
- Ten preset field layouts
- Programmable route number
- Embedded graphics
- Route number position selection
- Automatic text sizing
- Adjustable route number field width



Feature	Description
	Scrolling can also be selected manually – even if the text would fit anyway. This is controlled by the arrow buttons under 'Super-X features'. For more details, please refer to h) How to use Super-X in 8.3.7 Super-X. The flash arrow will cause the text in the field to flash.
	To increase / decrease the font size – the sign only has a limited number of fonts than can be used by Super-X and this control can only 'ask' for a different font (or font size). If it does not exist, the font will remain unchanged.
	To change the inter-character spacing – controlled by left / right buttons.
	Proportional second line – when this box is ticked, the lower field will be made one font size smaller (unless the smallest font is already in use). This increases the emphasis on the top line.
	Inset the route number – to ensure that the characters (including any outline) are surrounded (i.e. including top and bottom) by the background colour. The indent button image will change when indenting is applied.

a) Super-X feature comparison

Feature	HELEN graphic mode	Super-X
1-line message	✓	✓
2-line message	✓	✓
2-line asymmetric[14] msg.	✓[15]	✓
3-line message	✓[16]	✓
Text		✓
Graphics	✓	✓
Programmable route number	✓	✓
Route number position	✓	✓
Route number box width	✓	✓
Justification (left, right)		✓
Scrolling (left, right)		✓
Automatic text sizing	✓	✓
Scroll on text sizing failure		✓
Continuous loop scrolling		✓

b) Picture gallery

Super-X allows information to be presented in ten different ways: the images below are examples of the ten modes and were generated from 128 x 17 sign mimics.

Single line

Mode 0

Mode 1

[14] i.e. where the top line of text is a different font size to the lower line
[15] Only if all pages on that sign are shown asymmetrically; Super-X, however, is able to show a single asymmetric page.
[16] A three-line message is possible in graphic mode: refer to Appendix H: Three-line operation for further information.

Two lines

Mode 2

Mode 3

Mode 4

Mode 5

Mode 6

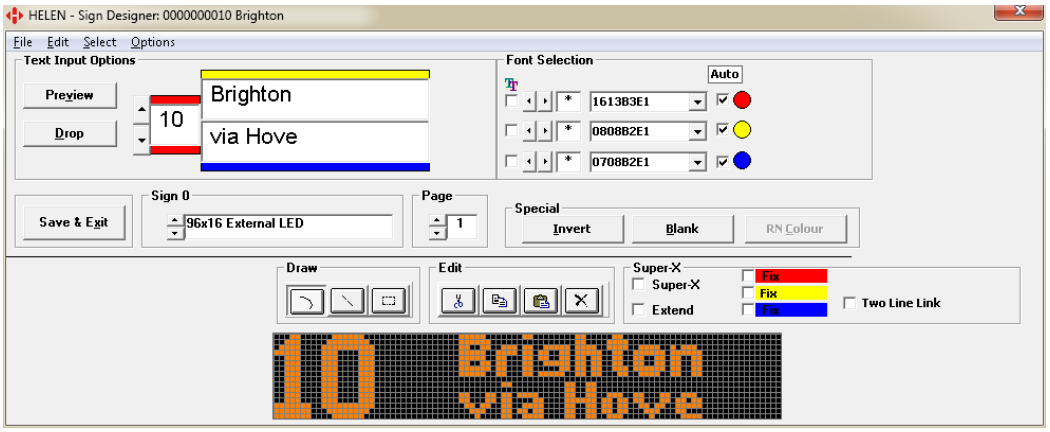
Three lines

Mode 7

Mode 8

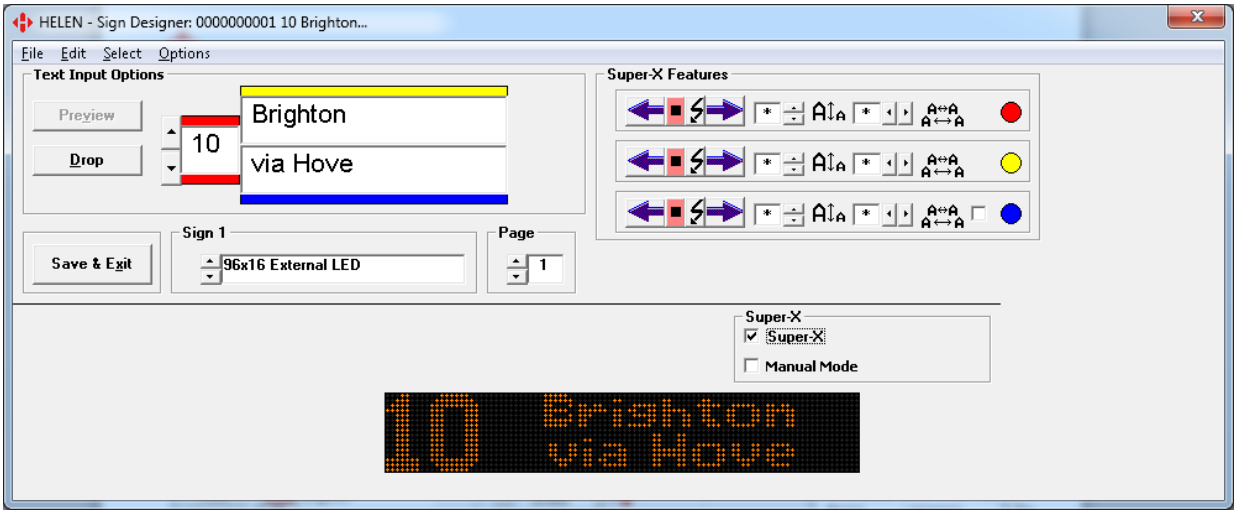
Mode 9

c) How to use Super-X



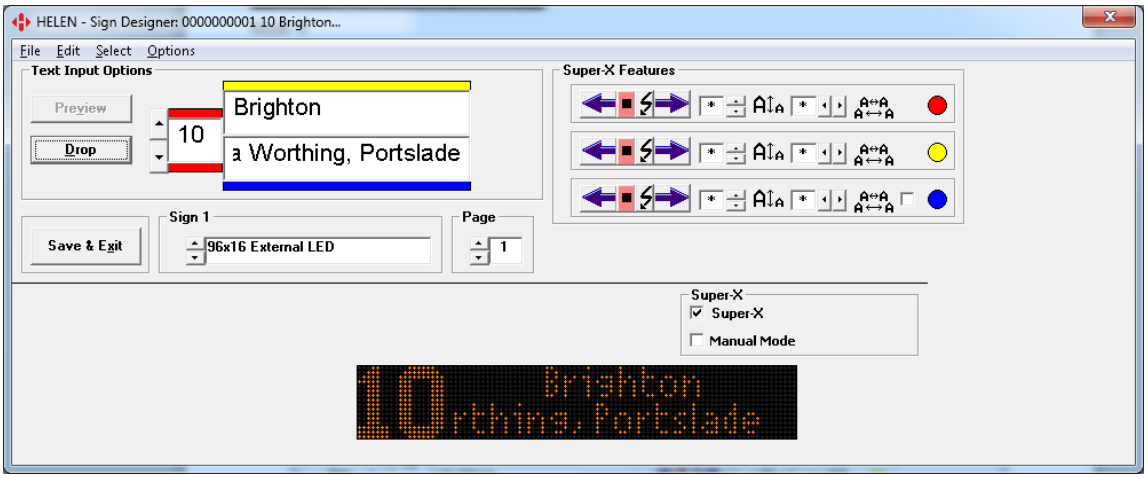
The easiest way to use Super-X is by using the features built into HELEN from version 2.0o onwards. When an LED destination sign is selected, the Super-X frame will become visible in the sign designer form.

When the Super-X box is ticked, additional features become available:



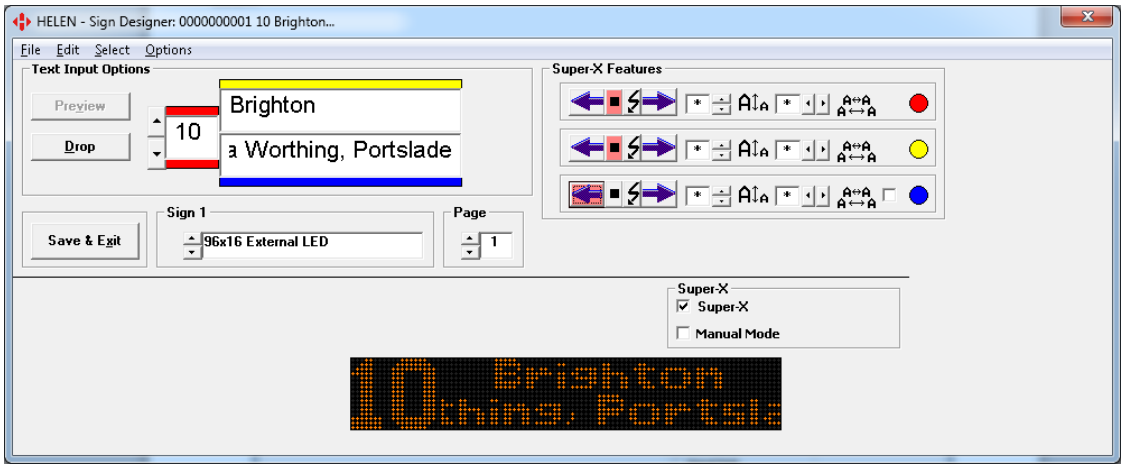
The most likely reason to user Super-X will be to create a scrolling field – for example, where there are a number of via points to be included. These can be shown on a number of pages but an alternative is to use a single page that scrolls. There are two ways of creating scrolling text: automatic scroll or selective scrolling.

Automatic scroll occurs if the text does not fit into the required space. The text-fitting routine will reduce the font size until the smallest font is reached and, if necessary, the text will then scroll in that size as shown below:



However, if Multipage Super-X is being used, it is important that any scrolling message is explicitly set to scroll by selecting the appropriate arrow (refer to Appendix P: Working with Multipage Super-X).

Scrolling can also be selected manually – even if the text would fit anyway. This is controlled by the arrow buttons under ‘Super-X features’.



This figure shows the bottom line being scrolled. The top line can also be scrolled in a similar way.

Note: The difference in the fonts used: this is described further in 'Font selection' below.

Selecting the right-hand arrow causes text to be scrolled from left to right; this is designed for languages that read from right to left (such as Arabic, Hebrew etc.). Its use in standard text mode will cause the letters to come out in reverse order (but not back-to-front). This is not an error! It can be prevented by 'fixing' the appropriate field prior to ticking the Super-X box.

Note: If scrolling and paging are required on the same sign, then it is best to use Multipage Super-X to synchronise the pages (refer to Appendix P: Working with Multipage Super-X).

d) Font selection

The font selection is automatic and as more text is introduced, the font size will be reduced to fit the available space. If the text will not fit, an automatic scroll will be activated. Under these circumstances, the text will be scrolled using the smallest font. If a larger font is required, simply click on the appropriate scroll box and the text will scroll using the largest font possible. By default, the font size of the lower field will never be set to be larger than that of the top field as the emphasis is usually on the main destination – and this is normally positioned on the top line[17].

e) Creating a Super-X graphic

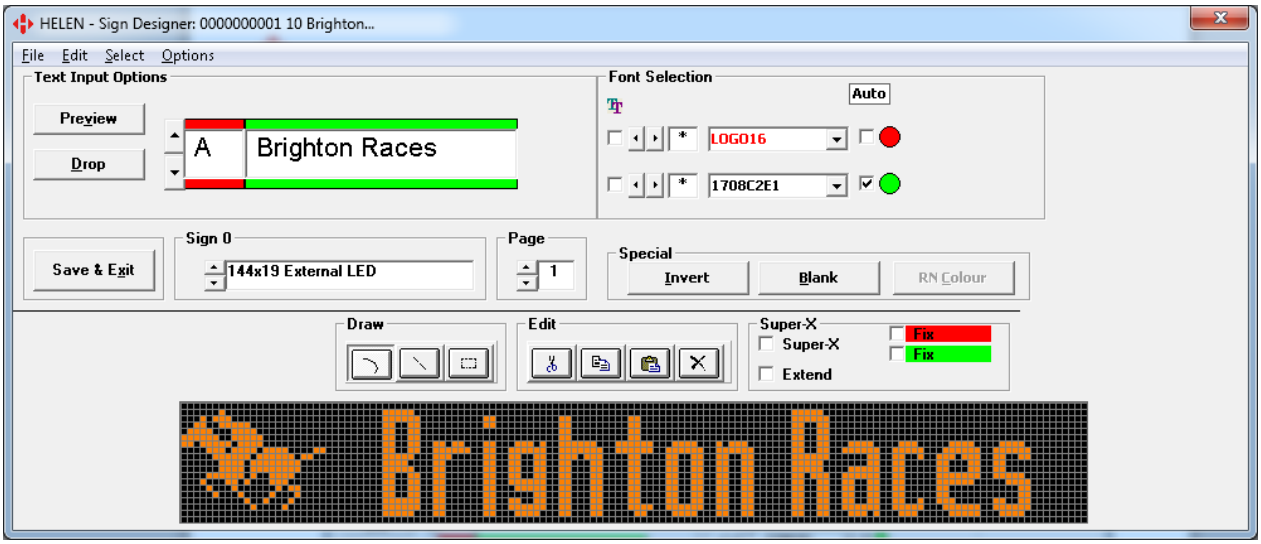
Super-X allows the scrolling of a particular field. A greater choice of sign configurations is possible e.g. route number plus three fields etc. However, it does not have the flexibility of the standard HELEN graphical editing system where a user-defined logo (i.e. a pictogram) or font can easily be created. Also, as Super-X only works with fonts contained in the sign, scrolling Arabic or Chinese scripts cannot currently be achieved.

Creating a Super-X graphic combines the flexibility of the HELEN graphical system with the advantages of the Super-X system.

[17] If the destination is set as the bottom field, then a similar system is possible but at present, this will not be automatic and requires the use of manual mode.

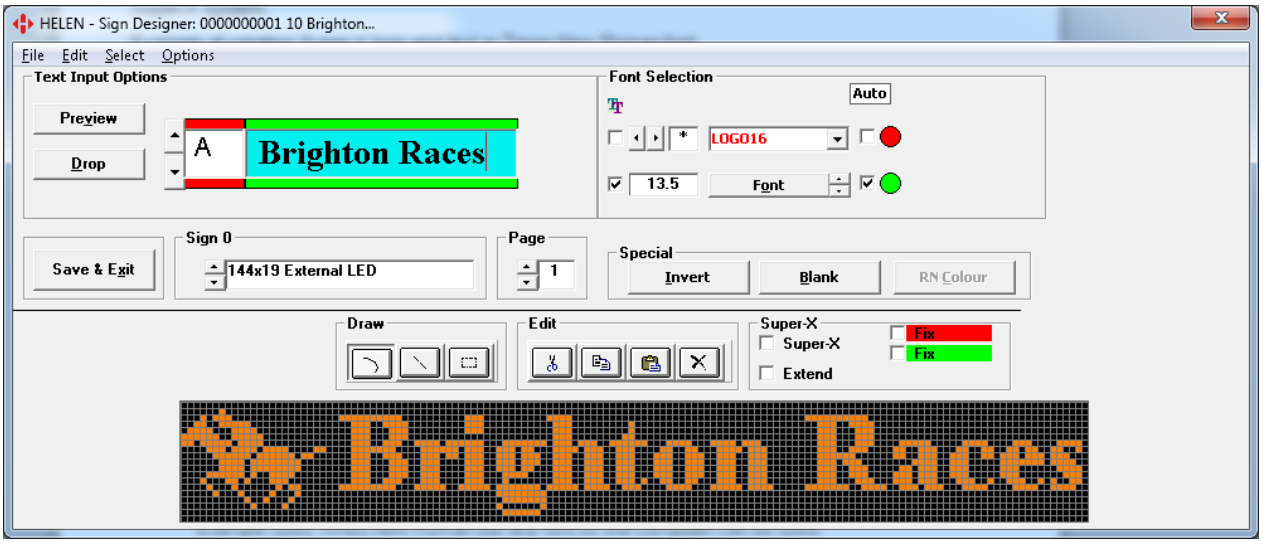
Example of creating Super-X logo and text in Times New Roman font:

1. Create or use a pre-defined logo in the same way as for a standard HELEN graphic. Notice the use of LOGO 16 font: the combination of this font and the character 'A' in the route number box will produce the pre-defined horse symbol[18]. Add the destination message – in this case, 'Brighton Races'.



2. Convert the destination message to the desired font (as described in 8.3.2.3 Selecting Windows fonts). This example uses Times New Roman but any font on the computer can be used.

   Note: the message can be added directly using the desired Windows font: it does not have to be created using the HELEN fonts and then converted.



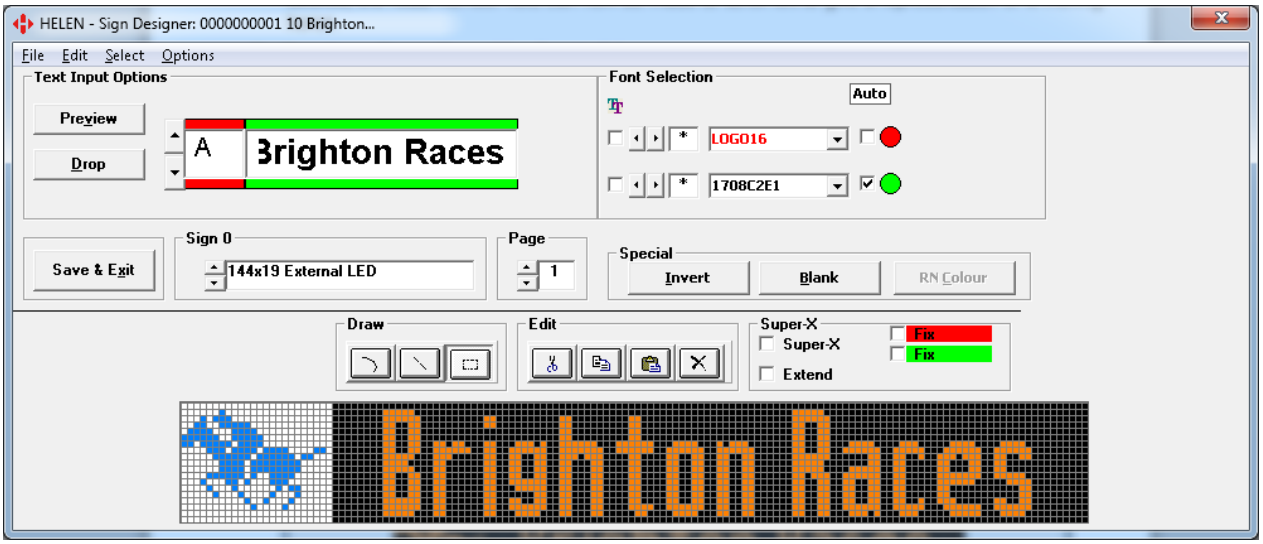
3. Tick the two check boxes labelled 'Fix'. These are colour-coded for the appropriate fields. When a box is ticked, the graphical content of that field is converted to a Super-X graphic.
4. Tick the 'Super-X' check box: this automatically enables the Super-X functionality for the graphic. If desired, the route number field can now be made to scroll left to give a representation of a moving horse.

f) Creating a Super-X graphic of part of the screen

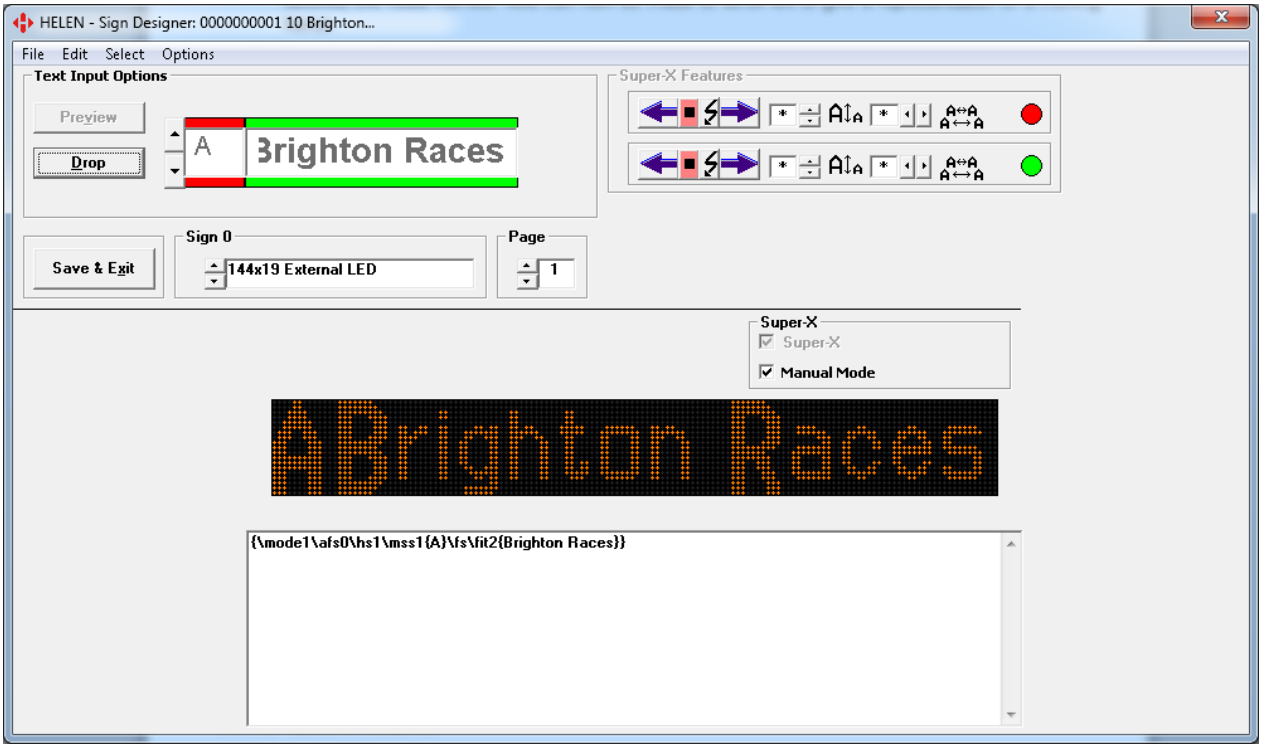
[18] For a full list of pre-defined symbols, refer to Appendix I: Alpha to symbol converter (Hanover fonts).

The original method for creating a Super-X graphic captures a particular area of the screen as opposed to a specific field.

1. Ensure that neither Fix nor Super-X has been applied, then convert the desired item – in this case, the horse (although any part of the sign can be copied) by selecting the area ( )and then copying it ( ). A well as copying, this action will also create a Super-X version of the image.

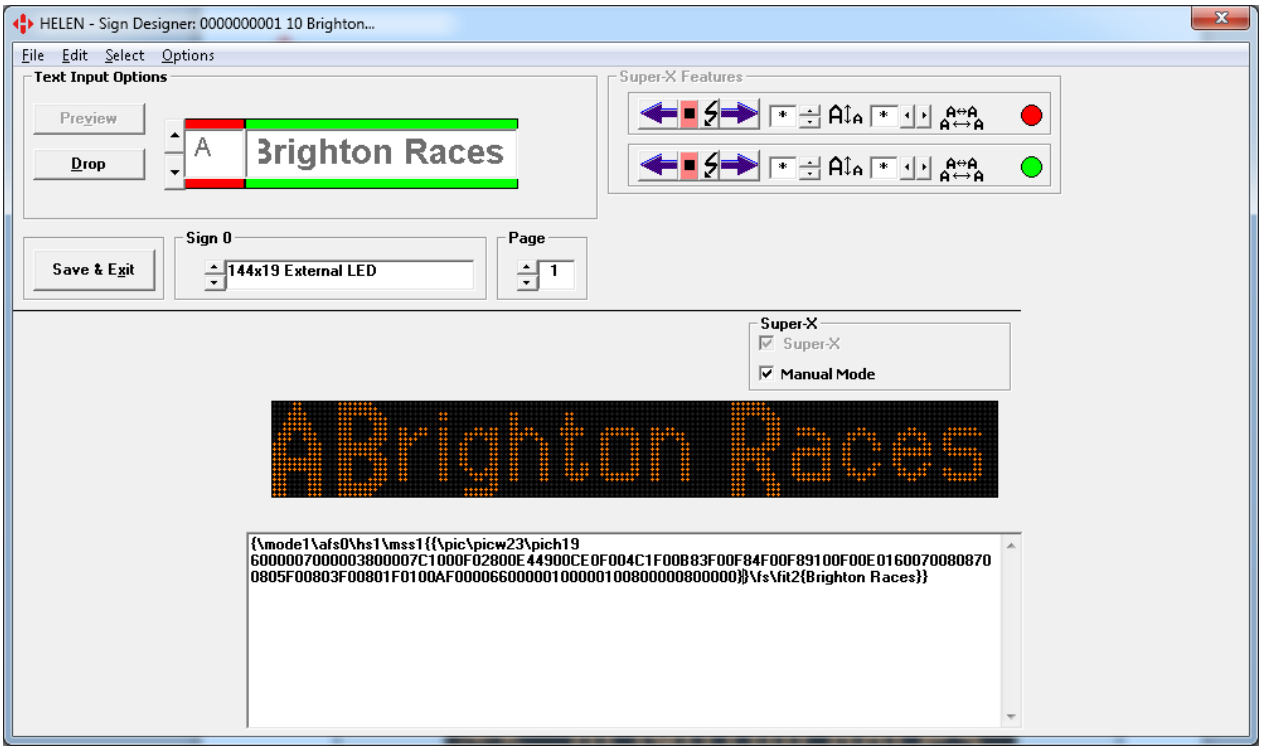


2. Convert the sign to Super-X and tick the Manual Mode checkbox as shown below.



3. Locate the position to paste in the graphic string (at letter ‘A’).

4. Highlight the letter ‘A’ and then paste (either right-click on the mouse and select paste or Ctrl+v). The screen should look like the one below: here, the Super-X message now includes a graphic string and the representation of the message on the mimic. If required, the horse image can be made to scroll by placing “\sl” between “mss1” and “{“.



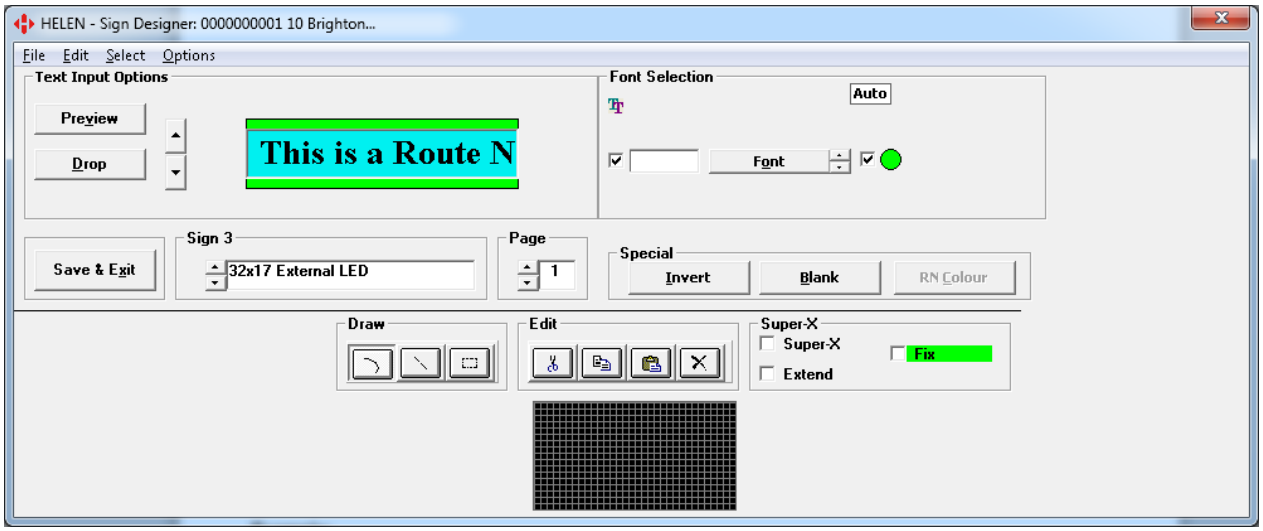
5. Finally, place the cursor at the end of the string and hit the return key. This will change the ‘A’ to the required horse as shown below.

8.3.7.2 Extend features

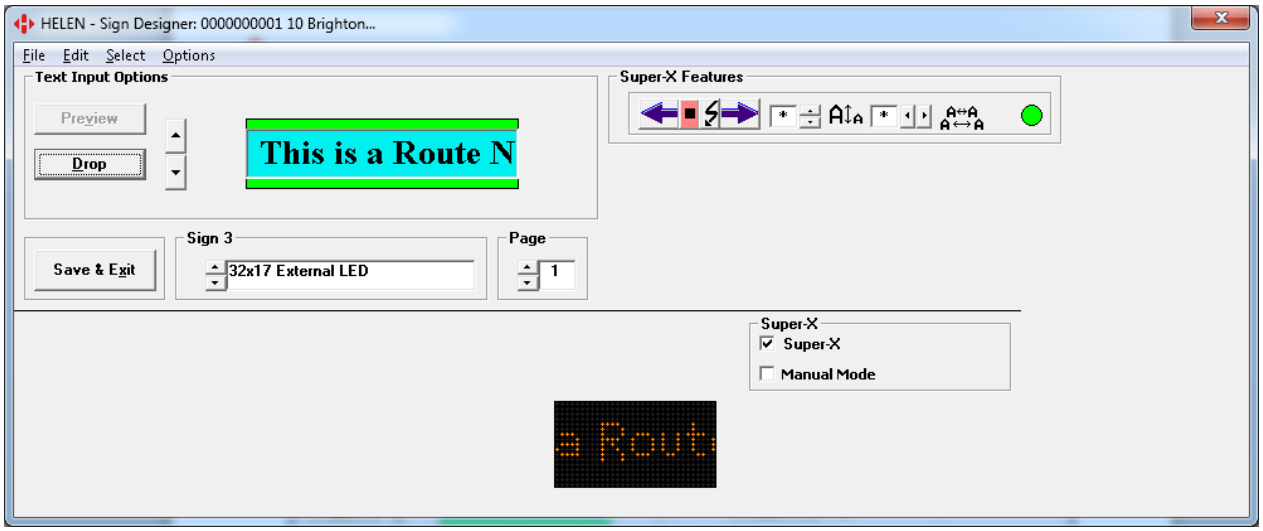
There is also an additional checkbox for creating a Super-X graphic which is potentially wider than the sign.

Example:

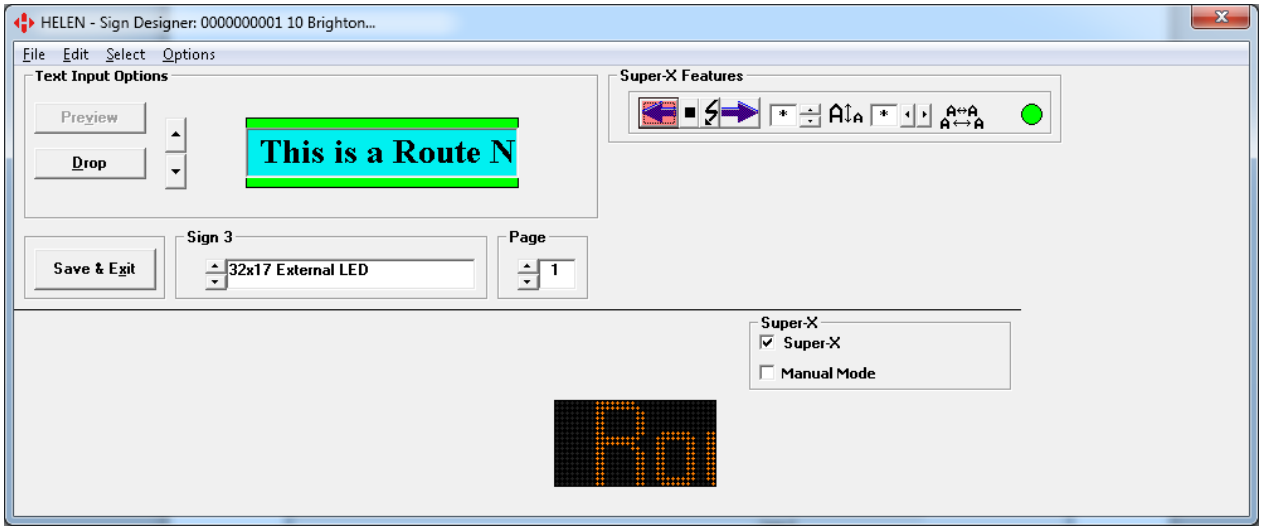
This example will be demonstrated on a 32 x 17 Route Number sign for maximum effect. The Windows 'Times New Roman' font has been selected to show the message "This is a Route Number sign" as shown below:



This message does not fit. If 'Super-X' is ticked, the message will be shown scrolling in the smallest font for that sign configuration (auto-scroll) as shown below:

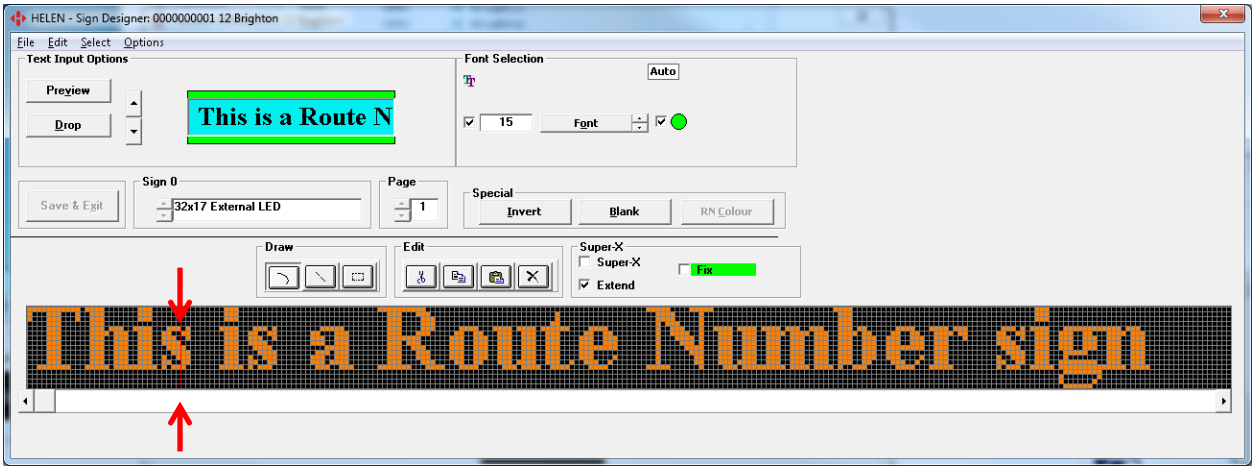


If the ‘Scroll’ button is pressed, the message will be scrolled using the largest font as shown below:



This works but does not present the message in the selected font (Times New Roman). To use the ‘Extend’ feature, uncheck the Super-X box. By ticking the ‘Extend’ box, a temporary sign switch width of 300 (default value specified in Helen.ini) is created as shown below and the text can now tbe inserted into the new available width by clicking Drop. For more information, refer to ‘maxextendwith’ in Appendix B: HELEN initialisation file (helen.ini).

A scroll bar is displayed below the preview. It allows the user to scroll from left to right for a complete preview of the text which starts on the left hand side.



Note: the red line is to indicate the actual sign size.

Once ‘Fix’ has been ticked (to create the Super-X graphic – effectively taking a snapshot of the message), ‘Super-X’ can be ticked. The text will scroll automatically in the desired font if it does not fit (as shown below) and can be made to scroll using the left / right arrows (refer to 8.3.7.1 Super-X features) if it does.

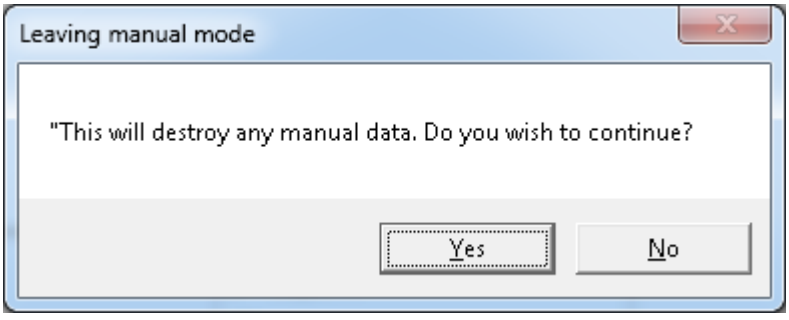
Notes:

- if the ‘Fix’ button is not ticked, the message will scroll in the original Hanover font.
- the order of the keystrokes in this process is critical to it producing the required outcome. A similar example is summarised in Appendix K: Programmable route numbers.

The amount of information used to create the message can be viewed in Manual mode – refer to above figure. Because of the way it works, the Extend feature will increase memory usage and can slow down the system, so this technique should be used sparingly.

a) Manual mode

The features within Sign Designer accessed from the buttons and menus etc. are used to create the signs required and this will be sufficient for most users. The 'coding string' that represents a particular sign can be viewed by ticking the manual mode box. However, certain settings can **only** be made by entering specific characters directly into the code: in these cases, the box must remain ticked or the added information will be lost. A warning dialogue box is displayed as shown below. More detail about manual mode is given in Appendix M: Super-X in more depth.



9. Hanover Technical Support

Please do not hesitate to contact Hanover Technical Support located in Lewes, UK for any problem encountered or for any advice needed for using the HELEN software:

Contact	
Phone	+44 (0)1273 477528 Ext.615 or Option 2
Email	support@hanoverdisplays.com

Appendix A: Uninstalling HELEN software

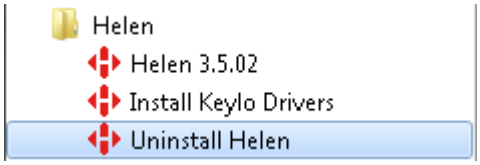
The current HELEN installer will not allow more than one version of HELEN to be installed on one machine. Do not attempt to overwrite the old version of HELEN with a new one in the same folder, as the results are unpredictable.

A number of extra files are installed to keep a watch on the HELEN installation. If a HELEN system file is removed accidentally, the installer will automatically correct the error. It is therefore important to uninstall the software correctly (i.e. do not just delete the directory) otherwise the files will be reinstalled automatically.

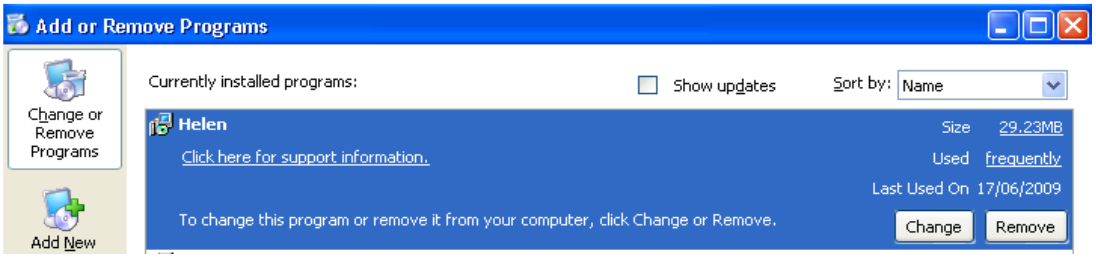
If customised font files like 'eurofont.fdb' or any other file with suffix 'fdb' are to be retained, copy them into a separate folder outside the current HELEN directory. Depending on the operating system in use, the location of these files will be in the following folder:

- **Windows 7 or later:** Program Data\Hanover Displays\Helen

With current versions of HELEN, it is possible to uninstall the program from the Windows Start Program Menu as shown below:



For previous versions: go to Start → Settings → Control Panel and click on 'Add or Remove Programs' as shown below.



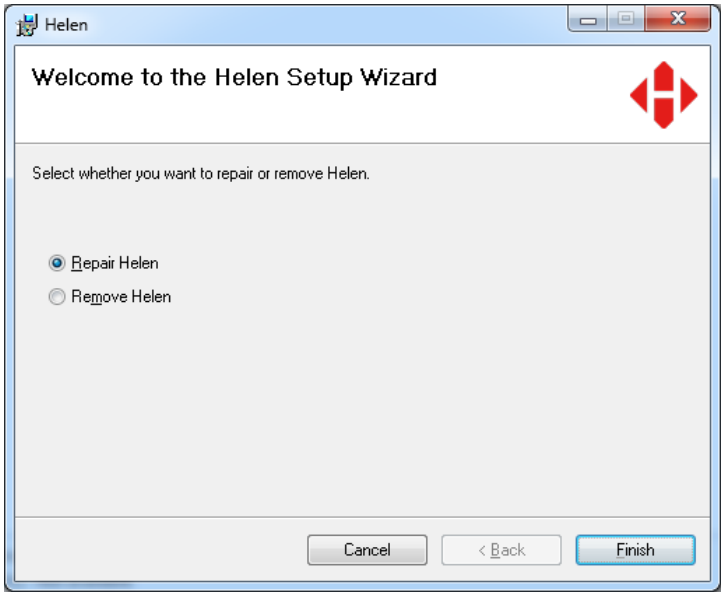
Select Helen and click Remove.

The next step removes any subdirectories or font files that were part of the installation of the older version. Click Yes to continue un-installation.

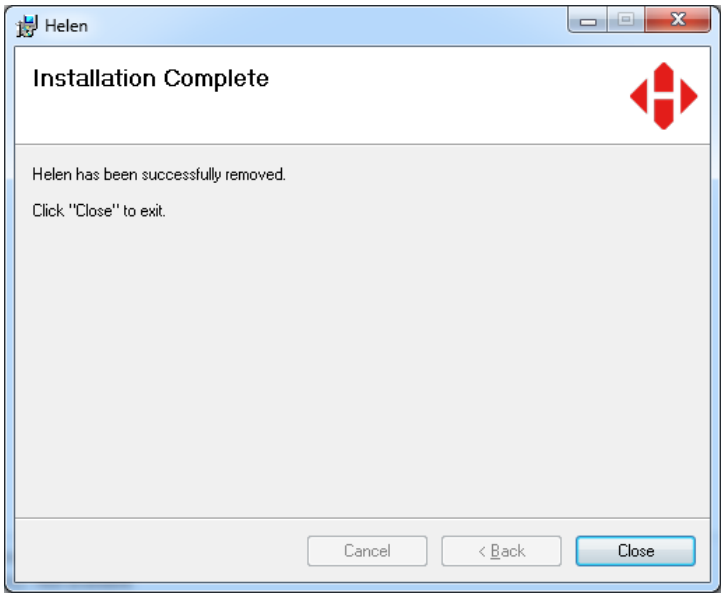
The installer[19] will also automatically detect any pre-release (beta) versions of the software and either show the "Another version of this product…." message

[19] The new installer (used from version 2.0+) cannot recognise previously installed versions of HELEN and will cause conflicts if the old version is not removed

or the 'Repair / Remove' form as shown below if an attempt is being made to reinstall the same version of the software. When the old version has been removed, the installation process must be restarted. Note the 'Repair' option will re-install any program files that have been corrupted.



If HELEN has been removed using the 'Remove' option shown above, the following window will appear after the un-installation process finishes to indicate that HELEN has been uninstalled successfully. If 'Add or Remove programs' has been used as shown above, then no message will appear.



If customised font files have been saved in a separate folder, remember to copy them to the directory where HELEN is installed after the installation process is complete.

Appendix B: HELEN initialisation file (helen.ini)

The file named helen.ini contains the initialisation details for the HELEN program. The terms marked with a grey background would normally be set by the program and not normally changed by the user. The terms marked with a green background would not normally be adjusted by the general user.

Caution should always be exercised whenever any changes to the helen.ini file are made.

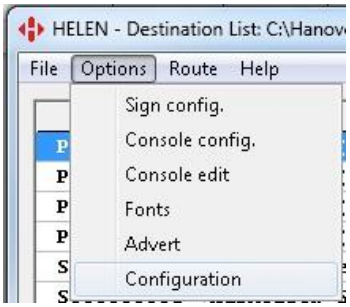
To edit helen.ini[20]**:**

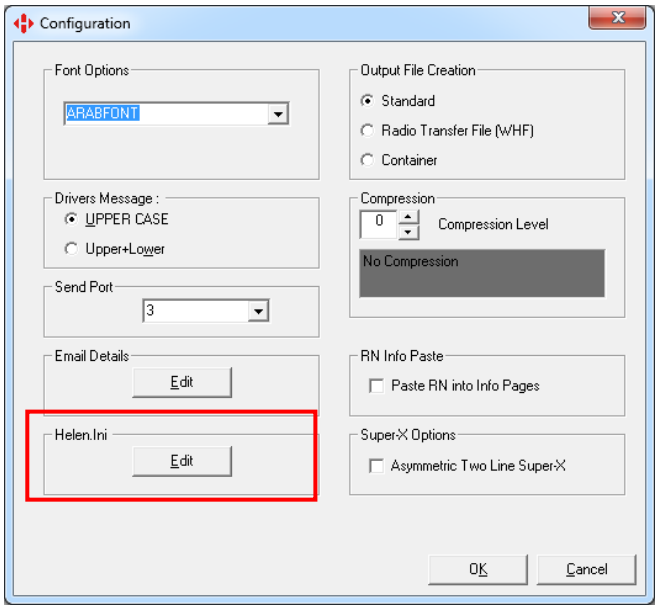
Depending on the operating system in use, the location of this file will be in the following folder:

- **Windows 7 or later:** Program Data\Hanover Displays\Helen

which in both cases may be a hidden folder.

However, the easiest way to modify the file is to use the edit button found on the configuration form. Open the form via Options → Configuration:





This button will automatically find the correct location of the file. Please note that some of the changes will need a program restart to take effect.

[20] Previous to HELEN version 3.1, helen.ini would have been located in the application folder. This caused problems with Windows 7 or later as any edited file would be copied and moved off to a virtual folder to become the working file.

The terms within the helen.ini file have the following meanings (text in **[square brackets]** relates to the section within helen.ini):

Term	Meaning
[setup]:	
uploadport	Sets the default port for loading a dataloader (see key-lo below) or using the 'messages'[21] facility on preview. Default =1. **Note:** When using 'messages', the maximum port value is 16 – however when loading a controller, the max value is 256.
datapathspec	Name of the folder where the last database was accessed. It will automatically be set by HELEN (no default).
lastdatabase	Name of the last database accessed. It will automatically be set by HELEN (no default).
LastSaveAsFileName	Name of the last database saved using the 'Save As' feature. It will automatically be set by HELEN (no default).
NoSignSize	Is set to stop the addition of sign sizes in the eric.bin. This is a back-compatibility feature and the default setting = False.
NoVEparameter	Is set to stop the addition of VE parameter in the eric.bin. This is a back-compatibility feature and the default setting is False.
FullColourDefault	Default colour value for a full colour sign (R, G, B). (255,170, 0): original default amber colour for a full colour sign.
PresetInfoMsg	Feature to allow up to 4 Info messages (out of a choice of 10) to be added to specific routes at design time – Originally required by KMB (default setting = False). Refer to Appendix O: Pre-Set Information Messages.
SxMultipage	Feature to allow Super-X pages to be combined to allow pages to synchronised and with accurate page timings. (default setting = False because the correct version of sign software needs to be used).
SpecialRNwidth	Special value associated with processing sign #0 of a KMB database with a right-hand route number and will determine the space used by the contents of the route number field. Using regeneration, it will update RNwidthused but does not create a new graphic (for retro-fixing an existing database). Used to enable the generation of header data for pasting the graphic of a route number into an information page. Do not remove '//' unless you need this special feature – KMB only. 'Regenerate Text on Blank Signs only' needs to be set when regenerating (will stop the sign being blanked).
shownRNwidth	When shownRNwidth is true, a vertical white line will show the width used by the route number field.
MaskIgnore	This will set the number of characters in the route number field that will cause the column masking to be ignored i.e. if set to 1, then a single character in the RN field will have masking (if set) but two or more

[21] If the 'Messages' checkbox (in the Preview screen) does not appear, the upload port setting in the helen.ini file is not set. If the 'Messages' checkbox does appear, there is the option to view the message directly on the sign itself. To do this, an RS232-485 converter and a lead connecting the PC to the sign will both be needed.

	characters will use the space reserved for masked columns. This feature is switched off if set to '0'. (Default Off)
enableTextMode	Will enable signs other than internal LED to work in Text Mode (default setting = False).
Link	The default setting for Super-X generation i.e. between Link2 and the setting here. Standard setting is '1' but '0' used for RATP.
ThirdLineMarker	Is a special character or character string that determines if three-line mode is used. This is specifically designed for HK but can be used for any sign high enough to support three lines.
ThreeLineTopBoxHeight_n	Defines the allocation of the height of the top field height when using three-line mode. These allocations will override the sign configuration settings.
SuperXdefault	When set to true, all Super-X capable signs will default to Super-X and not to graphic mode (default False – Graphic Mode).
MsgSpeed	Will set the comms speed when sending messages to the sign directly from HELEN. This parameter will normally be commented out as the system will default to 4800 if this line is missing.
MsgBinary	Used to set messages (see above) to output as binary format. Default is False and is therefore normally commented out.
keylo	Base address of Key-Lo base station. Program will search for a base station at this address. If not found, then the uploadport value will be used instead. If this is not a valid port, then port 1 is used.
fontfile	Defines which font database is to be used. Eurofont.fdb is the standard database for European fonts. Arabfont.fdb contains fonts that are required for Arabic support and Chinfont for Chinese support (default = eurofont.fdb). This will define the default value which can be changed in the program.
ArabicFontName	This used to be 'Simplified Arabic' and fixed in the code but stopped working with Window 7. Now brought out to .Ini file for any future problems.
residualspace	Is the minimum number of spaces left, after the text has been dropped, before the text will be RH justified in a SINGLE_RN. This is to ensure that the maximum space available is used to separate the RN and destination.
ericidlen	Is the length that the destination ID code should be in the controller. This should be either 4 or 10 depending on the software in the controller. However, this value can be altered within the program (default = 10).
maxsigns	Determines how many signs HELEN can support. This can be up to 16, and again is dependent on the controller software (default = 16).
maxsignpages	Specifies the maximum number of pages shown (default = 16; max 999).
maxledgrwidth	Maximum width of an internal LED sign (default = 255). This value should be made no bigger than 'maxextendwidth'.
maxextendwidth	Maximum width that the sign can be extended to create a Super-x graphic (default = 300).

ledsigntype	LED sign type used for Adverts / Stop Lists: 0 - ANSI, 1 - Upper & Lower Case, 2 - Upper Case (default = 1).
KarlstadOutlineType	The Outline type value is used to switch on the special outline feature required by Karlstad buses (Sweden). 1=Standard outline of RN (default), 2=Special outline to the left and right of brackets (16-19), 3= Combination of 1 & 2.
FullOutline	Used in NYCT to fully outline the text – previously the corners of the characters would be left without outline. This is a switch on feature until Super-x is brought into line (True/False). Default = False.
FrameEnable	Is a switch on feature to enable multipage messages to be sent to a sign – first used with NYCT full colour signs with enhanced memory. Normally switched off as this feature is presently (July 2016) not available in standard signs.
Disable_FC_Offset	Full colour sign adjustment to switch off the two-column offset NYCT. Default = False.
TwoLineLock	Will allow two line graphic to be made into a left-aligned synchronised Super-x message. Specifically designed to scroll Chinese and English messages so generally disabled unless required (True/False). Default = False.
driverLowerCase	With 'driverlowercase' set to '1', it will allow driver's messages to have mixed case – '0' will give only uppercase characters.
DriverRemapEnable	When set to 1, will allow re-mapping of the character set used for the driver's message on the controller. This will enable accented characters to be shown to their nearest equivalent. The substituted characters are defined in dremap(x) (x default = 1).
ConsoleConfigDisable	When set to 1, the Controller Config menu will be disabled (default = 0).
ConsoleEditDisable	When set to 1, the Controller Edit menu will be disabled (default = 0).
Duty Period	Two values to set the flash parameters of a Super-X field. These two values are combined as follows: N = (Duty * 100) + Period Duty =1-9 (10% - 90%). Default 0 = 50%. Period = 1-99 1/10ths second. Default 0 = 10 (1 second).
Compression_n	List of compression strings. Need to be in contigeous order from 0 (no compression), 1 (standard compression) etc. These should not be changed without good reason. **Note:** compression_0=-q will stop the sign sizes being added to the uncompressed eric.bin. **Note:** compression_2=-j" - D -S -Z2,15 -L2, 15 -V" will give a verbose log file compression_2= -j" - D -S -Z2,15 -L2, 15" Compression_3 is zlib
PlainFile	When set to True, it will cause Sendwrap to transfer an uncompressed file which can be useful if the file is big and the controller does not have sufficient space to uncompress or when sending to an old Eric via a Key-lo (default = False).
ProgRNbackCompat	This feature will ensure backward compatibility with older versions of HELEN. The combination of a single '%' character in a SINGLE_NONE configuration will cause the '%' to be written to the database in TEXT

	MODE. This will ensure that the controller will recognise it as a programmable route number (will set the -% switch to Database.exe). This feature was originally set automatically, however, it creates a problem for Multicolour RN signs as it puts it into text mode and removes any colour info. In discussion, it appears that this feature is not actually required and has therefore been switched off. For safety, it can be re-enabled if required by setting 'True' (default = False).
Delimiters	The delimiters are used when turning text in 'Title Case'. Use a pipe character '|' to delimit this list (a space character is automatically included as a delimiter in the actual list). Delimiters= -|.|,|~|/
exceptions	List of exceptions used when setting text into title case. Word will be reproduced exactly as shown. Exceptions= via, on, by, upon, under, ASDA, COOP, NEC, NIA, ESCC, de, du, a.
autofonts_n	This is the list of suitable fonts for a particular sign height that the 'Select Standard Fonts' button will use. This list can be edited but must not contain more than 20 for any sign. The 'n' indicates the height of the sign (i.e. autofonts_16 for a 16-high sign).
autofonts	This list is used if a specific autofont_n list is missing (i.e. a 16-high sign is selected but autofonts_16 is unavailable). If an autofont is not available for a particular sign height, the program will choose from the list below (no more than 20). Autofonts=0705C1E1,0705N1E1,0708B2E1,0806C1E1,0808B2E1,1410C2E1,1411B3E1,1608C2E1,1610N2E1,1613B3E1
autoRNfonts_n	This is the list of suitable fonts for a particular sign height that the 'Select Standard RN Fonts' button will use. This list can be edited but must not contain more than ten for any sign. The 'n' indicates the height of the sign (i.e. autofonts_16 for a 16-dot-high sign).
autoRNfonts	This list is used if a specific autoRNfont_n list is missing (ie a 16-high sign is selected but autoRNfonts_16 is unavailable). If an autofont is not available for a particular sign height, the program will choose from the list below (no more than 20). autoRNfonts=0708B2E1,0808B2E1,1110B2E1,1411B3E1,1513B3E1,1613B3E1,1713B3E1,1912B3E1,2430N4R1,3015B3E1
altChineseAutoFonts and altArabicAutofonts	New system adopted with HELEN v2.0o has a separate alternative list of fonts for Arabic and Chinese. The presence of an Arabic or Chinese keyboard will make the selection automatically.
UserFile	Defines the name of an optional user binary data file. Create and save the file in the usual directory and substitute the word "User" for the name chosen for this file. Then on the SAVE OUTPUT FILE form, click the User checkbox. The user file data is then appended to the end of the eric.bin file (default = user.bin).
MaxDrvLen	Determines the maximum length of the driver's messages. **Note:** some controllers are unable to support a length greater than 16 (default = 16).

disableinterpolate	If set to 1, it will disable the automatic insertion of preamble references (default = 0).
NoFirstDrvMsg	Determines which pages of the driver message will be shown. It defaults to 0 - this will show all pages. If this is set to '1', then the first driver msg will not be put in the eric.bin.
ContainerFileEnable	If set to '1', it will enable the creation of container files (default = 0). **Note:** At present, container files and compressed files are mutually exclusive. If container files are set, then the createcompressedfile flag will be ignored. Also, the Save-As feature is disabled when container files are enabled.
NoConfirm	When set to 1, it will remove the need for confirmation (i.e. clicking OK) when downloading to a controller (default = 0).
Polling	When set to 1, it will enable polling. This obviates the requirement to set the dataloader to 'Loading' (default = 0).
finalspeed	Will set the final negotiated speed between HELEN and the controller. Can be useful if there is a problem with the controller. Not normally required and therefore commented out.
OldSwGui	A backward compatibility measure to use the old SwGui should unforeseen problems occur using the new system (True/False). Default = False therefore commented out.
SpecialAlign	Special alignment overrides the default alignment (centre) of the destination fields (Left/Right/Centre{Default}).
sxGraphicNoTrim	Will turn off the trimming of any white space from the creation of a Super-X graphic (True/False). Default = False, i.e. it will trim by default.
sxBlankCols	This will set the number of blank columns between the route number field and the destination field(s) (default = 2: Value limited between1-9). Original Graphic mode has a set value of 1.
dremap(x)	See DriverRemapEnable.
AdvertUpperCase	Section to sort out limitations in advert processing. Until this change, control characters were always converted to lower case. This caused problems when a capital 'P' is used to try and create a long delay. To avoid back compatibility issues, the lowercase conversion will be maintained unless explicitly switched off here. 'AdvertUpperCase' is False by default and therefore commented out.
AdvertExtraControlCharacters	Extra control characters can be added to avoid unknown characters being ignored.
MaxMsgIdDigits	Determines the number of message pages that can be shown. It defaults to 2 giving a maximum number of 99 (i.e. MaxMsgIdDigits=2: 01 to 99). This can be changed to 3, which will give a maximum number of 999 (i.e. MaxMsgIdDigits=3: 001 to 999). **Note:** 3 digits not yet supported in controller - do not change without reference to Hanover Displays.
Addconfigparams	When set to 0, it will ensure the configuration box is unchecked within 'Save Output File' form. Default = 1 for checked.

Createcompressedfile	When set to 1, it will create a compressed version of the eric.bin (Eric.Whf). **Note:** At present, container files and compressed files are mutually exclusive. If container files are set, then the createcompressedfile flag will be ignored.
Customcolours	List of extra colours that have been selected by the user (automatically set).
LastTTfontName	Last selected Windows font (automatically set).
LastTTfontBold	Weight of last selected Windows font (automatically set).
LastTTfontItalic	Set if the last selected Windows font was italic (automatically set).
inhibitSXenhancedColourFeatures	Will restrict the generation of any Super-X outline to either black or white and will inhibit the generation of the enhanced colour system for Super-X (default = False).
RegenSideSignWithTT	Will enable TT (true type) fonts to be regenerated into a side sign. Normally not recommended so disabled by default (True/False). Default = False.
maxstripetype	Specifies the maximum number of stripe types for colour signs (if missing, then the default = 15). **Note:** default has been increased to 19 for Karlstad.
support=support@hanoverdisplays.com backup=backup@hanoverdisplays.com supportsubject=Support Helen backupsubject=Back-Up Helen supportfilename=Support.Zip backupfilename=BackUp.Zip	E-mail addresses for Hanover Support and Backup. Only to be changed by Hanover Displays.
LastRatpProject= Sendername= Sendercompany= Sendertelephone=	Automatically filled in by the program.
[Recent Files]	
MaxNumberOfRecentFiles	Displays the maximimum number of recently used lists that will be displayed (default = 10).
RecentFile_n	List of recently used lists (where n is a number from 0 to (MaxNumberOfRecentFiles-1)).
[language]	
lang	Describes the language to be used in the program. It is based on the international telephone dialling code. This can be changed within HELEN via the 'Language' option (default = 44).

langfallback	Will set the fallback language if a translation does not exist. This can be switched off by either removing or commenting out the line or setting to '0' (zero).
[convert]	
Translate	Only to be set by Hanover
Conv1	Only to be set by Hanover
Out to Return	Only to be set by Hanover
Conv2	Only to be set by Hanover
[display]	
pagespeed	Length of time (in 1/10ths of a second) that each page of a scrolling display is shown in the preview window. Note that the real-time page duration is determined by the controller (default = 30, i.e. 3 seconds).
[UnicodeFontBlocks]	
ActiveFonts	Basic Latin, Coptic, Cyrillic, Greek and Coptic, Latin Extended-A, Latin-1 Supplement
[signtypes]	
sX	The [signtypes] section contains all the display types that are available in HELEN. sX = name, width, height, code, features where X is a decimal number starting at 1.
[console]	
protocols	Contains a list of the selectable protocols[22] available for the controller.
sign_params	Contains a list of selectable sign parameters[23] (profile editing).

[22] List of protocols: SIGN, DIAG, TERM, AACHEN-IBIS, AESYS-A, ALMEX, AUBAGNE, BEEP, BKB, BKBCORUNA, BKBDIG, BKBMAT, BKBSANTANDER, BKBVALENCIA, BLUETOOTH, CAMP-Pulse, CAPETOWN, CFL-IBIS, CGA_A, CIBOR, CIBOR-2, CIBOR-3, DECT, DUBWAYF, DUHAMEL-A, ELECT-A, ERG-A, ERG-B, ERG-C, ERG-D, GPS, GPSLOG-GPS, GPSLOG-LOG, GTMH-1, HANO-1, HANO-2, HANO-1F, HANO-2F, HANVOX, HCPS, HIAWATHA, IBIS-2, IBIS-3, IBIS-4, IBIS-5, IBIS-6, IBIS-TV, IBIS-VMX, IBIS-WL, IBIS-ZZ, IBISSANTANDER, IBPERUGIA, INEO-A, INTRA-TCRA, ISR-1, J1708-1, J1708-2, J1708-2A, J1708-3, KOR-1, KOR-2, KOR-3, KOR-4, MONET-A, MONET-B, MS, MURCLOAD, MURCLOAD19, NETNCE, NYCT, OCTA, OPTILE, PRODAT-A, PRODAT-B, RELAY, RGLIT, RSL, SEMA, SEREL, SLE, SOCRIE-A, SOCRIE-B, SPEC-A, SPEC-B, STAAB-IBIS, STP403S, SYSECA-A, TERNI, TGX150-A, TGX150-B, TGX150-C, TGX150-D, VDV-IBIS, VIGIE-ALOG, VIVA1

[23] Sign_params = -,*,0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,RN,HANCIS,HTC,HV,NN,XN,@

Appendix C: Container Files

Appendix C-1: What is a container file?

A container file is an output file generated by HELEN which contains a set of message binary files (Eric0.Bin, Eric1.Bin etc). Each message file is intended for a specific set of signs fitted on a vehicle. The container file is loaded into the dataloader / Key-lo and then only the message file pertaining to that particular display set is transferred to either the Deric+ or Eric++ sign controller[24].

Appendix C-2: Why use container files?

Without a container file, there are two options for a fleet of vehicles with different sets of signs:

- create a separate destination list for each type of bus and load each into a separate dataloader.
- create a single destination list which includes all the sign variants; then by using the profile technique, select the appropriate profile number. This option results in a much larger database being created than each bus actually needs.

The Deric+ controller has a maximum of about 650k bytes of available memory. However, if there is a wide range of different signs together with an extensive destination list, this is not enough memory to hold a single HELEN list.

With the use of container files, each controller only accepts the data that it needs, but the user can still keep all the message data for all the sign types in one destination list directory - as in the second option above. In this way, only one list has to be created and maintained and a significant amount of memory space in the controller is saved.

Appendix C-3: Configuring HELEN to create container files instead of normal Eric.Bin files

A container file can only be created if profiles have been set up (see section c) in 7.2.1.8 Signs.

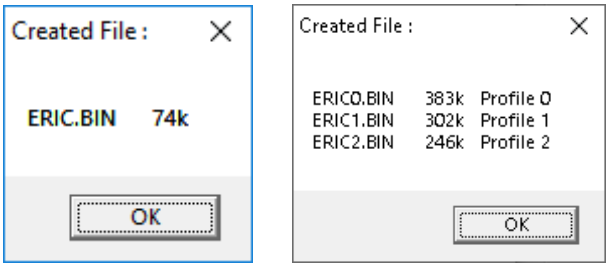
From the main destination list window, select Options → Configuration → Output File Creation → Container (see section 7.2 Options menu). A container file will then be created.

For each profile there will generally be an Eric#.Bin, where # corresponds to the profile number (profile 1 will create Eric1.Bin etc.).

Note: if the container file option is not selected, there will only be a single Eric.Bin file, regardless of however many profiles there are.

Appendix C-4: Establishing that HELEN has created a container file

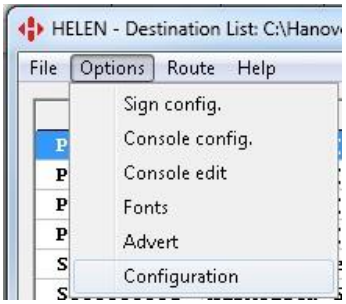
When 'Save Output File' is selected, there will be a list of all the files that have been created.



[24] Any sign controller that can be loaded by a USB memory device has more internal memory and doesn't need this technique

The figure on the left shows confirmation that a standard, single Eric.Bin file has been created whilst the figure on the right shows that a container file with three files has been created corresponding to three profiles[25].

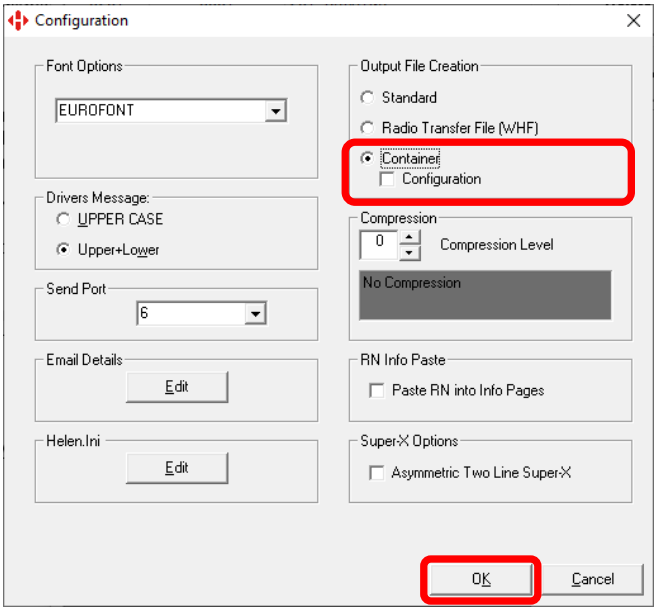
When ‘Options’ followed by ‘Configuration’ are then selected:



- If standard container files are required, refer to a) Standard container files.
- If profiles are required for container file loading, refer to b) Selecting profiles for container file loading.

a) Standard container files

When ‘Container’ followed by ‘OK’ are selected:

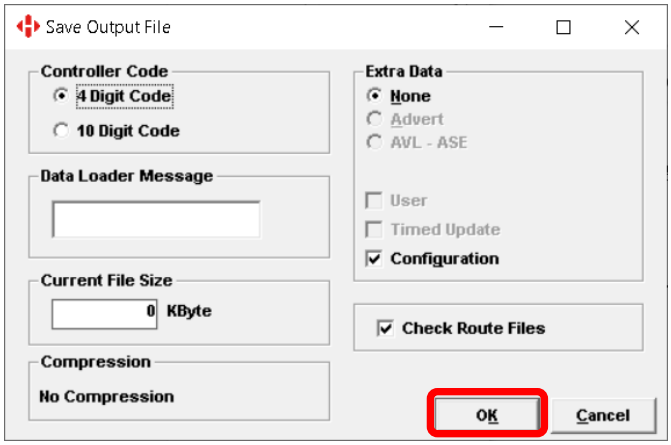


Note: For more details about the ‘Configuration’ tick box

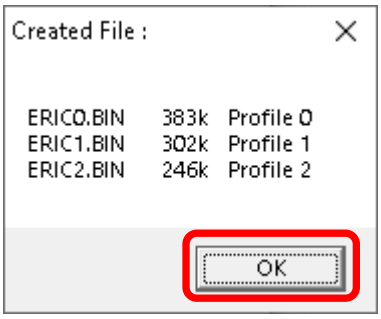
, refer to b) Selecting profiles for container file loading.

[25] The number of files produced will actually depend on the configuration settings. If the display allocation is the same between profiles, then an extra Eric#.Bin file will not be produced as this would contain duplicate information.

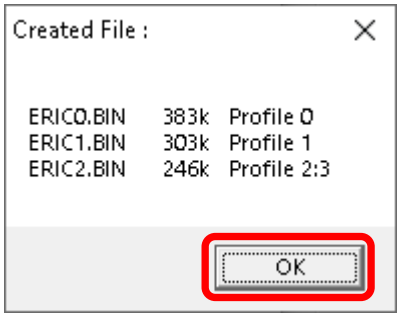
When ‘File’ followed by ‘Save Output File’ are selected, the following window will be displayed:



When ‘OK’ is selected, the following figure confirming that multiple Eric.Bin files has been created, will be displayed:



Below shows a special case where only the configuration is different. ERIC2.BIN contains the same data for profiles 2 & 3. This will be handed automatically when using a Key-lo.



When ‘File’ followed by ‘Send Output File’ are selected, the Key-lo can now be loaded in the normal way.

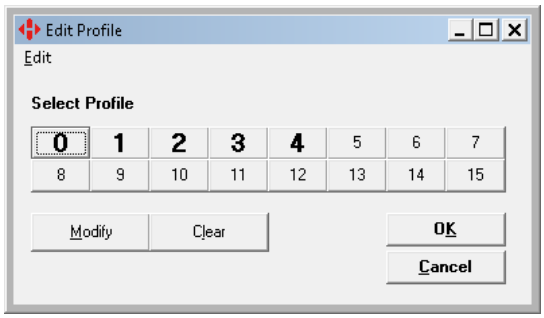
Note: Ensure that the controller has the correct profile set **before** plugging in the Key-lo.

Now proceed to section Appendix C-5: Downloading a container file.

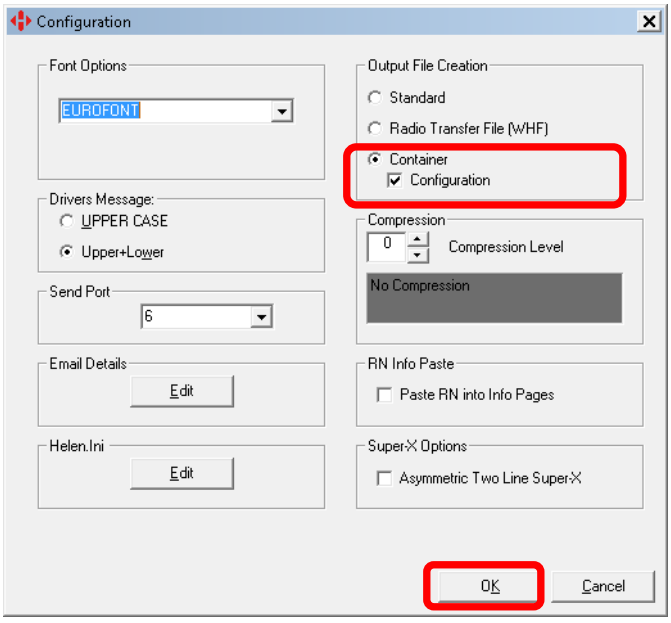
b) Selecting profiles for container file loading

In extreme case, the Key-lo may not be able to hold all the data of all the profiles. One way around this problem is to only store the appropriate profiles for particular vehicle type e.g. one Key-lo will be loaded with the profiles for all double deck buses and another Key-lo would be used to store the profiles for all single deck buses. This method will still allow one list to be maintained.

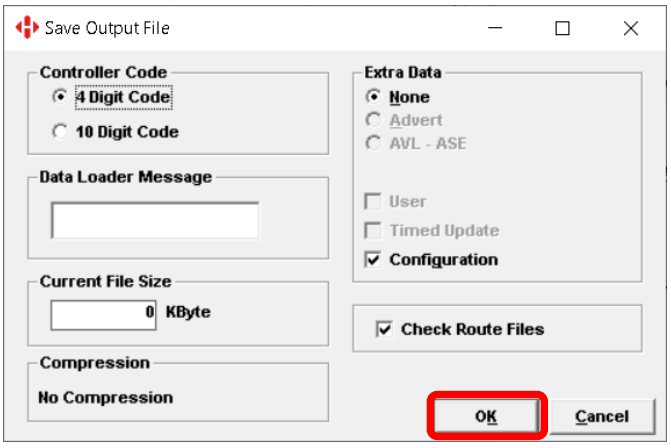
Example of list with 5 profiles:



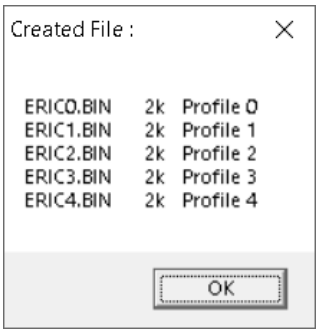
This time, the ‘Configuration’ box will need to be ticked followed by ‘OK’:



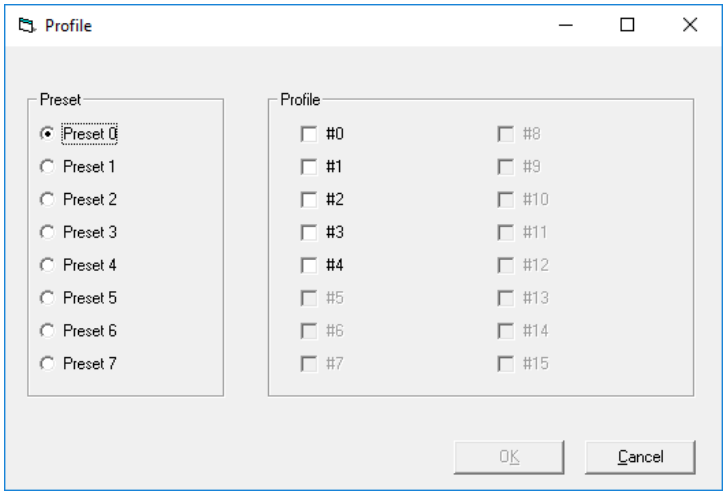
When ‘File’ followed by ‘Save Output File’ are selected, the following window will be displayed:



When ‘OK’ is selected, the following figure confirming that multiple Eric.Bin files has been created, will be displayed:



When ‘File’ followed by ‘Send output file’ are selected, the following window will be displayed:

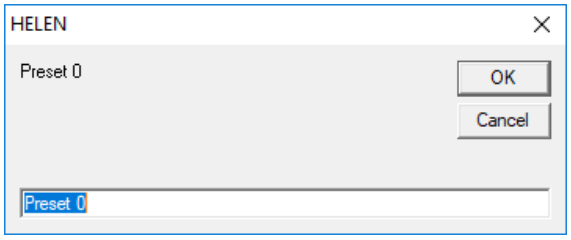


The available profiles will be displayed in the ‘Profile’ frame on the right hand side.

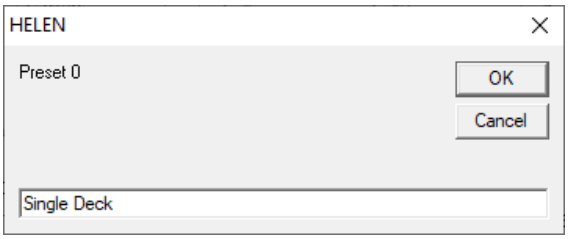
On the left hand side there are 8 available presets. These presets will allow for easy selection of frequently used combinations.

Note:

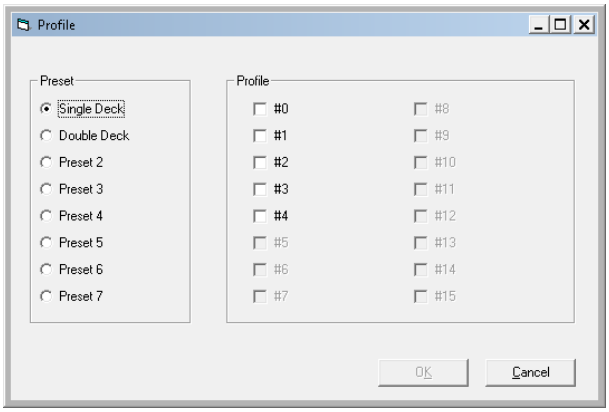
i. The name of the preset can be changed by double-clicking on the preset name:



ii. The desired preset name can then be entered:



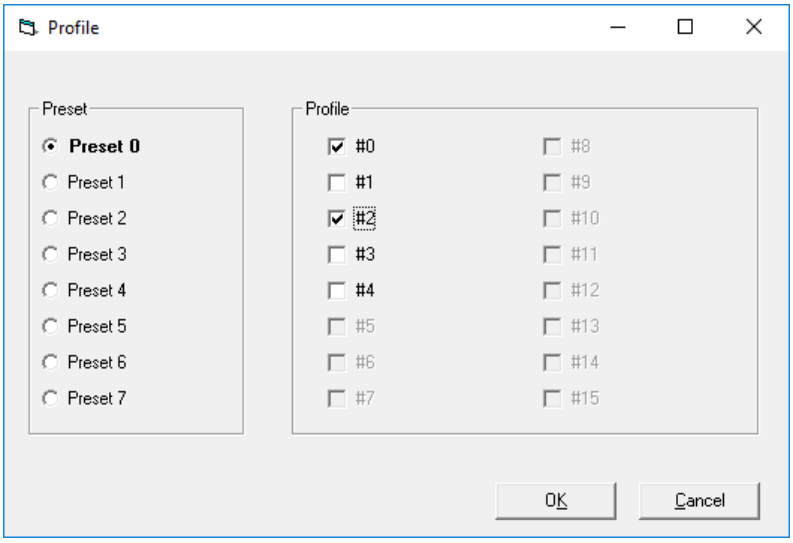
iii. This process for further preset names can be repeated if required:



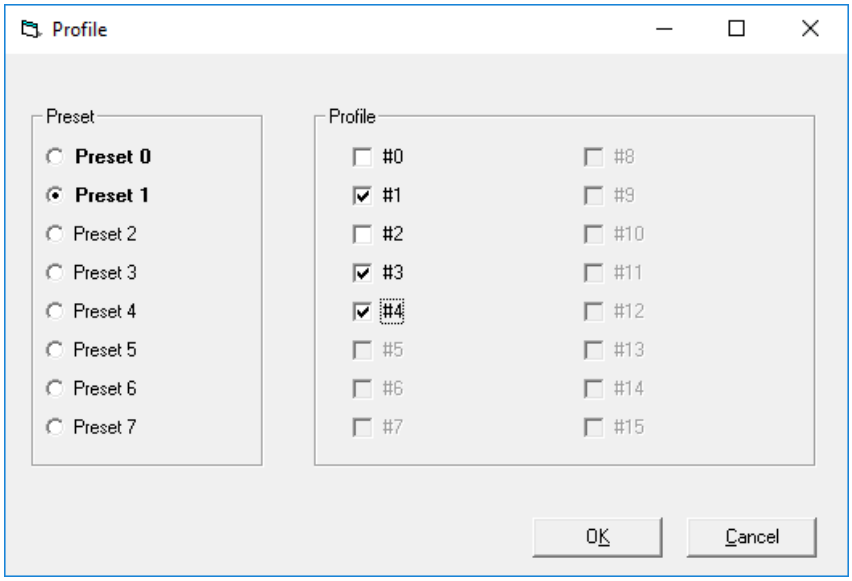
Two examples of how the preset feature can be used are as follows:

- Example 1: Preset 0 will be used to create a container file with profile #0 and profile #2.

  Note: the preset name 'Preset 0' will be in bold once a profile has been selected.



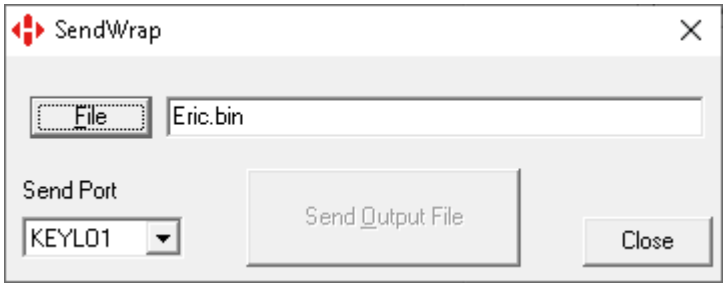
- Example 2: Preset 1 will be used to create a container file with profile #1, profile #3 and profile #4.



The normal File Load dialogue will then be shown. Now proceed to section Appendix C-5: Downloading a container file.

Appendix C-5: Downloading a container file

Once ‘OK’ is selected in the above ‘Profile’ window, the SendWrap window will be displayed:



Plug the Key-lo into the base station and the transfer will automatically start.

There are two standard methods of loading a sign controller and both will support container files:

- Loading a Key-lo from the computer running HELEN and then load the controller via the Key-lo.
- Via a Deric+ or Eric++ configured to be a dataloader[26]

The key to using a container file is the profile setting on the controller. The profile number will extract the appropriate part of the container file required for that unit (the example is for a Deric+ but would be similar for an Eric++).

Go to 'System' on the controller (if necessary, refer to the particular controller manual)

and press the F/E key until PF is shown.

Use the left arrow key to select the Profile number which can be in the range 0-15 (default = 0).

Notes:

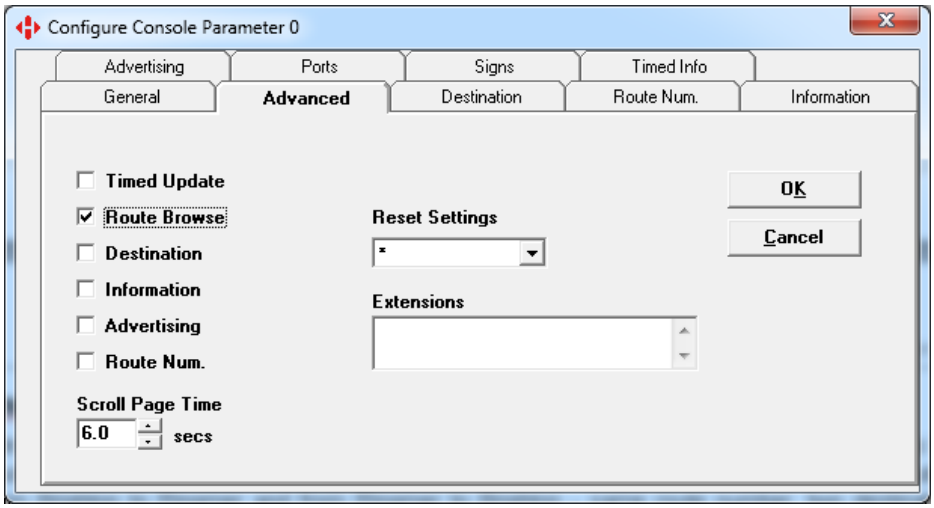
- When using a Key-lo, the loading will be automatic.
- When loading an Eric or Deric as a dataloader, the dataloader may also need to have a Profile Number selected. This profile number needs to correspond to a profile that actually exists (it doesn't matter which one). So for the example in the above figure, a profile setting of 1,2,3,4,5 or 6 will work but not the default 0.

[26] This is an obsolete method and Key-lo loading should always be used in preference.

Appendix D: Route Browse

The route browse system uses a route code as well as a destination code and groups all destinations for a given route together. The simplest example is a bus that shuttles between two destinations, e.g. route 28 goes from Brighton to Ringmer and from Ringmer to Brighton - same route number, two destinations. However, some journeys terminate at other places (Lewes, Uckfield and Tunbridge Wells, for example). The advantage of Route Browse is that the driver can enter the route number and then need only to use the up / down keys on the controller to select the required destination - the browse will be limited to the destinations on that route.

To enable Route Browse: in the Destination List, go to Options → Console config. (then select relevant profile) → Modify → Advanced and tick the Route Browse checkbox in the profile configuration as shown below.

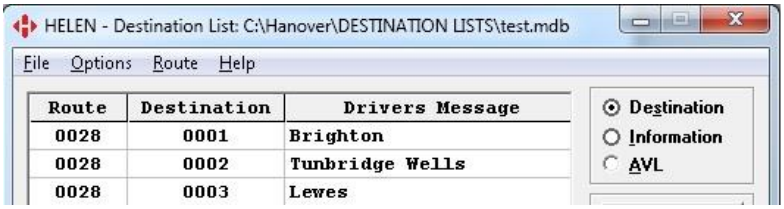


Then click OK and OK to return to the main window.

Click New to show the route and destination codes (four digits in each) in the 'Enter Route Code and Name' window as shown below.

After entering the details for various destinations, click OK and ‘re-load’ the list by selecting File → Load.

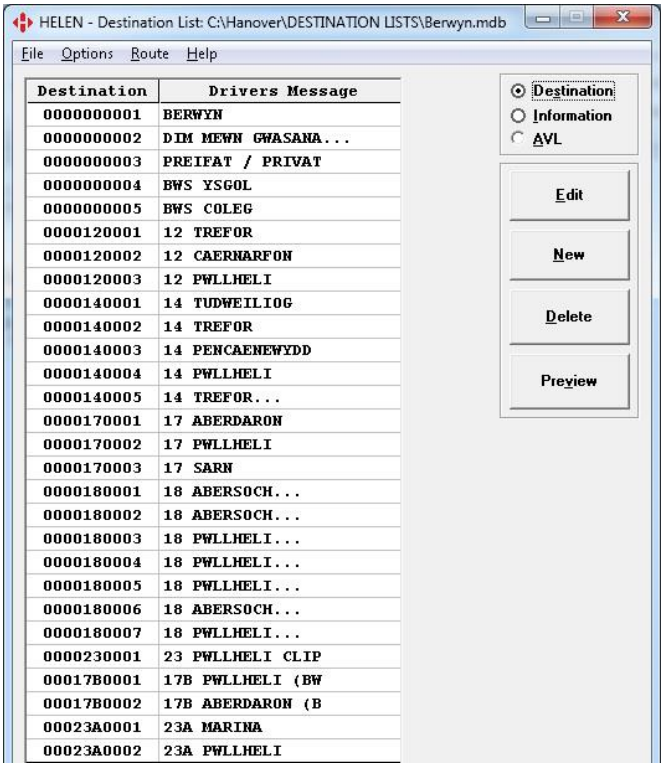
The list will now show separate fields for route and destination as shown below:



- **Adding Route Browse later**

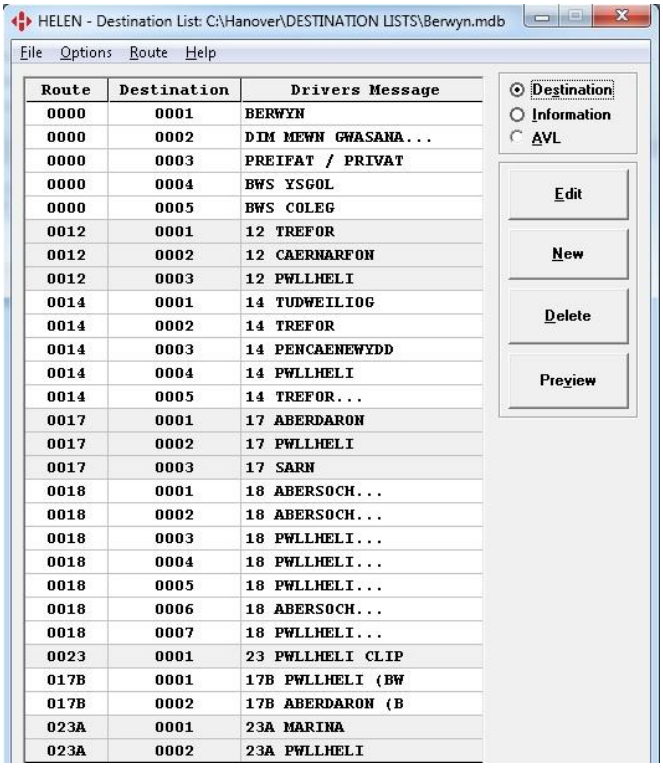
It is possible to add the Route Browse feature to a destination list that has been built without it.

This figure shows an extract from a destination list before Route Browse is deployed:



This figure shows the same list afterwards, when the box ‘Route Browse’ shown above is ticked:

The route code field of each destination list item can now be modified manually by incorporating the route number via the Edit function.



Appendix E: Working with Arabic characters

From HELEN version 2.0o, there are two methods of implementing the Arabic writing system. The original method uses specific Hanover fonts which are often useful if there is a lack of space. The newer method uses the Windows font system to render the characters. This appendix describes both methods.

Note: Hanover fonts give a better result on a smaller sign and take up less space.

Appendix E-1: Hanover font system

The Arabic auto-font selection works in a slightly different way to the standard European auto-font selection.

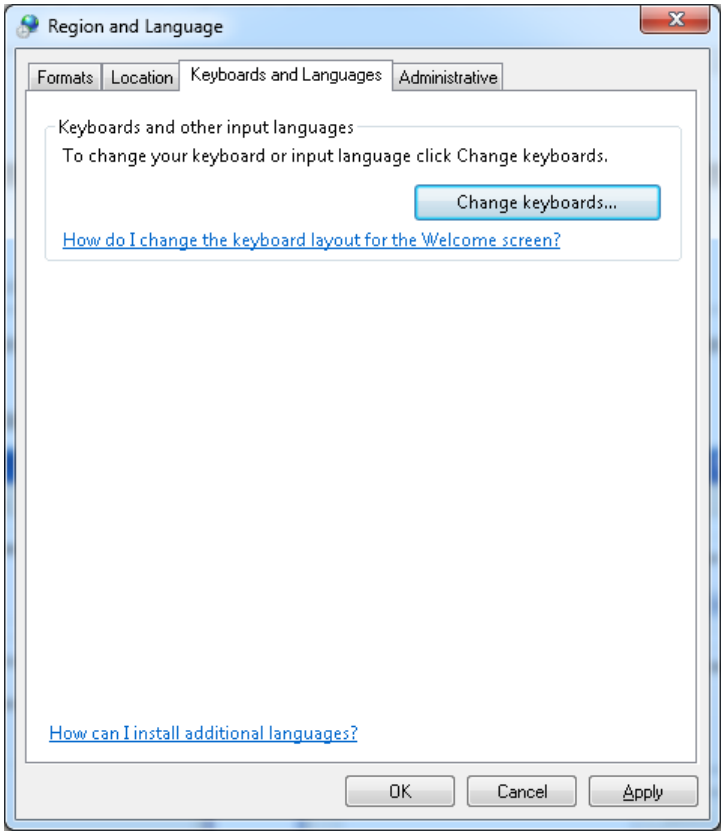
Fonts are selected from an alternative font list (found in the helen.ini file) when a text entry box is marked as Arabic. The marked box will be evident by having a light brown background colour

To mark a text entry box as Arabic, simply click in the box, select the appropriate keyboard as shown below and enter the required text. Similarly, to change the language applicable to a box, delete any text present and select the required keyboard afresh. Depending on the PC's settings, toggling between keyboards can be done using Alt+Shift.

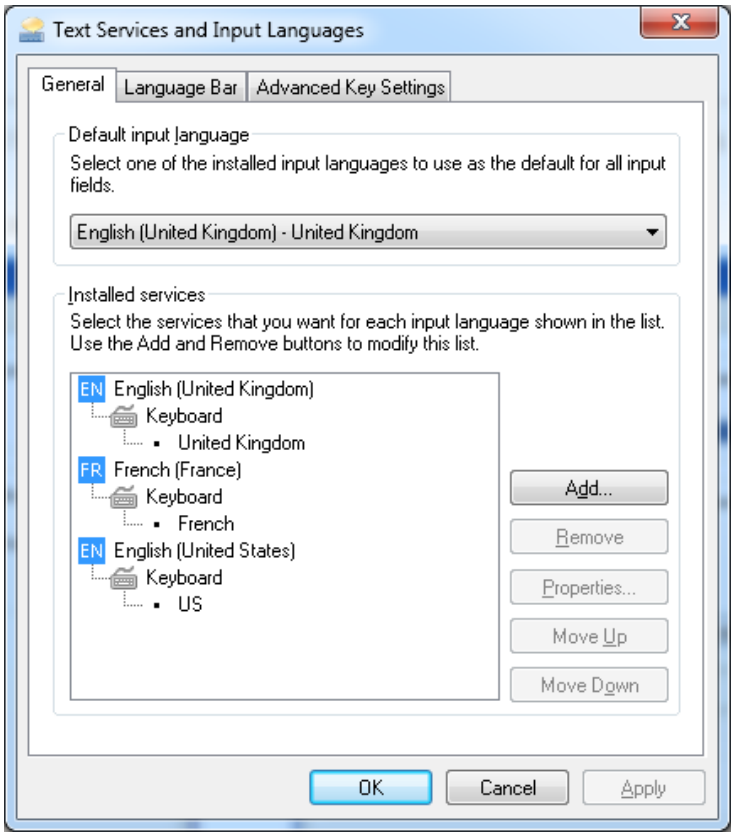
Once a box has been marked for a particular language, the appropriate keyboard will be automatically selected for that text box when editing.

For users of Windows 7 or later, the standard operating system can be extended to allow the use of Arabic operation. First, check to see if the required language is already installed: select Start → Control Panel → Region and Language.

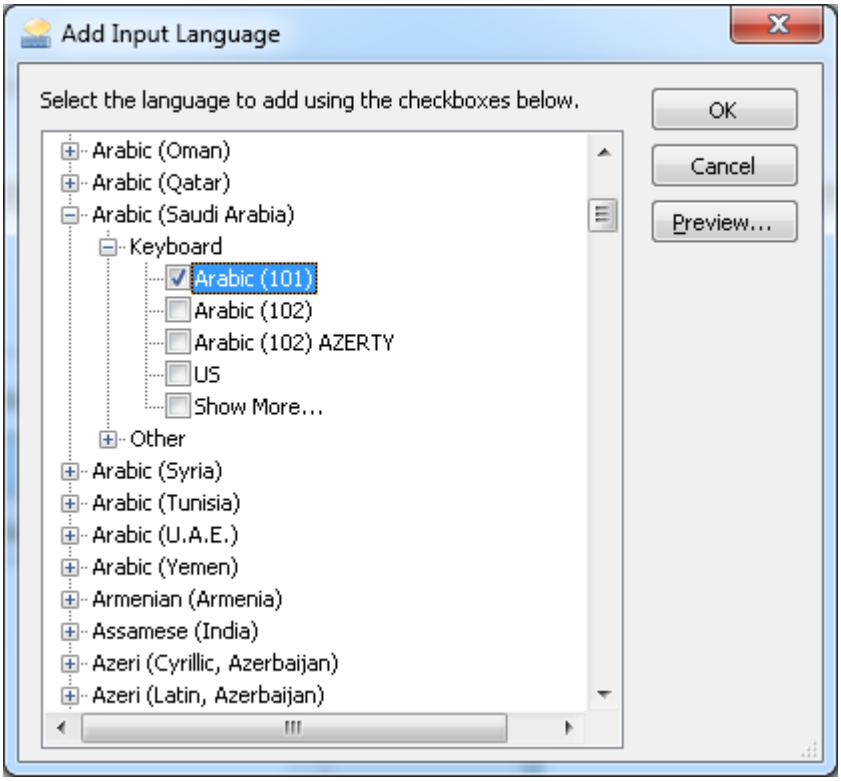
Next, click Change keyboards… to install an appropriate keyboard as shown below:



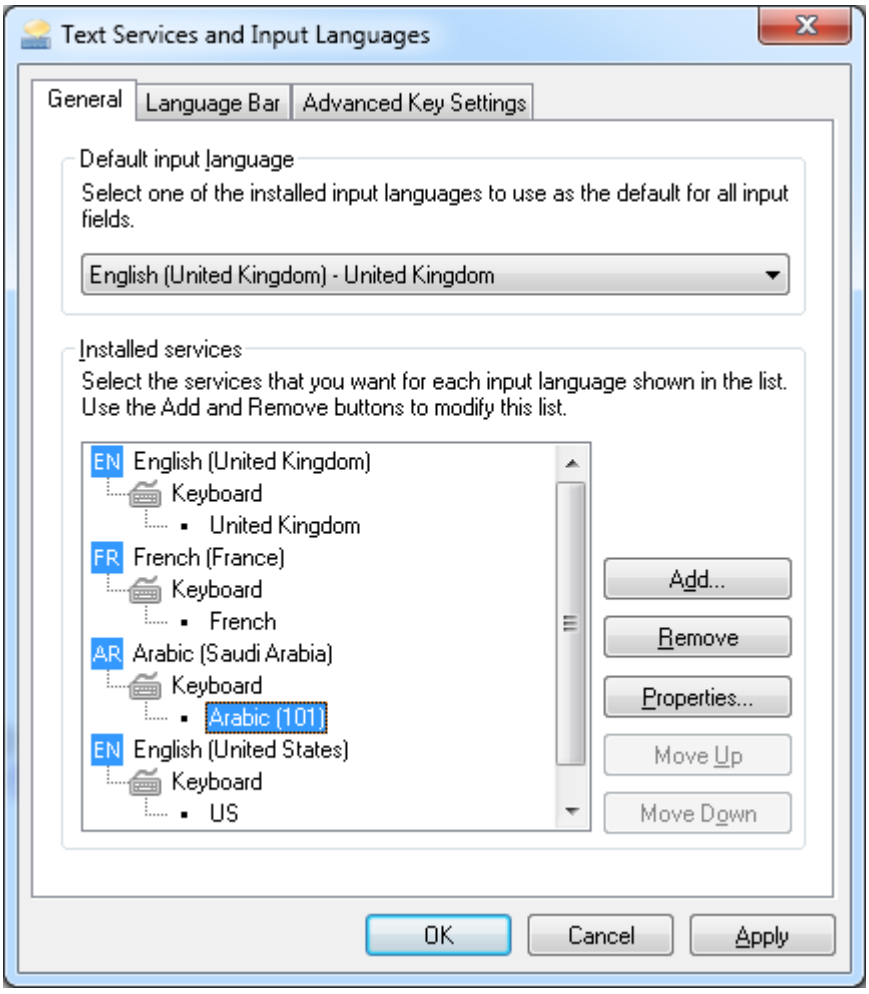
Note: The correct keyboard may already be installed, in which case this stage may be omitted.



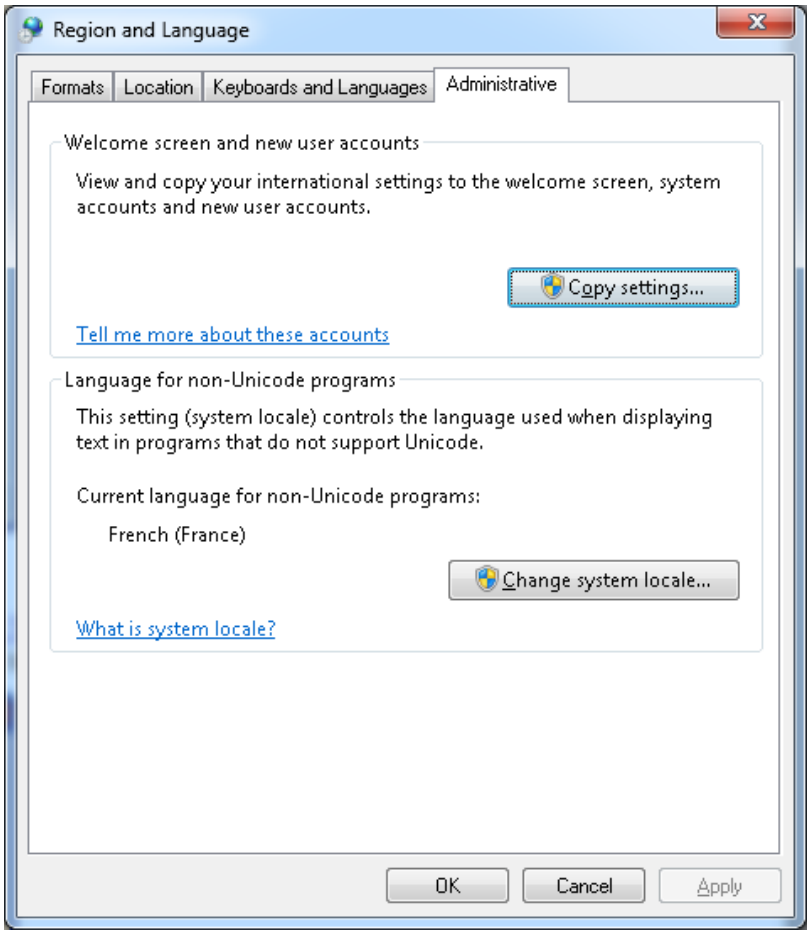
Click Add to add an appropriate Arabic keyboard such as Arabic (Saudi Arabia) as shown below:



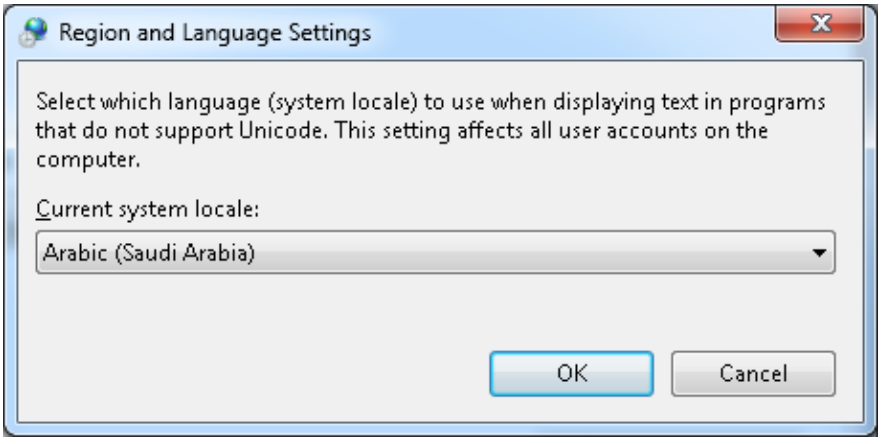
The following selections have been used successfully but other configurations will be possible.



After choosing the required keyboard as shown above, click OK and from the following window, select the 'Administrative' tab to set the correct code page.



Select 'Change system locale…' to change it as shown below:

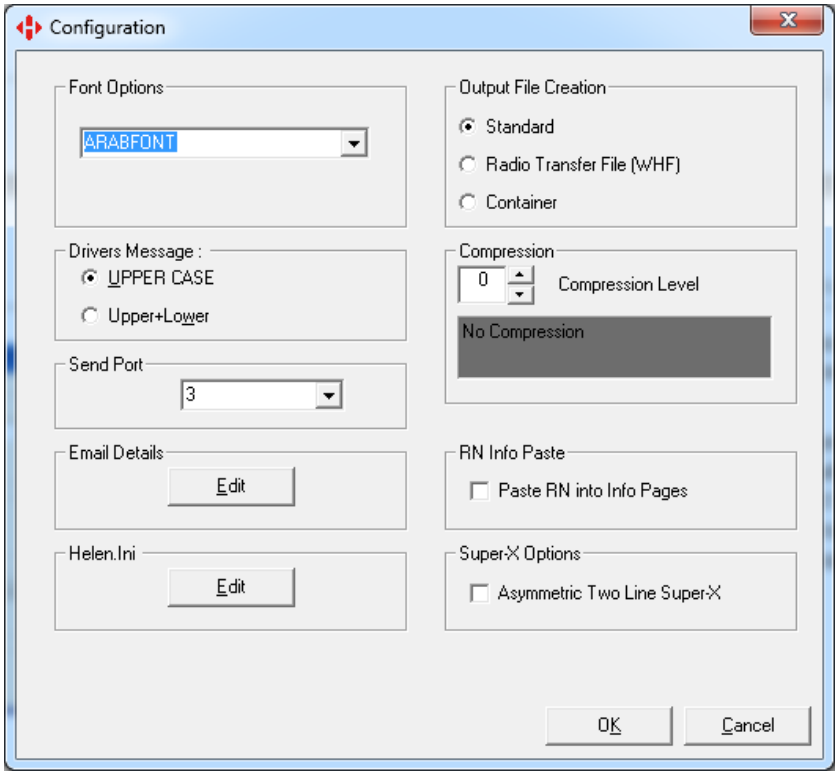


Click OK and the language/keyboard installation should be complete. All that remains is to select the required font file.

- **Selecting a font file**

HELEN is supplied with a number of font files. The default fonts are contained in a file called Eurofont.Fdb and this, as the name suggests, contains the fonts required for the major European languages. Other files are included to support the specific requirements of particular customers or particular language systems, e.g. Arabfont for Arabic writing systems.

Prior to HELEN v2.0o, the various font files were selected by editing the helen.ini file but this can now be done via Options → Configuration from the Destination List screen as shown below.

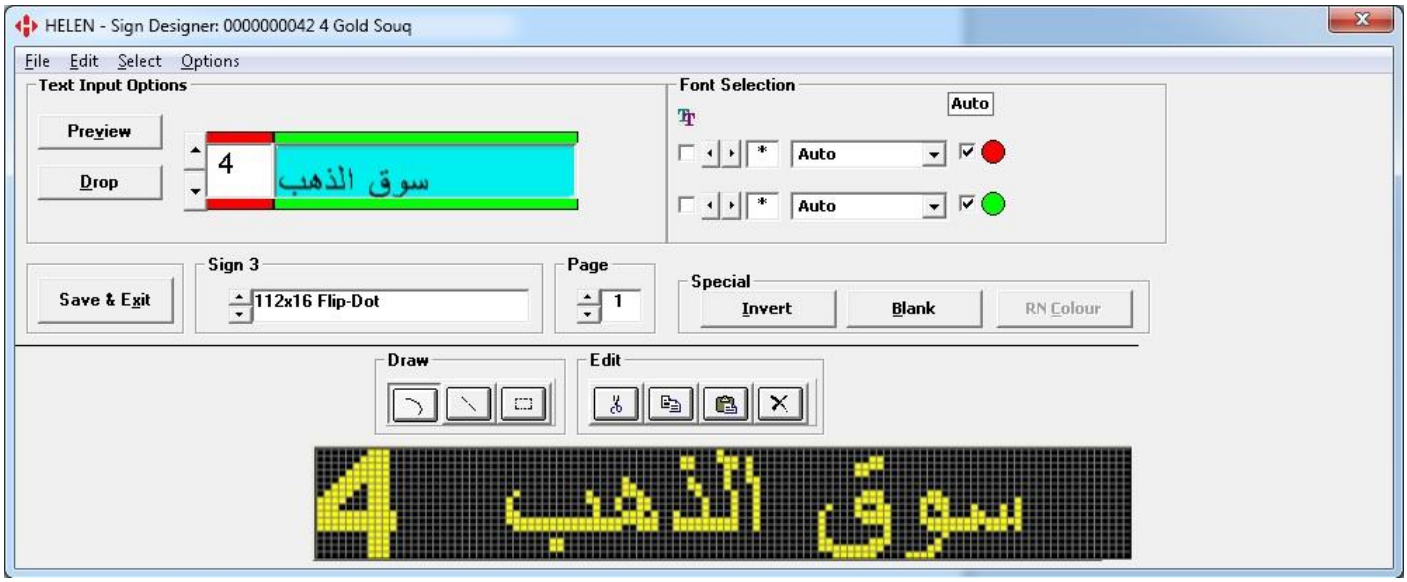


This setting will be retained with the database and will automatically be set when the database is reloaded.

That concludes the setup process; European or Arabic characters can now be entered normally into the relevant text boxes. Remember, to select a text box as Arabic, simply insert Arabic characters. Once selected, the keyboard will automatically change to the appropriate language.

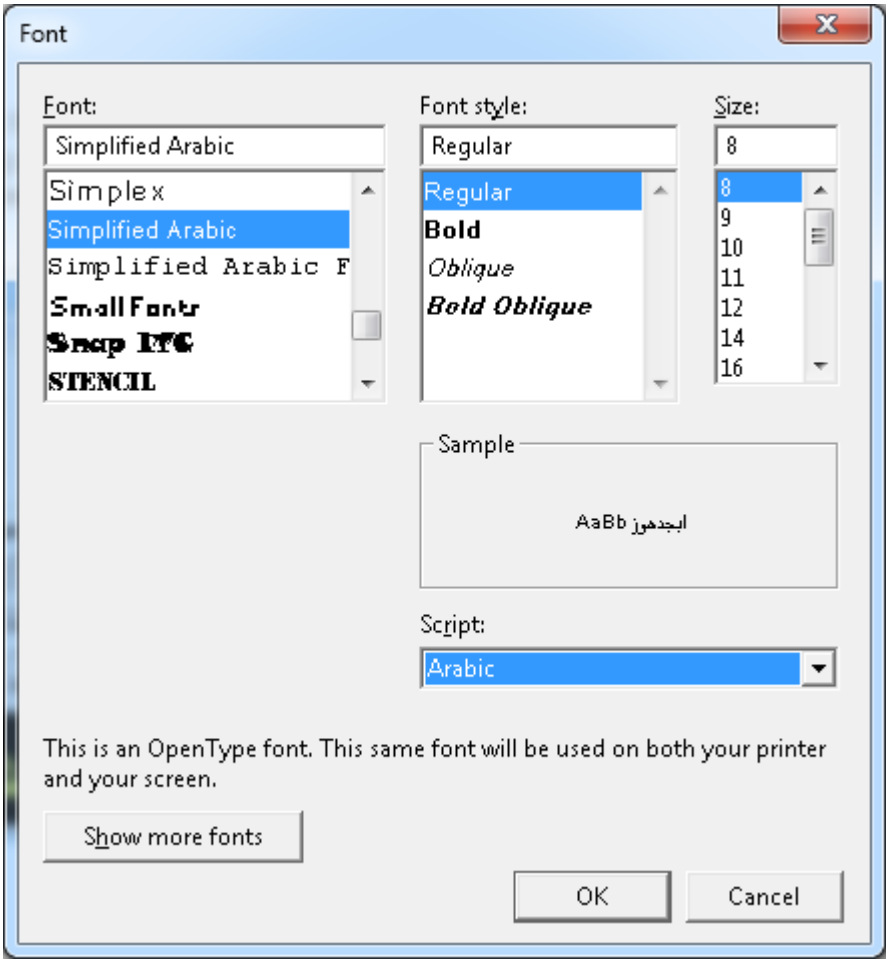
Appendix E-2: Windows font system

The great benefit of this system is its ability to take advantage of the numerous input methods and fonts available with Windows. Apart from selecting a font file as shown above, the settings required are the same as for the Hanover font system. The Windows font system can be identified by the light blue background colour as shown below:



On the Sign Designer screen, tick the box: the text entry box will become light blue.

Then click Font to select an appropriate font from the figure as shown below:



Appendix F: Working with Chinese characters

From HELEN version 2.0o, there are two methods of implementing the Chinese writing systems. The original method uses specific Hanover fonts which are often useful if there is a lack of space. The newer method uses the Windows font system to render the characters. This appendix describes both methods.

Note: Hanover fonts give a better result on a smaller sign and take up less space.

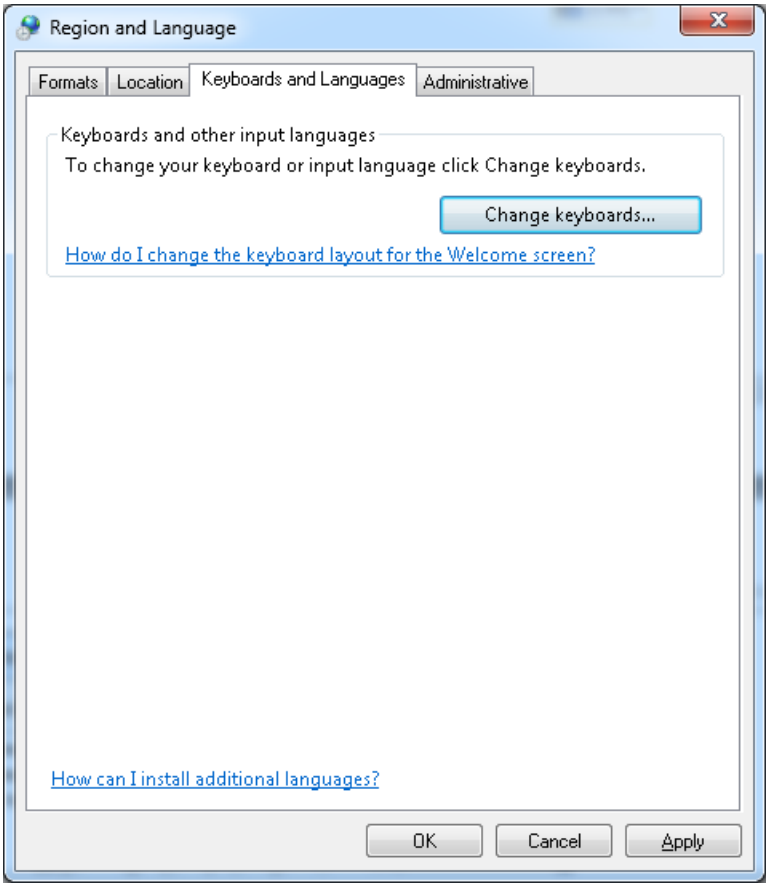
Appendix F-1: Hanover font system

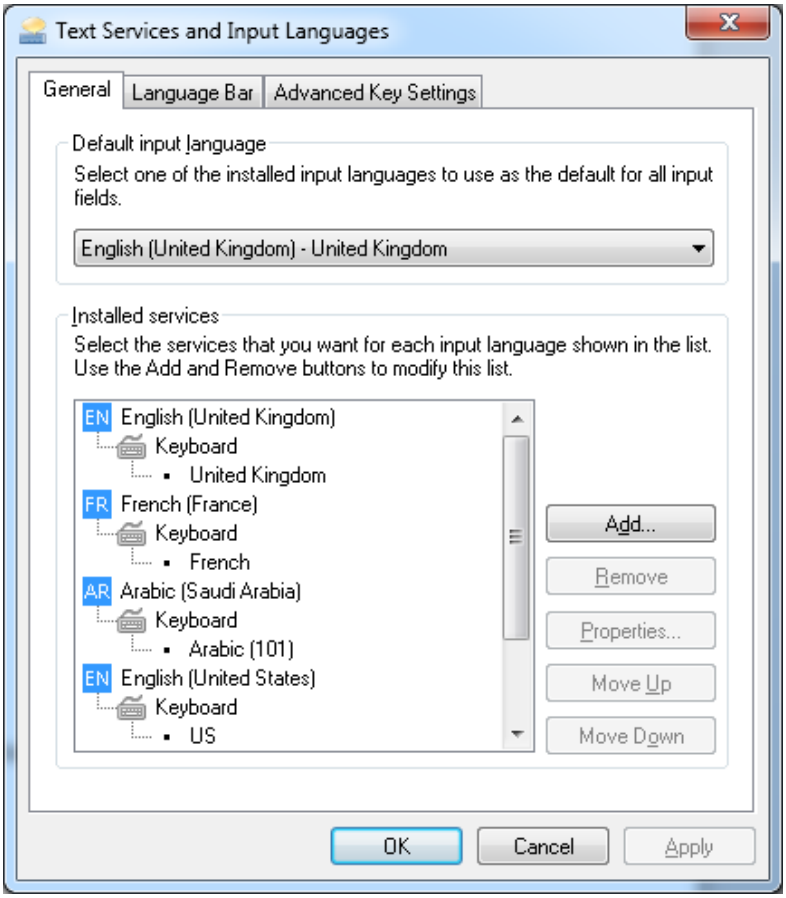
The Chinese auto-font selection works in a slightly different way to the standard European font selection.

Fonts are selected from an alternative font list (found in the helen.ini file) when a text entry box is marked as Chinese. The marked box will be evident by having a light brown background colour as shown below:

First, check to see if the required language is already installed: select Start → Control Panel → Region and Language.

Next, click Change keyboards… to install an appropriate keyboard as shown below:

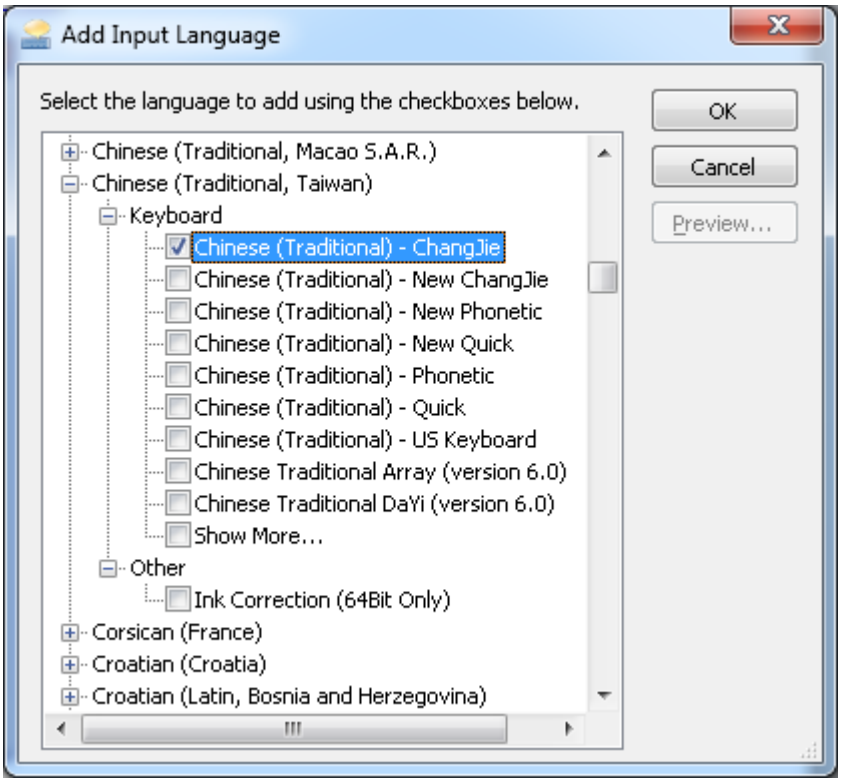




Note: The correct keyboard may already be installed in which case this stage may be omitted.

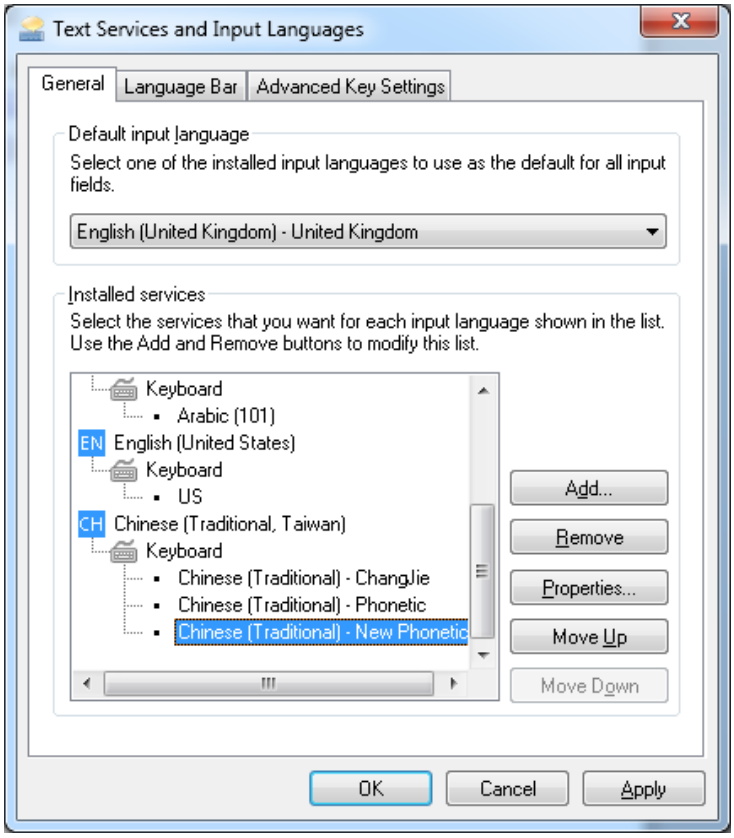
Click 'Add' to add a keyboard.

For users of traditional Chinese characters the following can be recommended (it may be that other configurations are possible but the following have been used successfully):

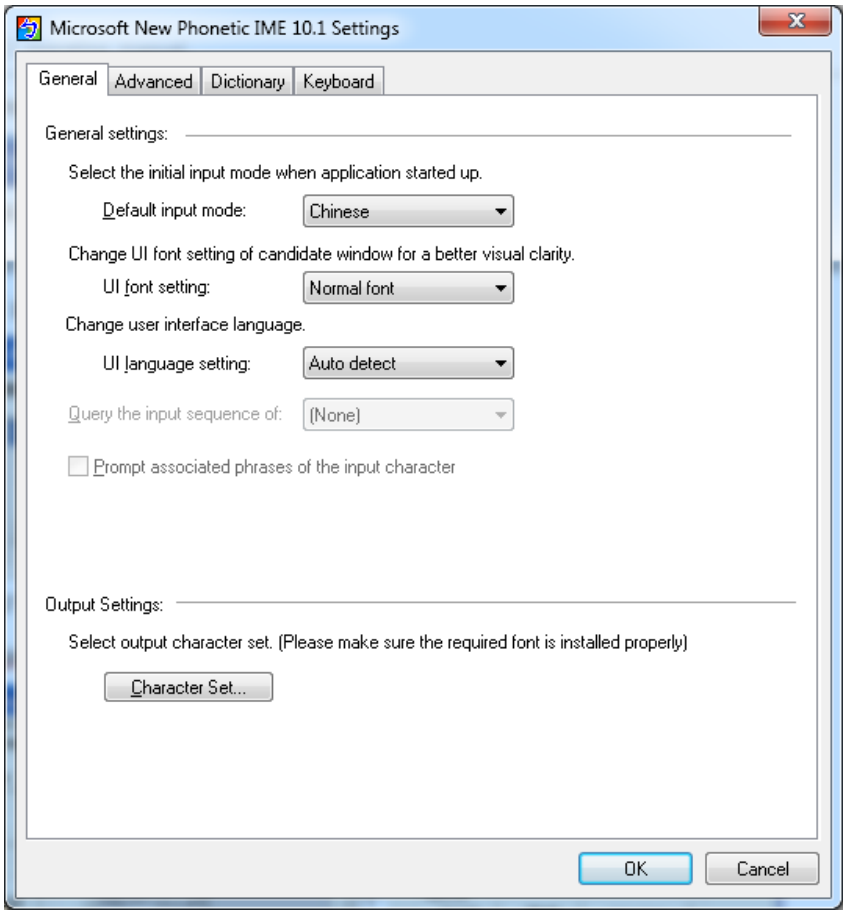


Select 'Chinese (Taiwan)' and a number of different entry methods can now be selected. Choose the most suitable method as shown above. Click OK.

The new keyboard(s) will now be shown as follows:

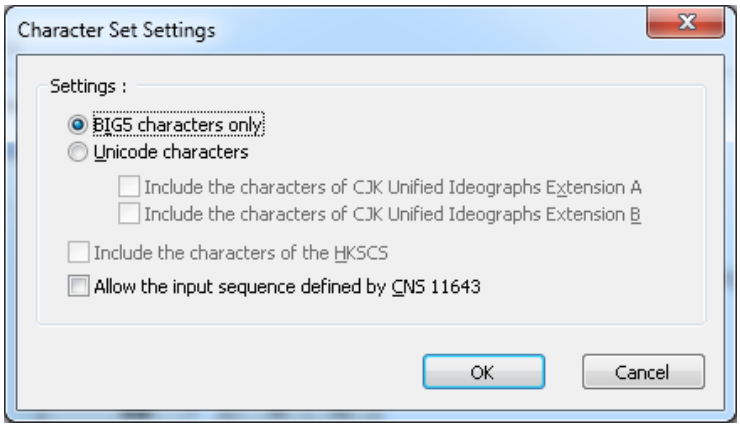


If required, click 'Properties' with the appropriate Chinese keyboard highlighted. The following figure shows the properties page for the New Phonetic IME.



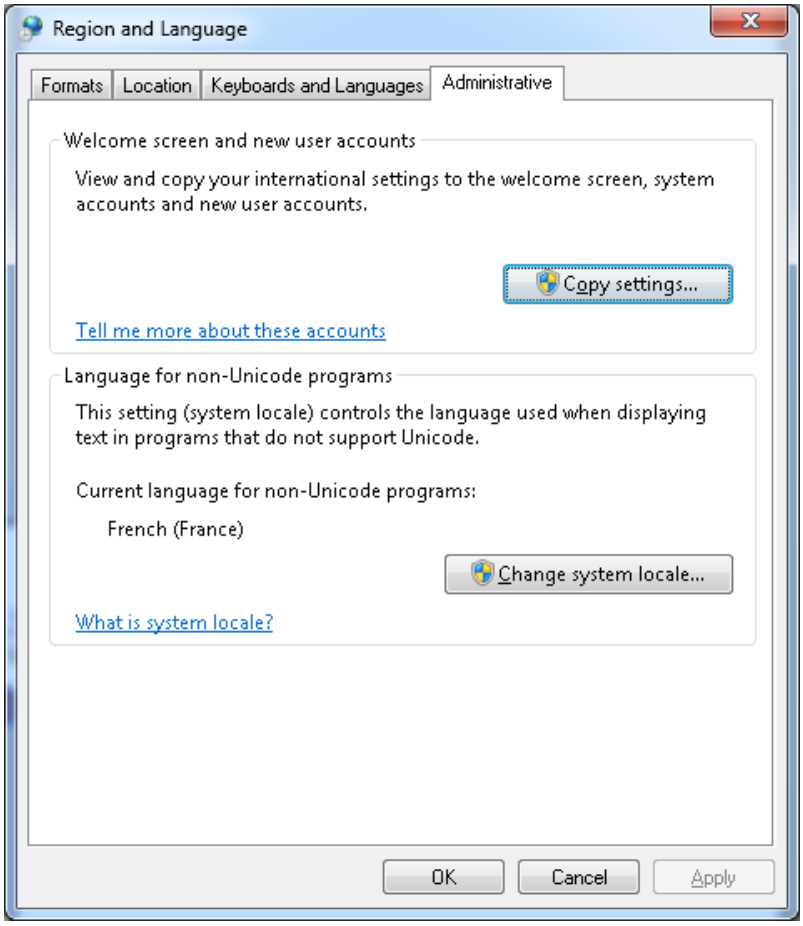
Select ‘Character Set…’.

The following ‘Character Set Settings’ window will be displayed:

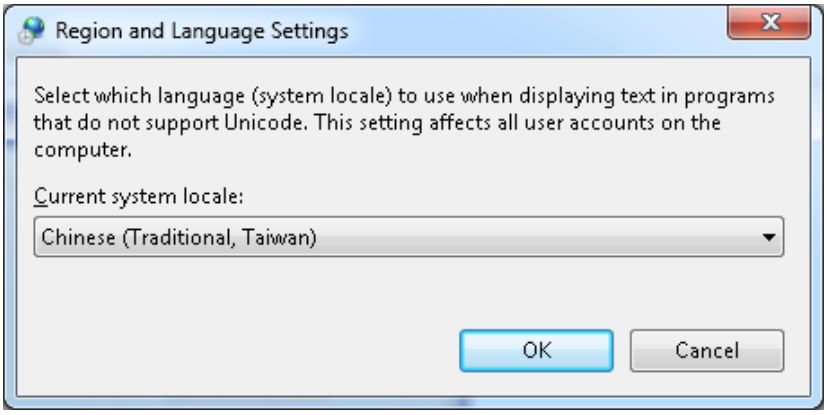


As the HELEN font system will **only** work with the **Big 5** character set, ensure that the 'BIG5 characters only' box is ticked (see later in this document for Hong Kong Supplementary Character Set). Click OK, which will bring back the ‘Text Services and Input Languages’ window. Click OK again which should cause the ‘Reglion and Language’ window to re-appear.

Now select the 'Administrative' tab to set the correct code page.



Select ‘Change system locale…’ to change it as shown below:

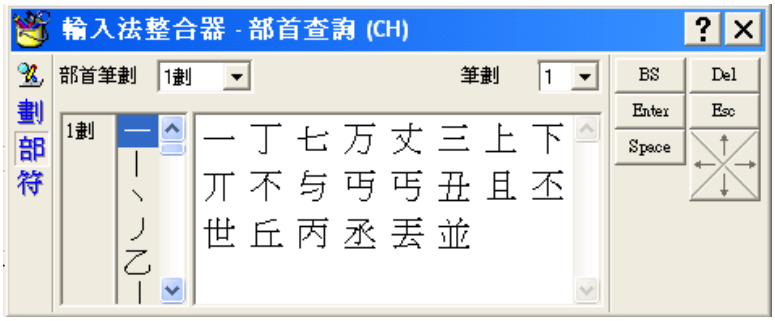


This part is important as the HELEN program does not have Unicode capability (and all Chinese characters entered will appear as a '?'). Just select 'Chinese (Traditional, Taiwan)'. Click OK and the language / keyboard installation should be complete.

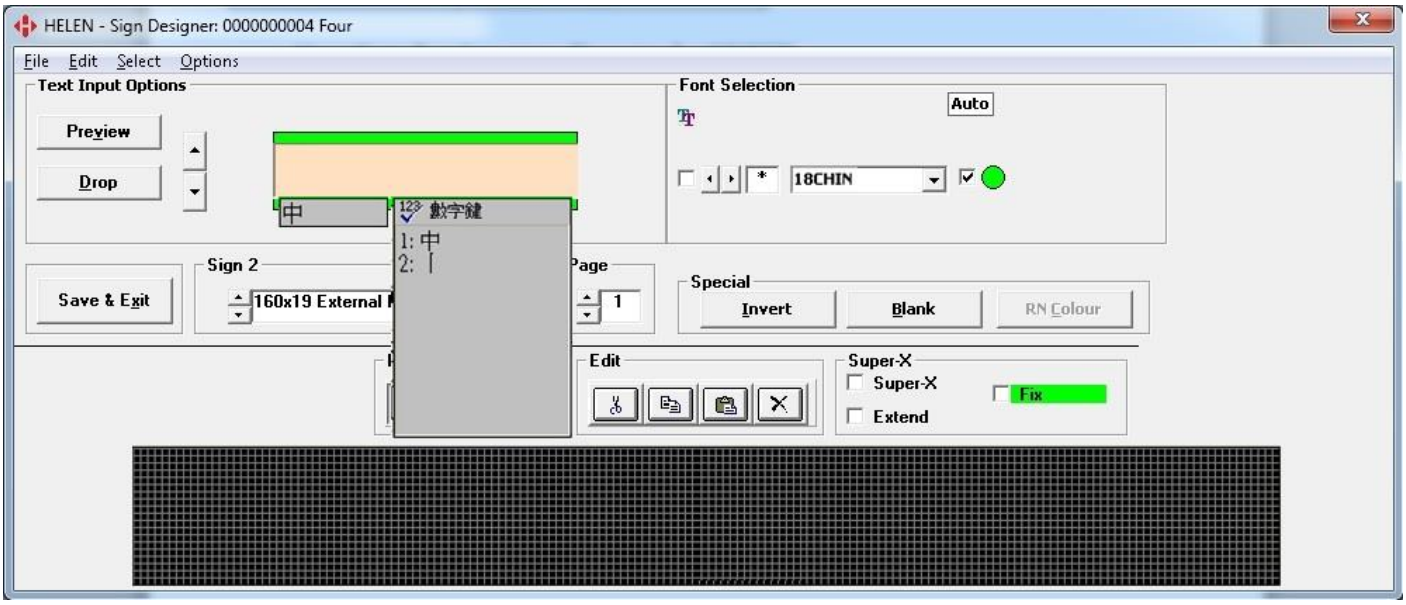
There should now be a language toolbar present on the screen as shown below:

Characters can now be selected by a variety of methods (a couple of examples are shown).

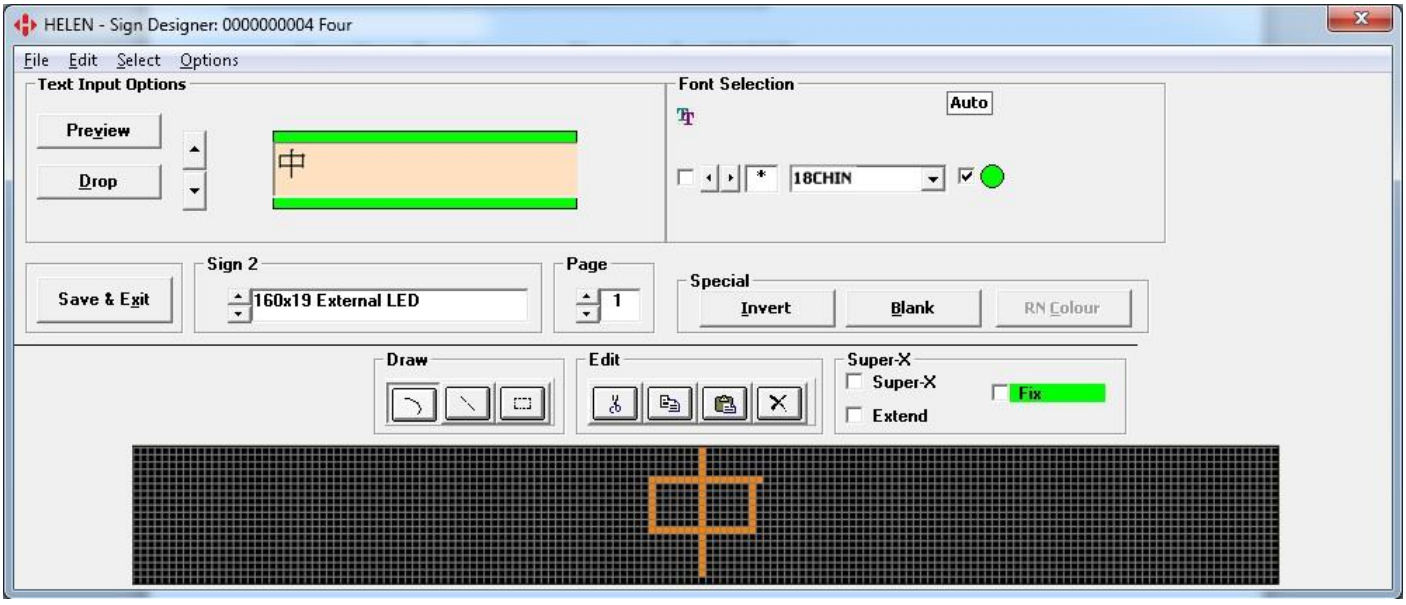
The IME pad option will be as shown:



Or Cangjie: the following window shows the result of entering 'L' ….



…. and the following window shows the end result once the character has been 'dropped':

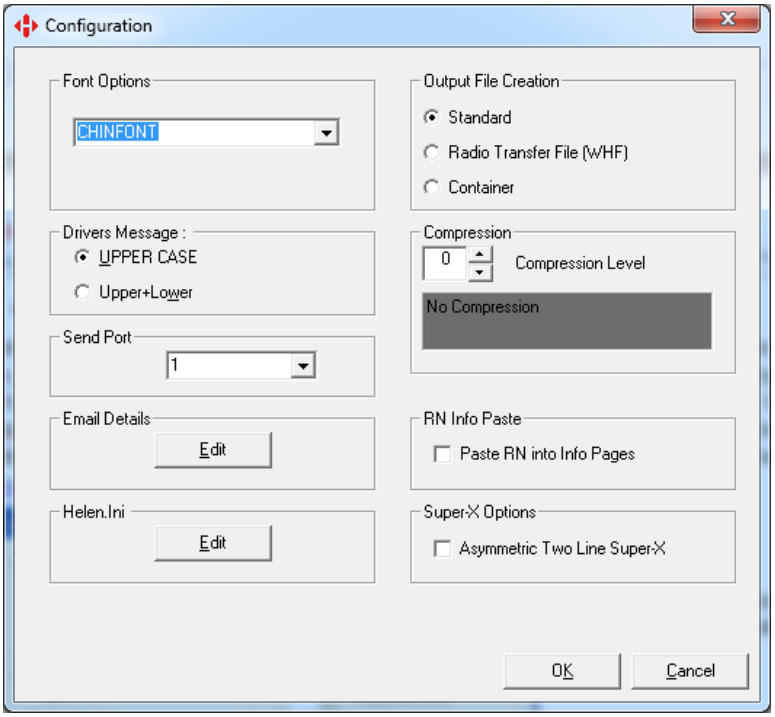


Remember, to select a text box as Chinese, simply insert Chinese characters. Once selected, the keyboard will automatically change to Chinese.

Note: When the language toolbar is minimised, the right hand side of it can sometimes disappear. This means that the complete bar cannot be accessed. If this is a problem, simply 'Restore the Language bar' (right-click) and the complete language bar will be available. Depending on the PC's settings, toggling between keyboards can be done using Alt+Shift.

- **Selecting a font file**

HELEN is supplied with a number of font files. The default fonts are contained in a file called Eurofont.fdb and this, as the name suggests, contains the fonts required for the major European languages. Other files are included to support the specific requirements of particular customers or particular language systems - e.g. Chinfont.fdb for Chinese writing systems. Prior to HELEN version 2.0o, the various font files were selected by editing the helen.ini file but this can now be done via Options → Configuration from the Destination List screen.



This setting will be retained with the database and will automatically be set when the database is reloaded.

- **Hong Kong Supplementary Character Set (HKSCS)**

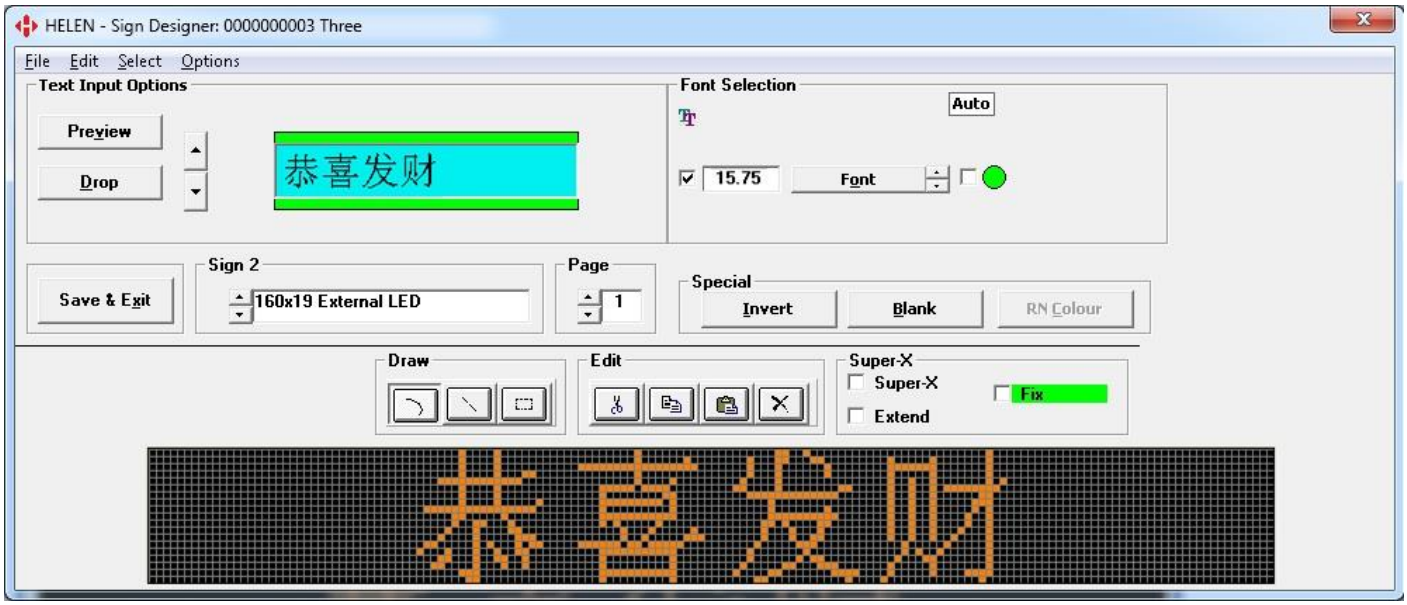
Customers in Hong Kong will probably need to use characters in addition to the Big 5 set: these are contained in the Hong Kong Supplementary Character Set (HKSCS). HELEN can work with these additional characters but, to enable the HKSCS to function, support needs to be downloaded from the Microsoft web site to ensure that the required font (MingLiU_HKSCS) is available.

www.microsoft.com/hk/hkscs/default.asp.

As described on the linked page, there is a possibility that existing destination lists will include user-defined characters which are impossible for the system to recognise. In these cases, the system will produce a '?' in the text box but the sign itself may show the correct character.

Appendix F-2: Windows font system

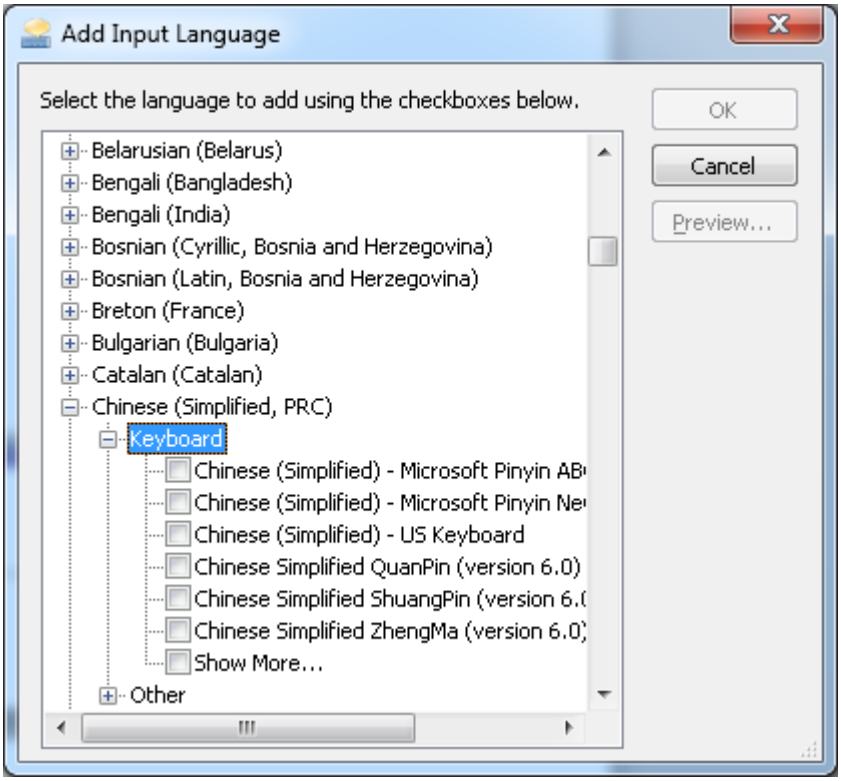
The great benefit of this system is its ability to take advantage of the numerous input methods and fonts available with Windows.



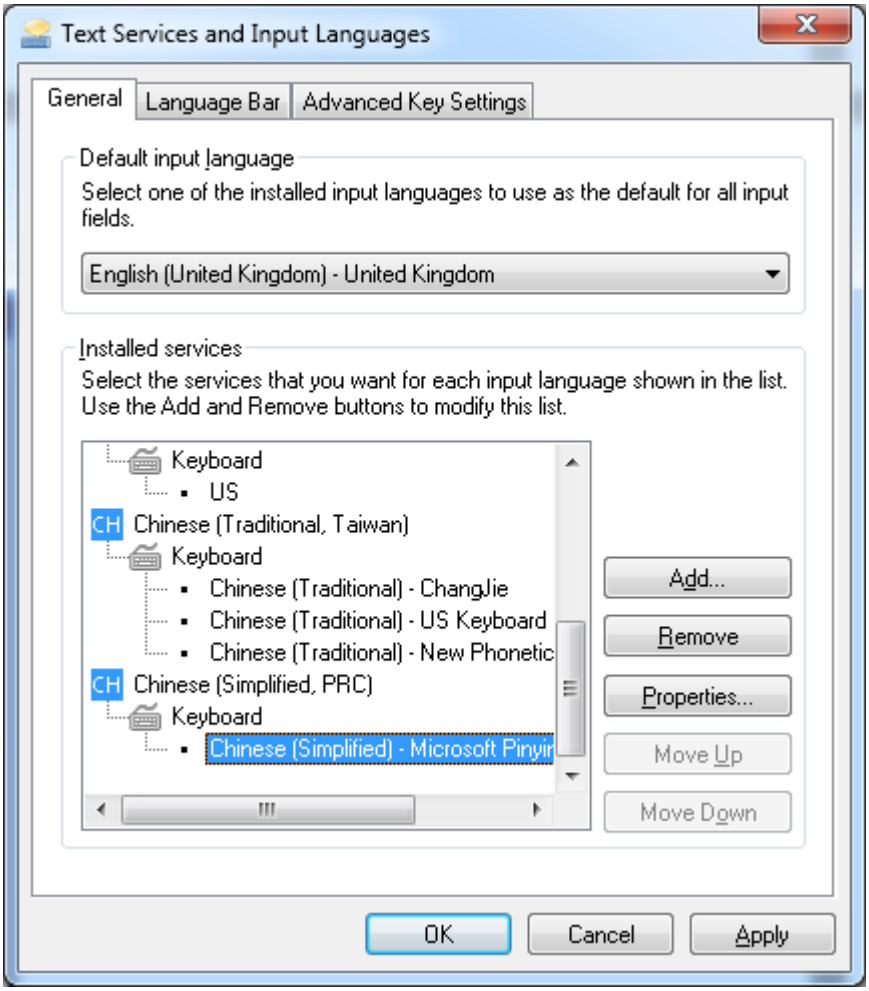
The Windows font system can be identified by the light blue background colour.

To include the appropriate Supplementary Language Support, select Start → Control Panel → Region and Language.

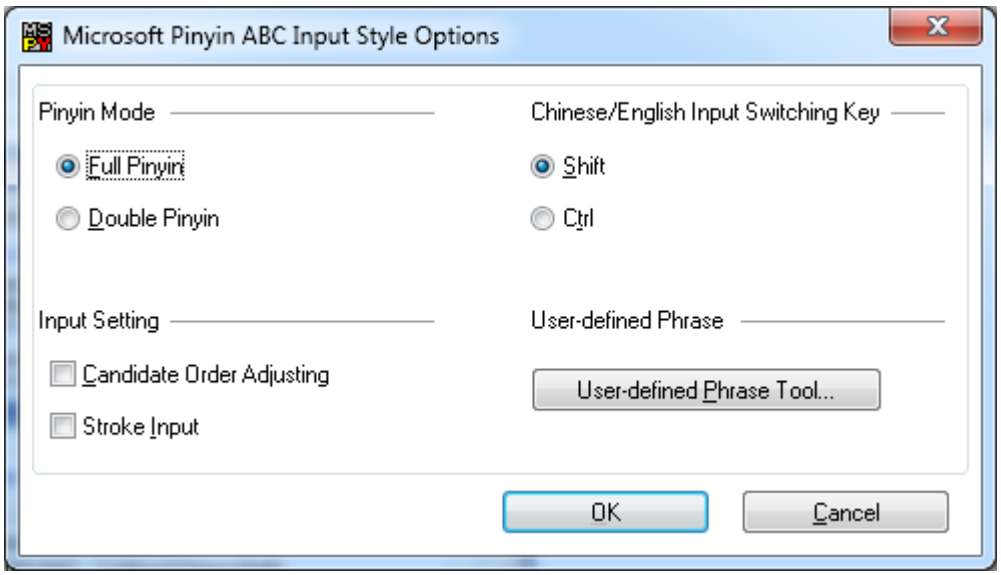
The appropriate keyboard can now be added. Chinese (Simplified, PRC) is suitable for simplified Chinese characters as shown below.



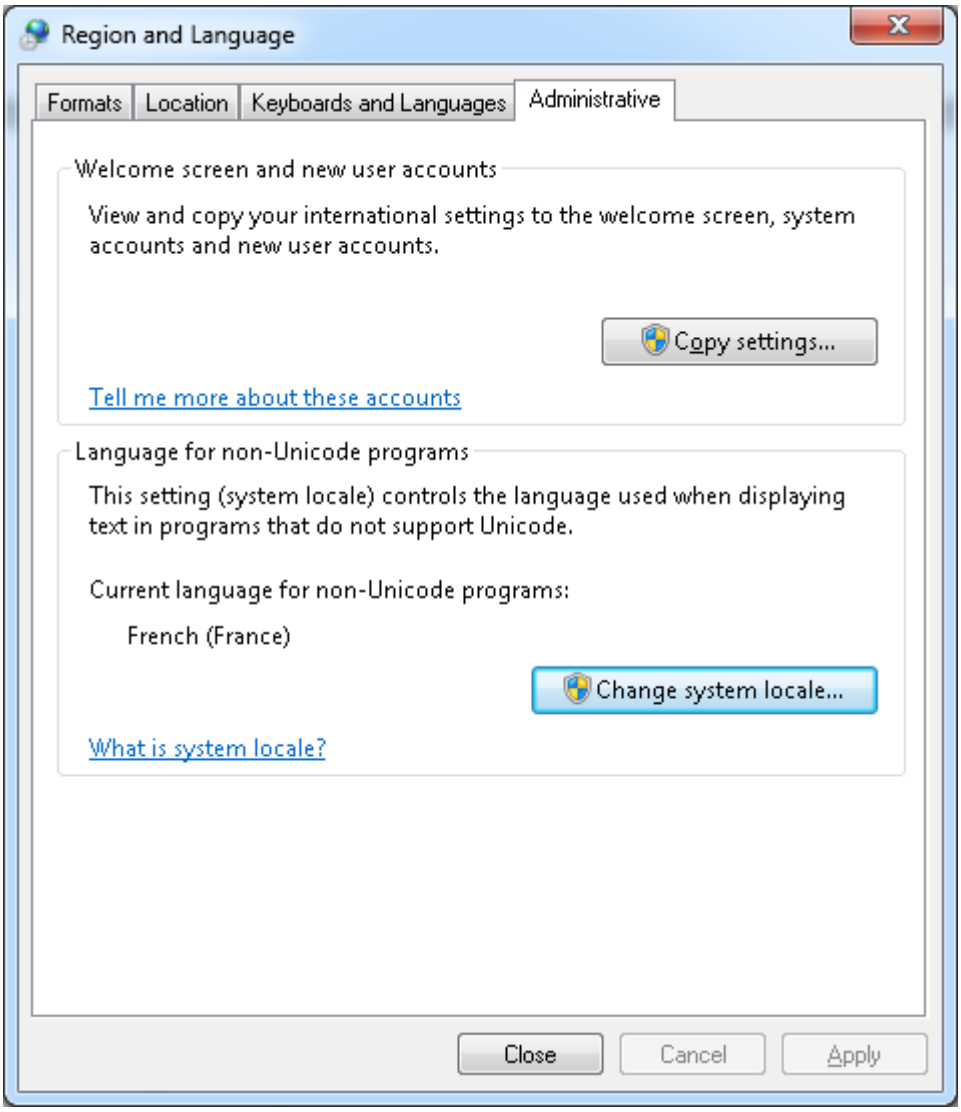
Next click "Properties" with the chosen keyboard highlighted as shown below:



The following window shows the settings that can now be set to the user's preferences:

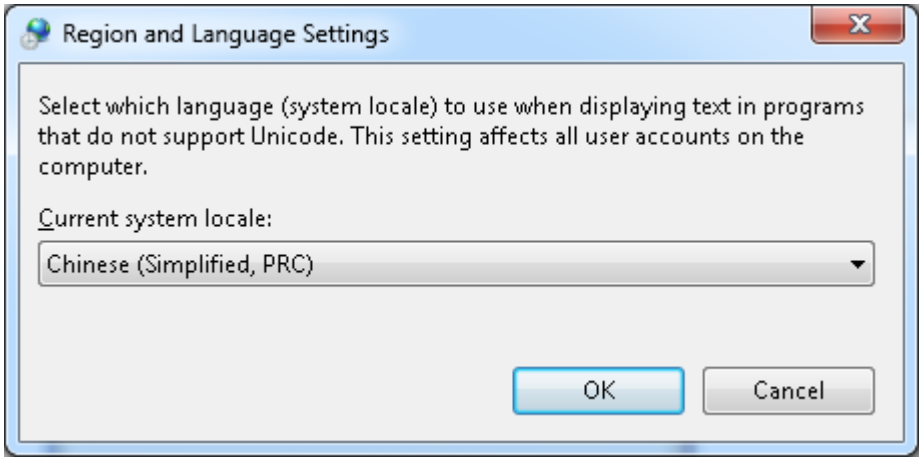


After choosing the required keyboard as shown above, click OK and from the following window, select the 'Administrative' tab to set the correct code page.

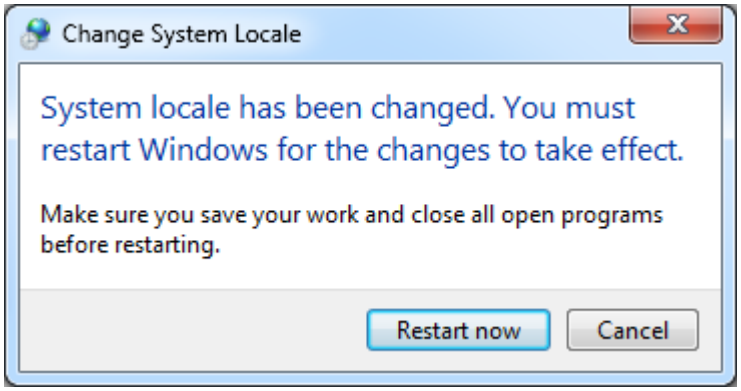


Select ‘Change system locale…’.

HELEN is not Unicode-compatible, so the appropriate code page needs to be set. To match the keyboard, 'Chinese PRC' needs to be selected as shown below: which will require a computer restart as shown below:

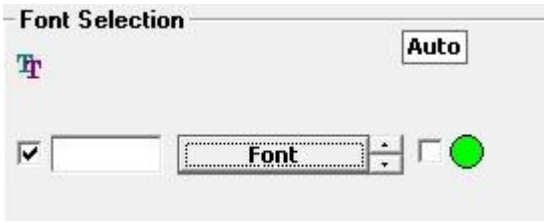


This will require a computer restart as shown below:

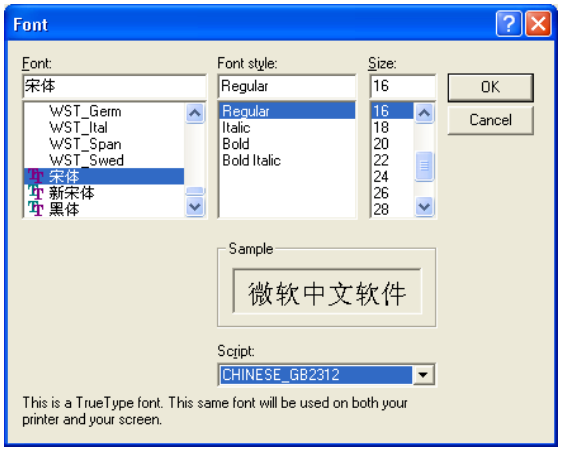


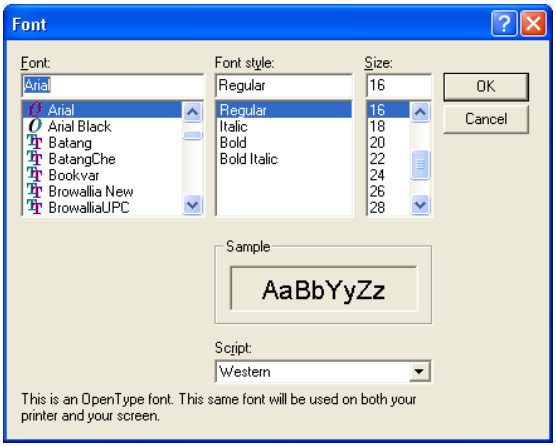
There should now be a language bar on the screen. The figure below shows a 'restored' language bar.

On the Sign Designer screen, tick the box - the text entry box will become light blue. Then click Font to select an appropriate font as shown below:



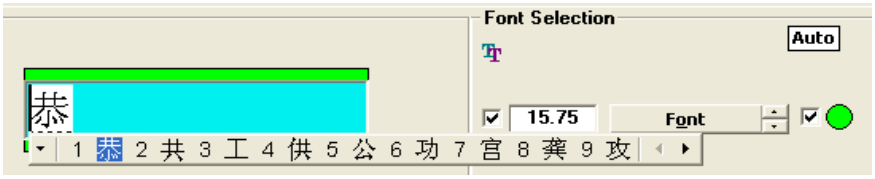
The following windows show some font options (Simsun & Arial). The system works without choosing a specific Chinese font.





Now the required Pinyin can be entered into the text box: see the example below:

If the space bar is pressed, the Pinyin will be converted into a simplified Chinese character (or a choice of glyphs depending on the settings as shown below:



After selecting the appropriate Chinese character, it should now be shown as follows:

This process is continued until the complete phrase is built and then dropped.

Pinyin is the official system for transcribing Chinese characters into Latin script in the People's Republic of China, Republic of China (Taiwan) and Singapore. It may also be used in reverse as an input method to enter Chinese characters into computers, one approach being to type in the Chinese word phonetically (i.e. spelling the 'sound' out in English as shown in the above example).

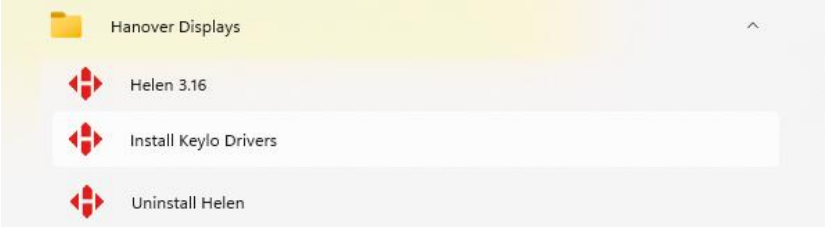
Appendix G: Installing Key-lo drivers

HELEN can use a Hanover Displays base station and Key-lo system to load data into a Deric or Eric controller (the DG3 uses a USB stick). These devices need a special driver which will need to be installed separately.

Important Note: From HELEN V3.9 onwards, the Key-lo drivers will be installed automatically when HELEN is installed.

However, if you need to install the drivers manually, please follow the procedure below:

- Ensure HELEN has been correctly installed.
- Check that the base station is not connected to the computer.
- Go to Start / All Programs / Hanover Displays / Install Keylo Drivers[27].



- Follow the instructions given by the driver installation wizard.
- On connecting the base station, the drivers will be installed.

[27] This is for Windows 7, other operating systems may be slightly different.

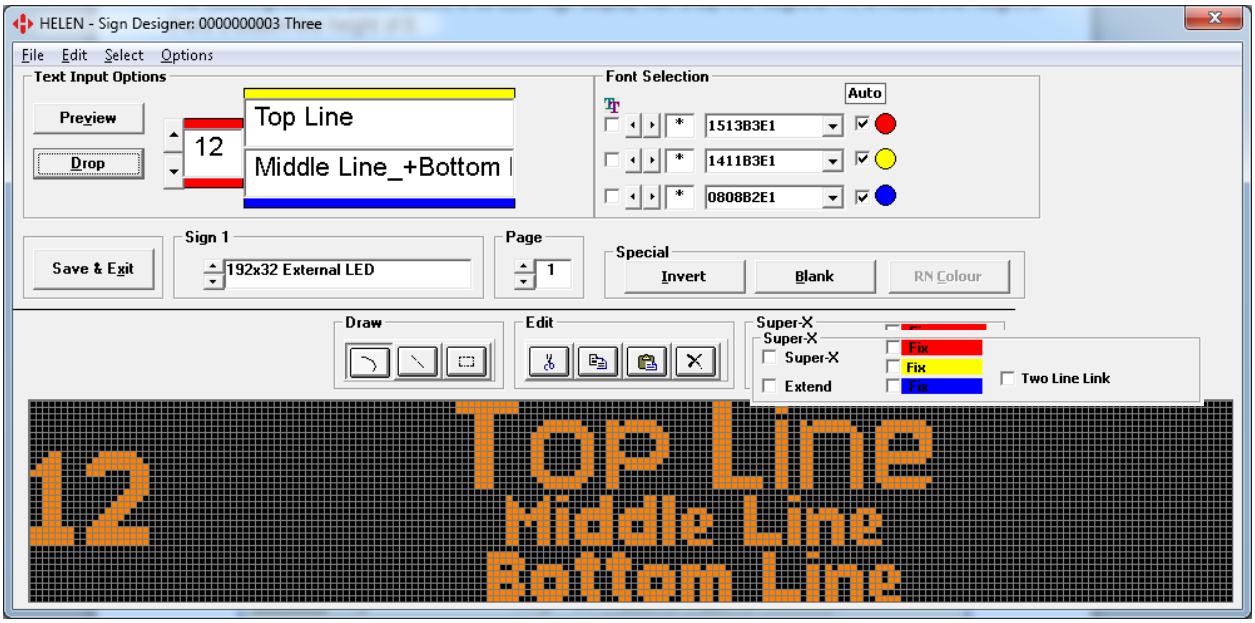
Appendix H: Three-line operation

Although specifically used to support Chinese customers who wished to show one 16 LED-high line of Chinese and two 7 LED-high lines of English on a 32 LED-high sign, this feature can be used to present any three lines in a similar fashion. It can be used on the four larger destination signs shown below and can be activated by enabling ThirdLineMarker=_+ in Helen.ini.

The default settings are defined in Helen.ini and can be customised as required.

Sign Height	Top Line	Middle Line	Bottom Line
17	5	5	5
19	7	5	5
24	12	5	5
32	14	8	8

The figure below shows a 32-LED-high sign with a top line height of 14, a middle line height of 8 and a bottom line height of 8.



Note: the text in the top box is normal while the lower box has a field separator of _**+** (no space is required either side of this pair and a different separator can be defined in Helen.ini).

If standard fonts are selected for use in the sign parameter editor, not all the appropriate sizes may be present; it may therefore be necessary to add others to allow all three lines to appear satisfactorily.

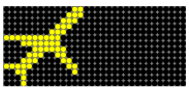
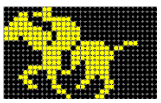
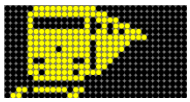
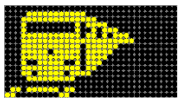
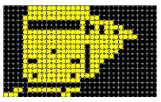
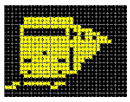
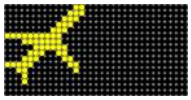
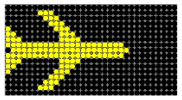
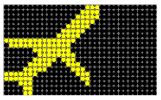
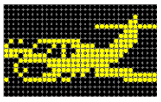
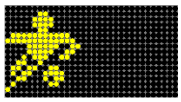
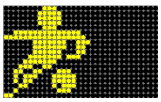
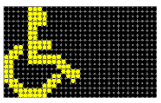
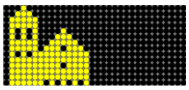
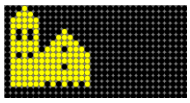
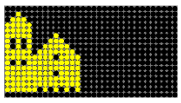
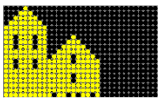
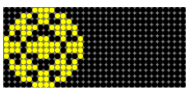
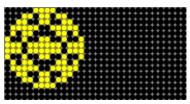
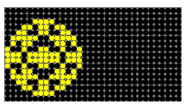
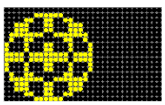
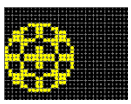
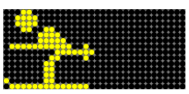
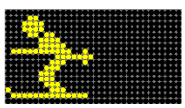
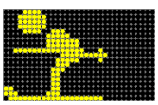
Appendix I: Alpha to symbol converter (Hanover fonts)

Pre-defined symbols (icons, pictograms) that can be deployed using Hanover fonts are shown below.

Note: deploying these symbols in signs of less than 14 LEDs height (LOGO font), 16 LEDs height (LOGO16 font), 17 LEDs height (LOGO 17 font), 19 LEDs height (LOGO 19 font) or 24 LEDs height (LOGO 24 font) will not produce a desirable result.

To create new symbols, refer to section a) in 7.2.3.8 Creating new characters.

Appendix I-1: Upper case alpha characters

alpha	LOGO	LOGO 16	LOGO 17	LOGO 19	LOGO 24
A					
B					
C					
D					
E					
F					
G					
H					
I					

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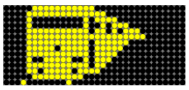
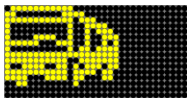
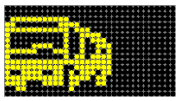
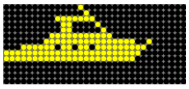
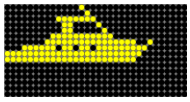
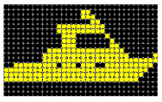
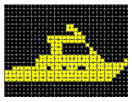
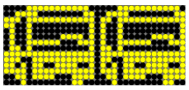
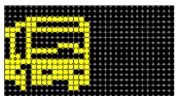
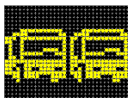
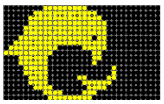
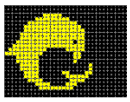
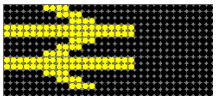
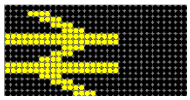
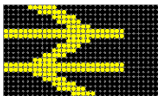
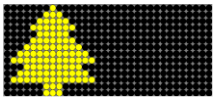
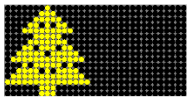
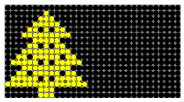
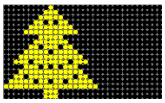
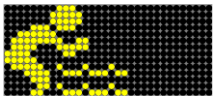
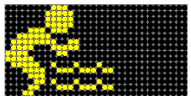
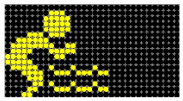
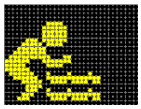
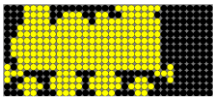
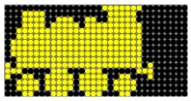
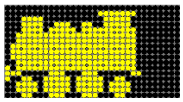
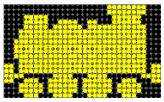
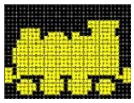
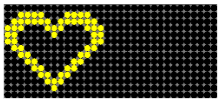
K					
L					
M					
N					
O					
P					
Q					
R					
S					
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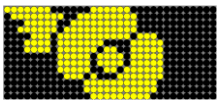
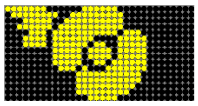
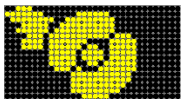
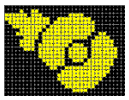
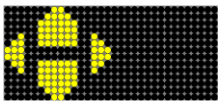
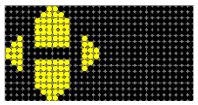
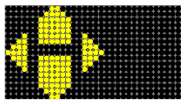
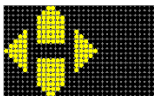
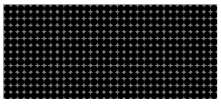
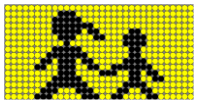
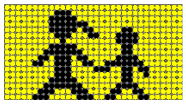
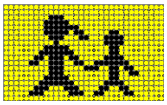
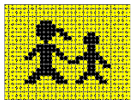
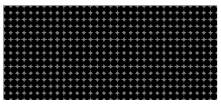
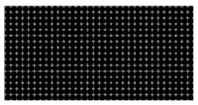
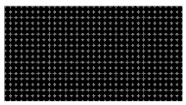
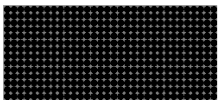
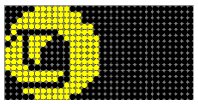
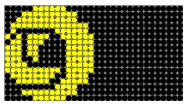
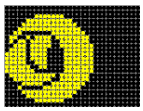
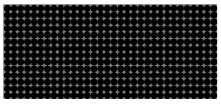
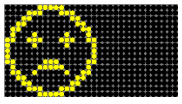
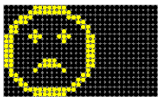
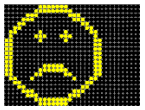
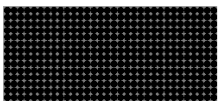
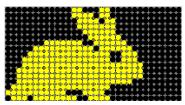
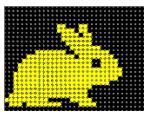
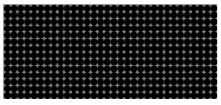
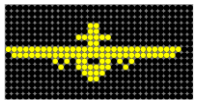
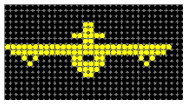
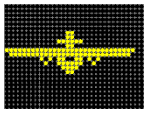
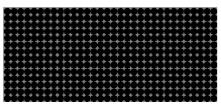
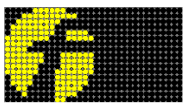
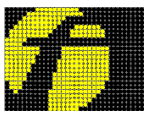
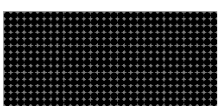
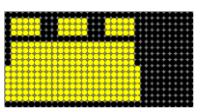
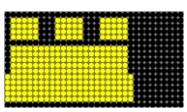
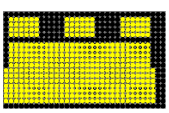
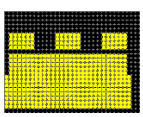
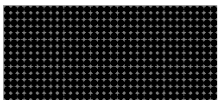
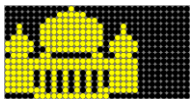
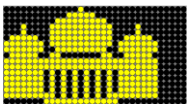
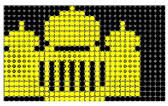
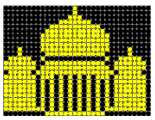
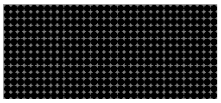
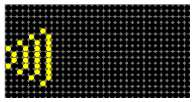
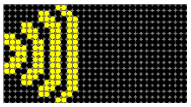
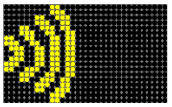
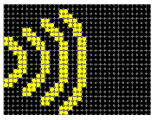
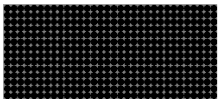
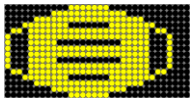
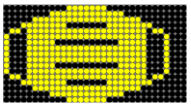
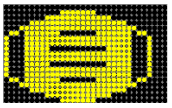
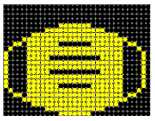
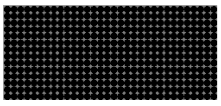
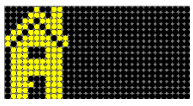
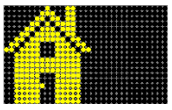
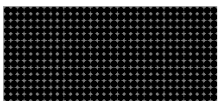
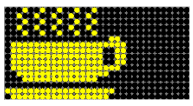
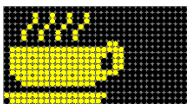
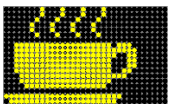
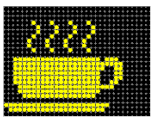
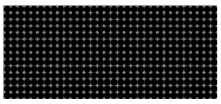
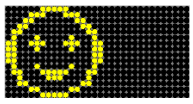
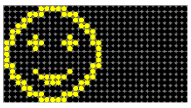
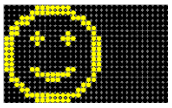
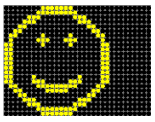
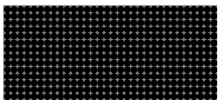
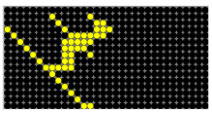
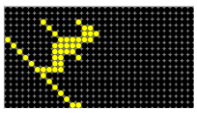
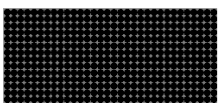
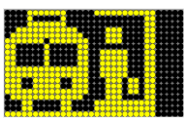
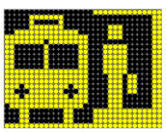
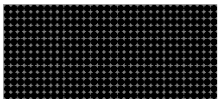
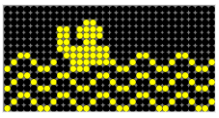
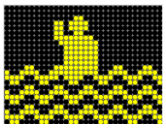
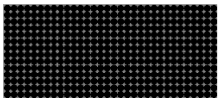
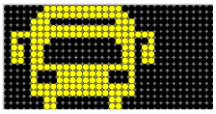
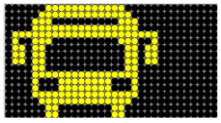
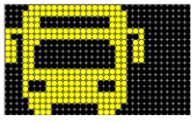
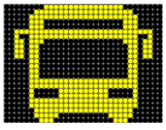
alpha	LOGO	LOGO 16	LOGO 17	LOGO 19	LOGO 24
V					
W					
X					
Y					
Z					

Appendix I-2: Lower case alpha characters

alpha	LOGO	LOGO 16	LOGO 17	LOGO 19	LOGO 24
a					
b					
c					
d					
e					

alpha	LOGO	LOGO 16	LOGO 17	LOGO 19	LOGO 24
f					
g					
h					
i					
j					
k					
l					
m					
n					
o					

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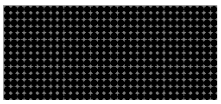
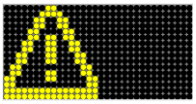
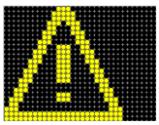
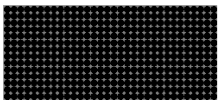
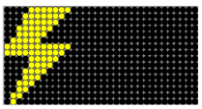
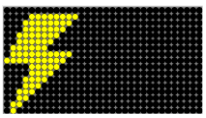
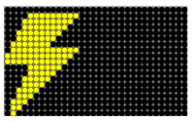
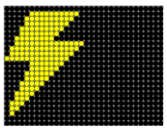
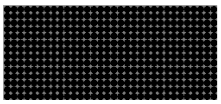
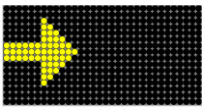
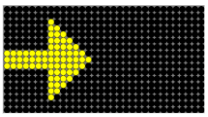
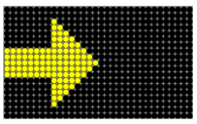
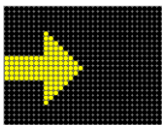
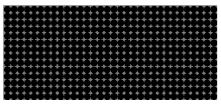
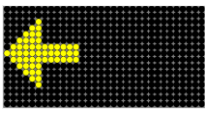
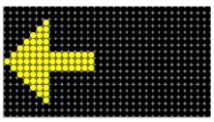
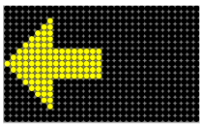
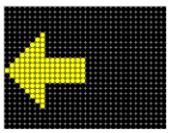
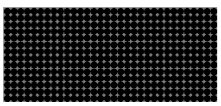
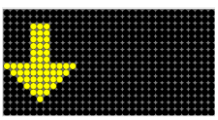
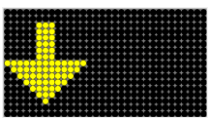
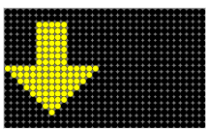
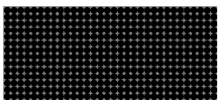
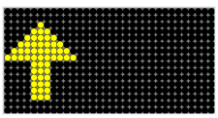
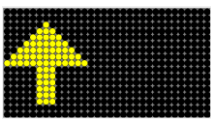
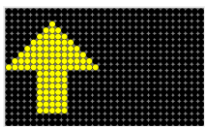
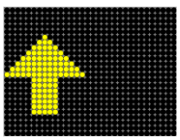
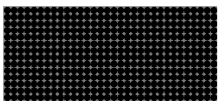
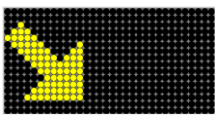
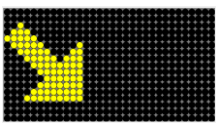
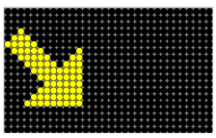
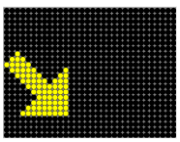
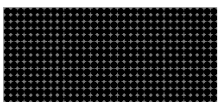
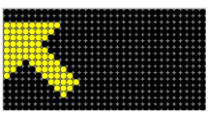
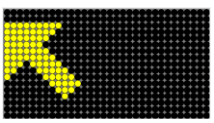
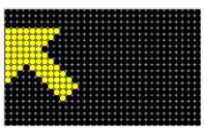
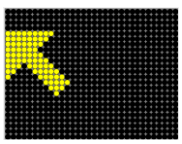
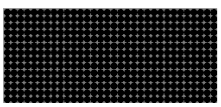
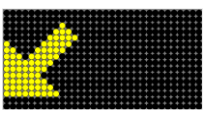
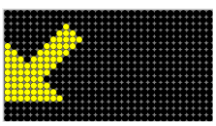
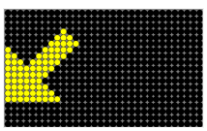
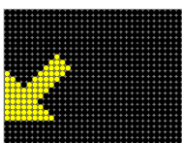
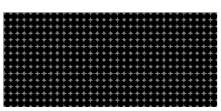
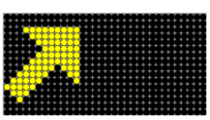
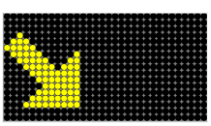
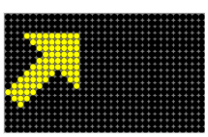
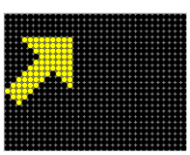
p					
q					
r					
s					
t					
u					
v					
w					
x					
y					

Appendix J: Custom installation

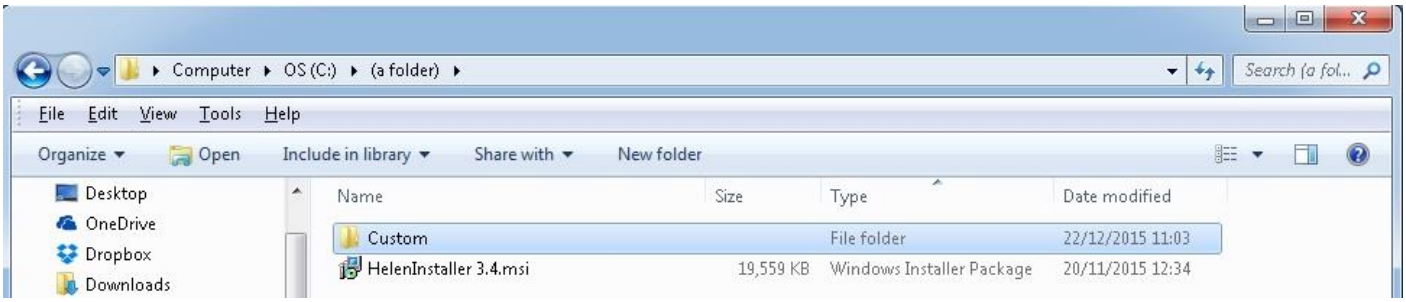
The custom installation process allows a standard version of HELEN to be configured to a customer's specific needs. Custom requirements may be for:

- additional or modified files (stored in the Common Application Data area)
- or one or more pre-defined destination lists (stored in a suitable location on the user's PC).

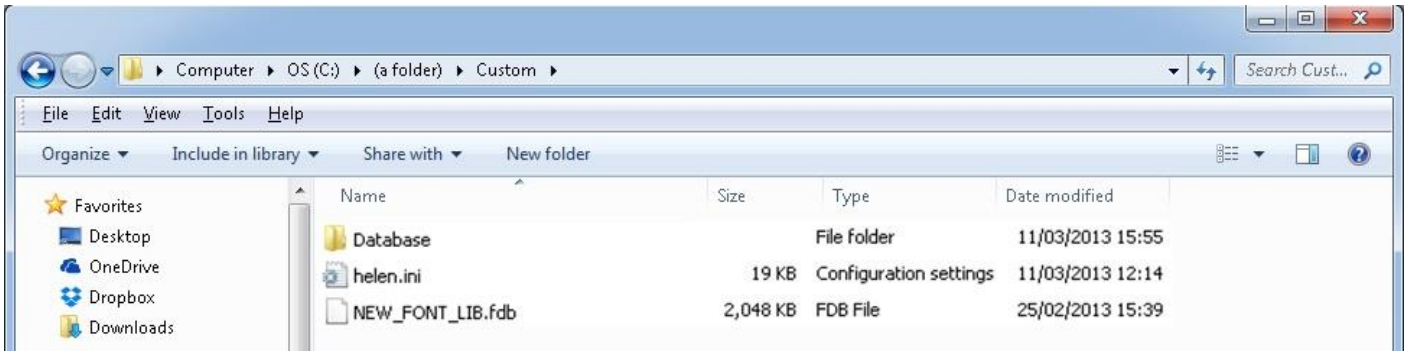
Customisation can take place at the time HELEN is installed for the first time (or when a fresh install is undertaken) or as a modification to an existing installation. The latter allows updates of an existing system without having to do a complete installation and is useful when wishing to update a font library, a version of helen.ini or to load a new database.

Appendix J-1: Customisation at the time HELEN is installed

Place the installation software (an .msi file) in its own folder on the PC's local hard drive (installing across a network is not recommended). Create a new folder called 'Custom' and place it in the same folder.

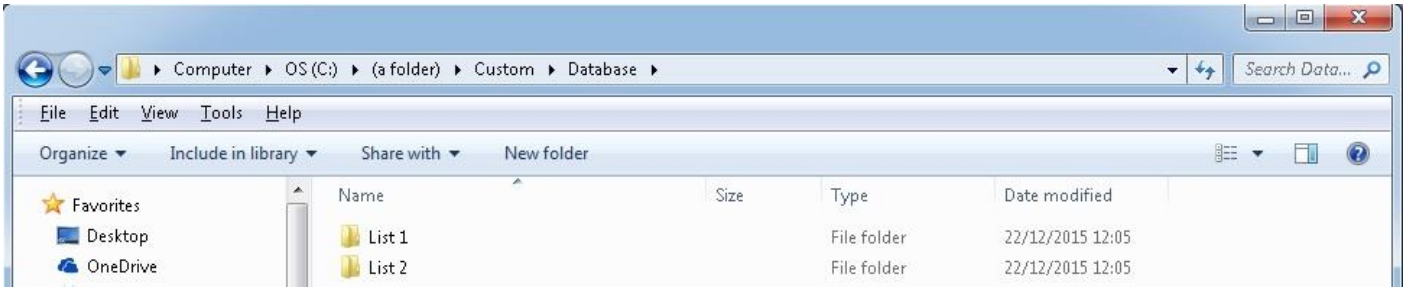


Add the files relevant to the desired customisation to the 'Custom' folder (an example is shown below):



In this case, the following will be installed:

- a new font library 'NEW_FONT_LIB.fdb' will be added to the standard installation, along with
- a modified 'helen.ini' which may have been pre-configured to use a particular font database (perhaps the one also being loaded) and to work in a particular language, and
- a folder containing one or more destination lists which are to be loaded on the user's PC - see below.



Here, there are two lists (List 1 and List 2) to be loaded. It is important that each list is contained in an individual folder. The 'helen.ini' file will be edited automatically and will associate itself with the last list loaded (also automatically).

Below are the contents of a typical ‘List 1’:

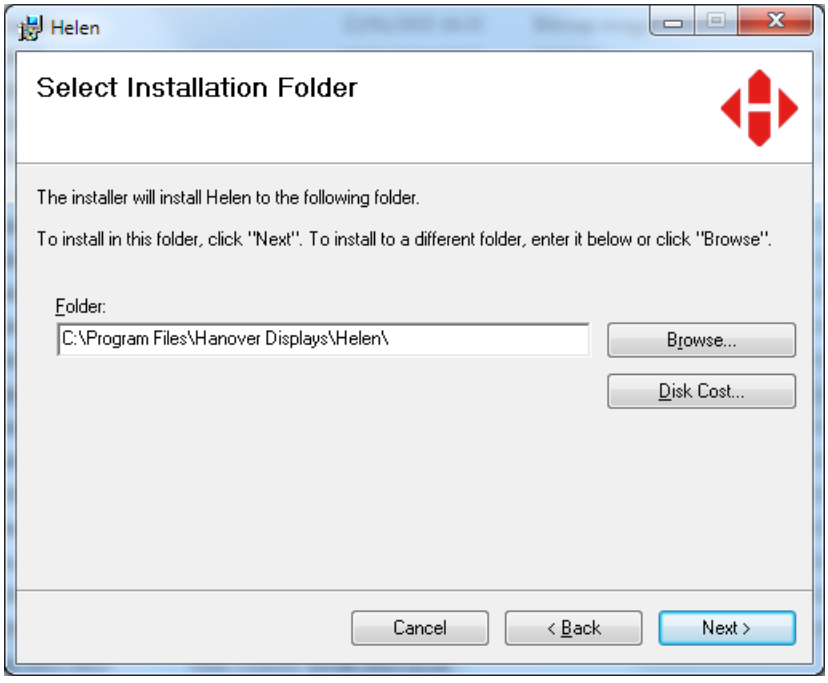
List 1

Name	Size	Type	Date Modified
00000000.01r	2 KB	01R File	05/03/2012 14:08
00000000.02r	2 KB	02R File	15/09/2011 11:20
00000000.03r	2 KB	03R File	15/09/2011 11:20
00000000.04r	2 KB	04R File	15/09/2011 11:20
00000000.05r	2 KB	05R File	15/09/2011 11:20
00000000.06r	2 KB	06R File	15/09/2011 11:20
00000000.07r	2 KB	07R File	15/09/2011 11:20
00000000.08r	2 KB	08R File	15/09/2011 11:20
00000000.09r	2 KB	09R File	15/09/2011 11:20
00000000.10r	3 KB	10R File	15/09/2011 11:20
Test.han	1 KB	HAN File	05/03/2012 14:09
Test.mdb	52 KB	Microsoft Office Acc...	05/03/2012 14:09

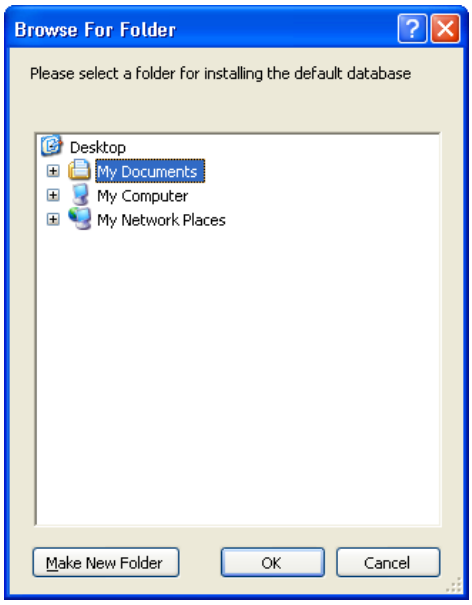
The user may see a slightly different list but standard files of the route number type (.01r, 02r etc) plus a .han and a .mdb file as shown above should be present. There may also be other files such as an eric.bin file.

Ensure no other programs are running and then install HELEN - see section 2 Installation in the HELEN operating manual. Amongst the files that are installed on the PC will be 'custom.exe': this will automatically act on the files in the 'Custom' folder and install the customised version of HELEN as required. The only interaction necessary is for the user to determine where the list(s) should be installed. The default location is where the computer normally stores HELEN data for all users:

C:\Users\Public\Public Documents (Windows 7 or later).



This can be changed by clicking Browse and then selecting / creating a new location.

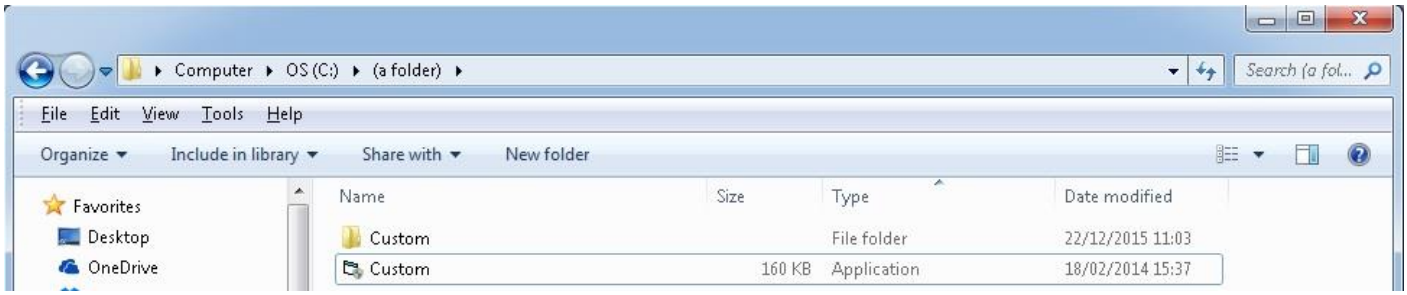


NOTE:

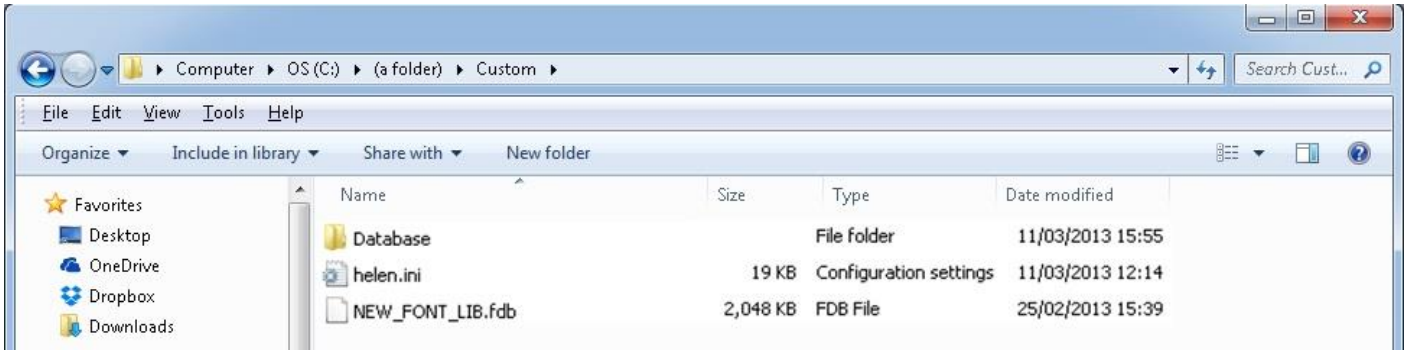
There is a bug when using Make New Folder as the new folder created does not appear in the list (although it has actually been created). The easiest way round this problem is to click OK and select Browse again: the new folder will then appear and the name can be changed as desired. This is a bug caused by the operating system and does not occur when running custom.exe as a standalone program (refer to Appendix J-2: Customisation after HELEN has already been installed).

Appendix J-2: Customisation after HELEN has already been installed

If necessary, install HELEN (see section 2 Installation in the HELEN operating manual). Amongst the files that are installed on the PC will be 'custom.exe' - copy this into a folder on the desktop. Create a new folder called 'Custom' and place it in the same folder.



Place the files relevant to the desired customisation into the 'Custom' folder (e.g. as below):



Run custom.exe (by double-clicking on it) - it is advisable to close all other programs first. The remainder of the process is the same as in Appendix J-1: Customisation at the time HELEN is installed above.

Additional Details

When the program copies files across, it will also change the security access to ‘Everyone’ as files copied to Program Application Data would normally only be given read-only access (which defeats the object of copying these files to this location). This also applies to files copied to the 'All Users Data' area. If files are copied from a CD, then the default read-only attribute will be removed.

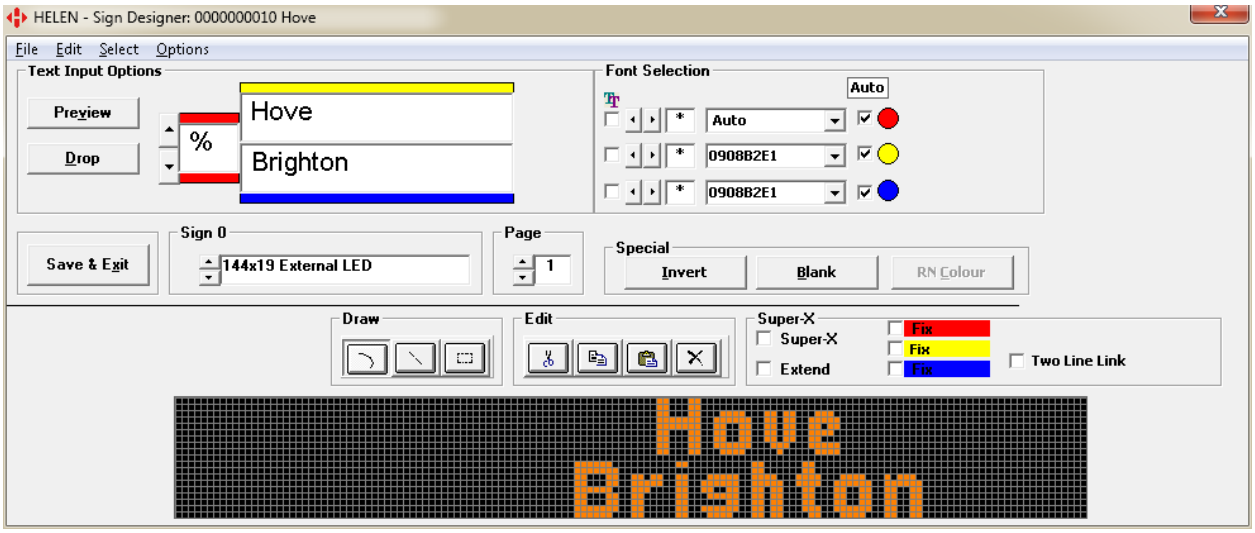
A feature of this custom installation is that it is not part of the HELEN installer and therefore does not remove the files when uninstalled. This can be useful if a customer-specific font has been loaded, as it will not be removed when a new version of HELEN is installed.

Appendix K: Programmable route numbers

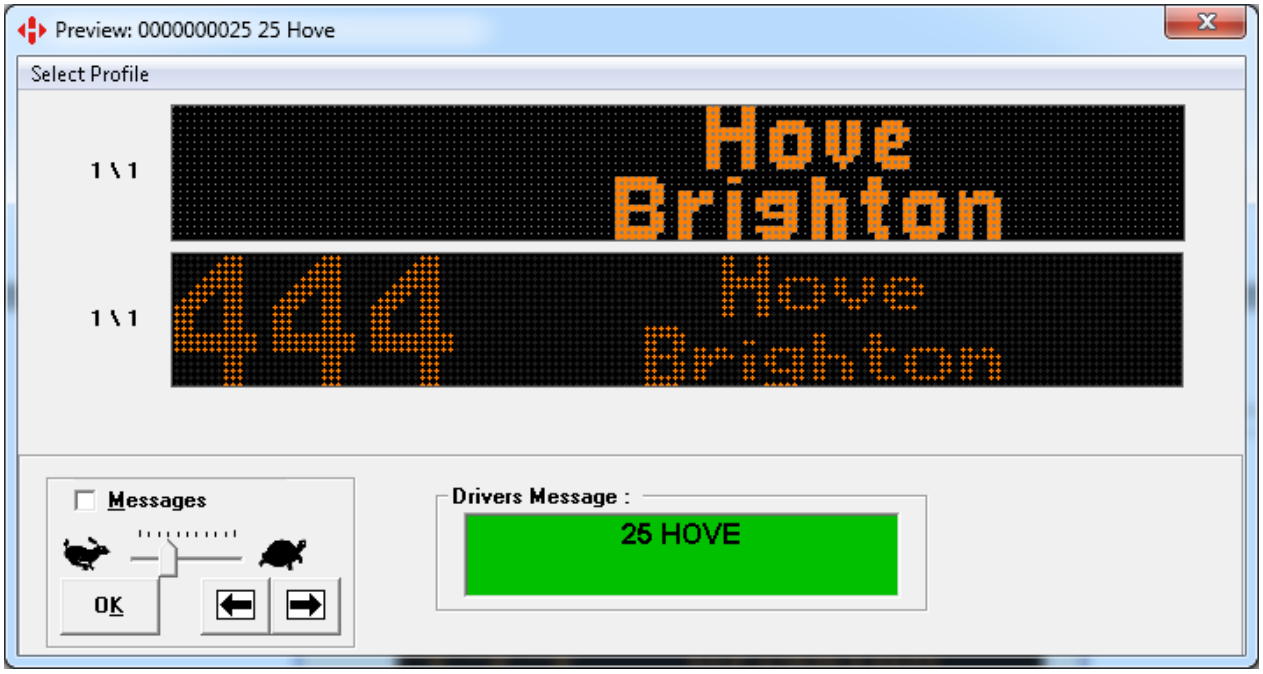
A programmable route number allows one destination to have any route number selected, whilst only appearing once in the list. In instances where there are multiple routes terminating at the same location, this has the advantage of reducing the number of destinations that are entered in HELEN, thereby reducing the size of the list.

a) Creating programmable route numbers in HELEN

1. In order to create a programmable route number within a destination, the route number has to be changed to a percentage sign (%) in the Sign Designer.

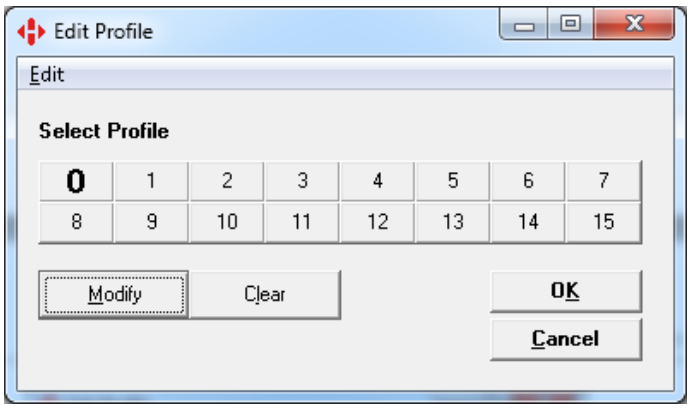


If the display is in graphic mode, the percentage sign will not display in the mimic. However, if it is in Super-X, it will show as '444':



2. Route Num.' will need to be selected in Console config:

   Select Options → Console config. → Select Profile 0 → Modify …



3. … → Advanced' tab → tick 'Route Num':

It is worth noting that a list can:

- comprise exclusively programmable route numbers,
- or comprise just standard destination codes,
- or be a mix of the two.

In instances where the route number is particularly long, e.g. N700, it might be easier not to include this as a programmable route number, so that it does not have to be entered manually by the driver.

b) Inputting a programmable route number on the controller

- **For Deric controller**

Step	Description	Figure
1	Press the F/E - 'Route no:' will be shown	Route no: - ----
2	Use the ◀ ▲ keys to select the route number and press the F/E key to enter	Route no: 25 ----
3	Press the F/E key twice - 'Dest no:' will be shown	Dest no: - ----
4	Use the ◀ ▲ keys to select the destination code… …and press the F/E key to enter	Dest no: 0001 ---- BRIGHTON 25 0001

- **For Eric controller**

Step	Description	Figure
1	Press the R button - 'Route no:' will be shown	Route no: - ----
2	Use the alphanumeric keyboard to select the route number and press ENT key to enter	Route no: 25 ----
3	Press the D button - 'Dest no:' will be shown	Dest no: - ----
4	Use the alphanumeric keyboard to select the destination number… …and press ENT key to enter	Dest no: 0001 ---- BRIGHTON 25 0001

- **For DG3 controller`**

Step	Description	Figure
1	Press the F/E - 'Route no:' will be shown	Route no: _ - - - -
2	Use the ◀ ▲ keys to select the route number and press the F/E key to enter	Route no: 25 - - - -
3	Press the F/E key twice - 'Dest no:' will be shown	Dest no: _ - - - -
4	Use the ◀ ▲ keys to select the destination code… ….and press the F/E key to enter	Dest no: 0001 - - - - Brighton 25 0001

- **For EG3 controller**

Step	Description	Figure
1	Press the R - 'Route no:' will be shown	Route no: _ - - - -
2	Use the alphanumeric keys to select the route number and press the ENT key to enter	Route no: 25 - - - -
3	Press the D - 'Dest no:' will be shown	Dest no: _ - - - -
4	Use the alphanumeric keys to select the destination code… ….and press the ENT key to enter	Dest no: 0001 - - - - Brighton 25 0001

c) Selecting letters for programmable route numbers on the controller

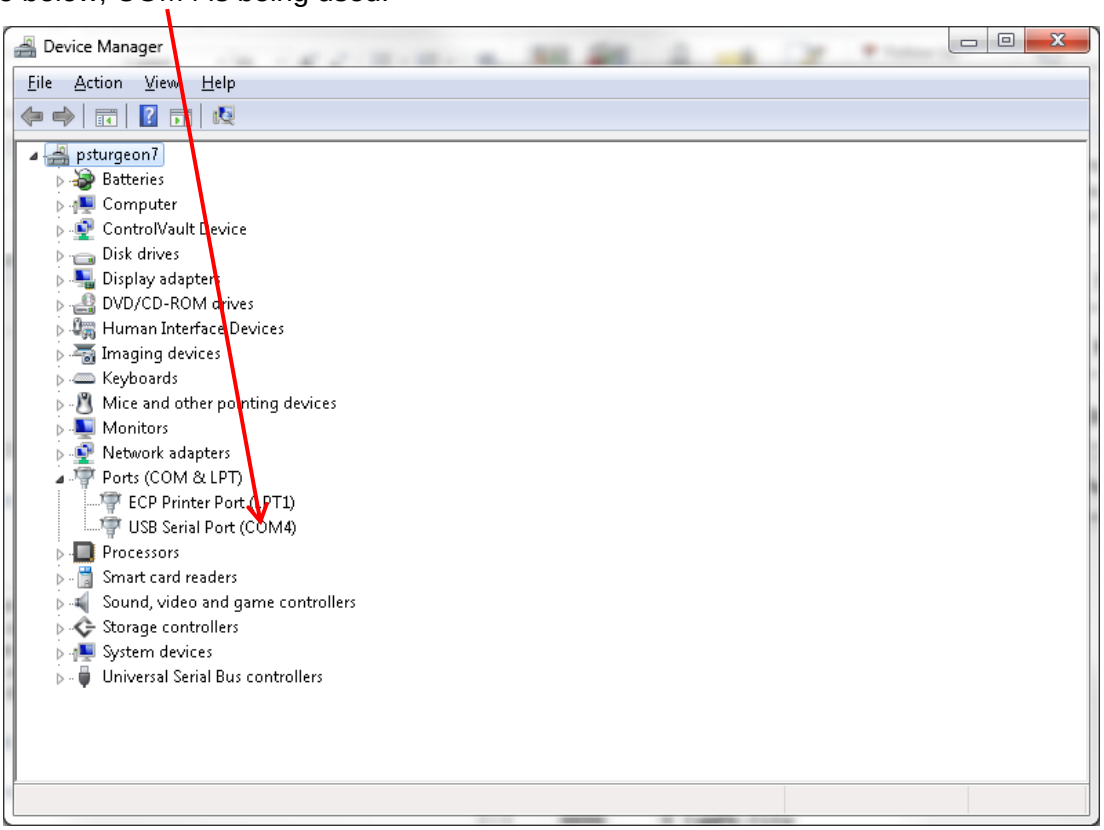
- **For Eric controller**

Step	Description	Figure
1	Press the button - 'Route no:' will be shown	
2	Press the number button with the required letter on it, e.g. for letter “A”	
3	Press until 'A' displays and or the number buttons if other letters / numbers need to be entered	

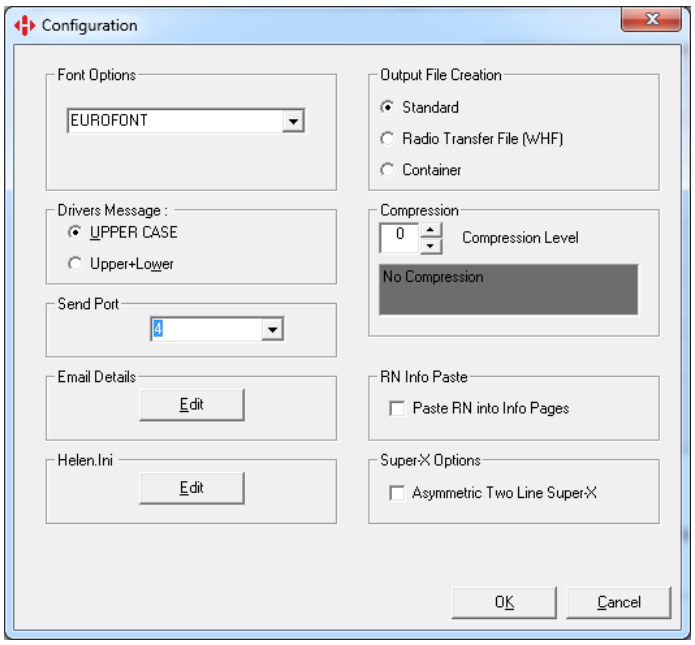
Appendix L: Driving a sign directly from a computer

There are occasions - for example, when testing - when it is useful to be able to control a sign directly from the PC. A USB-to-RS485 converter cable will be needed (obtainable from Hanover).[28]

1. Determine which serial port is used by the converter by referring to Device Manager[29] on the PC. In the example below, COM4 is being used.



2. In HELEN, go to Options → Configuration, set the correct port number in 'Send Port' and click OK.



[28] Other communications connections can also be provided. Consult Hanover for details.
[29] Normally accessed via Control Panel.

3. On the HELEN main screen, choose a destination code and select Preview. In the Preview screen, tick the Messages box and HELEN will then send out all the messages shown on the preview screen to the signs which have been connected to the RS485 output of the converter. On the Hanover converter, pin #1 is RS485 black wire 'B' and pin #3 is RS485 red wire 'A'.

A virtual LED to the left of the tick box indicates that the message is actually being sent. A small text message will illuminate it only momentarily (indeed, it might not even be seen) whereas a graphic message will keep it illuminated for a long time - this demonstrates that message transmission is not instantaneous.

Appendix M: Super-X in more depth

a) Introduction

Super-X is Hanover's sign control language which allows the user to insert commands into the message to determine how it is presented on the sign. It defines the exact form and content of these commands.

At present, information is presented on a sign by entering text in the Sign Parameter Editor and then sending it as a graphic message to the sign[30]. However, this alone does not allow messages to scroll: Super-X has been designed to address this issue.

Basic information on how to make use of Super-X is given in section 8.3.7 Super-X. This appendix goes into the feature in more depth.

b) What does Super-X look like?

Imagine we want to show 'Newhaven' on a sign. The Super-X text would be:

```
{\mode0 Newhaven}
```

The Super-X code always wears braces **{**...**}**. The command **\mode0** indicates that mode 0 should be used: this shows a single line without a route number - **Newhaven** is the actual message. The first image in the picture gallery (section b) in 8.3.7 Super-X) shows how it is presented:

A more complicated example:

```
{\mode9 123\fs NEWHAVEN\fs HARBOUR\fs FERRY DEPARTURES HOURLY}
```

is shown below. This selects mode 9, which has a route number and two lines for the destination, and a third line which could be made to scroll a list of via points or stop names.

c) How does the sign show Super-X?

The sign software[31] has a Super-X interpreter which examines each command, generates the graphic image from the text and then presents it on the sign. The same interpreter is used by the mimic on the PC which shows a facsimile on the computer screen. The pictures in the picture gallery (section b) in 8.3.7 Super-X) are made directly from the mimic display. A mimic is incorporated into HELEN.

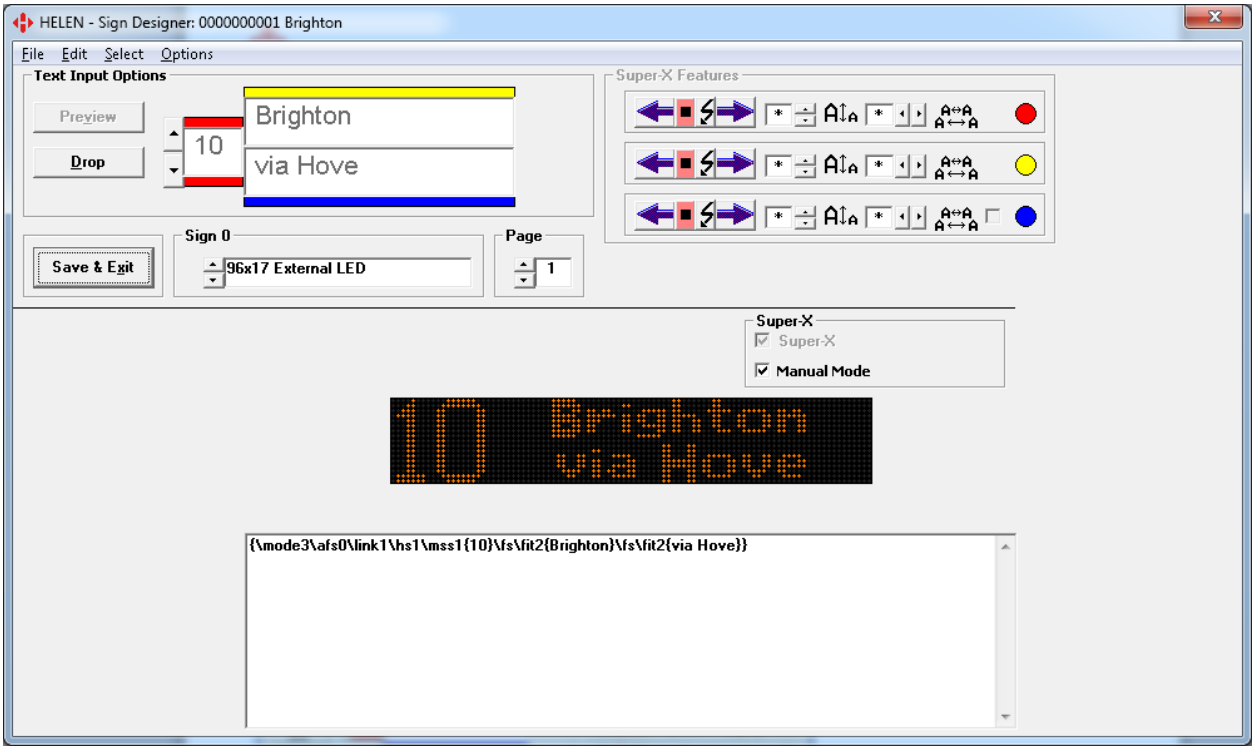
d) What generates Super-X?

Normally, the Super-X code is not seen as HELEN generates it and stores it in the 'eric.bin' database. However, in some cases, the required Super-X will be handwritten (manual mode) or generated by another PC application. An on-board bus computer might also generate Super-X.

e) Super-X manual mode

[30] Some older equipment worked by sending just text, which was then converted to a graphic by the sign.
[31] Some early LED destination signs may require a simple software update to use Super-X features.

To make full use of the features of Super-X, manual mode must be selected. Tick the manual mode box.



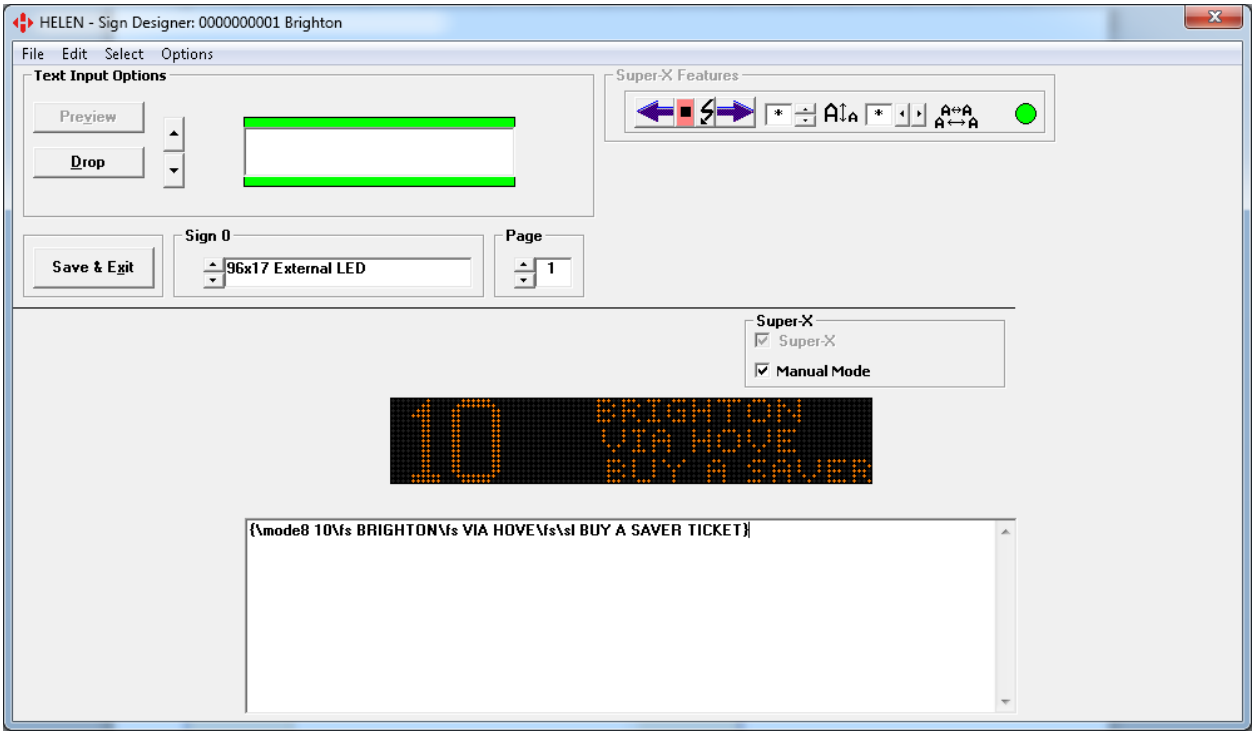
Note: the normal text entry fields and the Super-X features frame have become disabled and a new text box has appeared containing the Super-X code. This code can now be modified to obtain the desired result.

A simple example using mode 8 shows the flexibility of this system; it demonstrates how an additional line can be introduced (see the gallery at section b) Picture gallery in 8.3.7 Super-X for mode options).

It may be more convenient to start with the automatic text generator and then modify it rather than build the manual Super-X code from scratch. To show the absolute minimum required however, this example is built from scratch.

Note: the text must be dropped, not just saved, to create the sign.

- **Manual mode example:**



{\mode8 10\fs BRIGHTON\fs VIA HOVE\fs\sl BUY A SAVER TICKET}

All Super-X text must be enclosed between braces or 'curly brackets' {……}.

All key words start with a backslash (\ ).

- **Detailed breakdown:**

{	start of Super-X text
\mode8	Mode 8 gives a three-line display with a route number.
10	the route number (simple text)
\fs	field separator
BRIGHTON	destination field text
\fs	field separator
VIA HOVE	via field text
\fs	field separator
\sl	scroll the contents of this field to the left
BUY A SAVER TICKET	extra field text
}	closing Super-X text

f) Two line lock

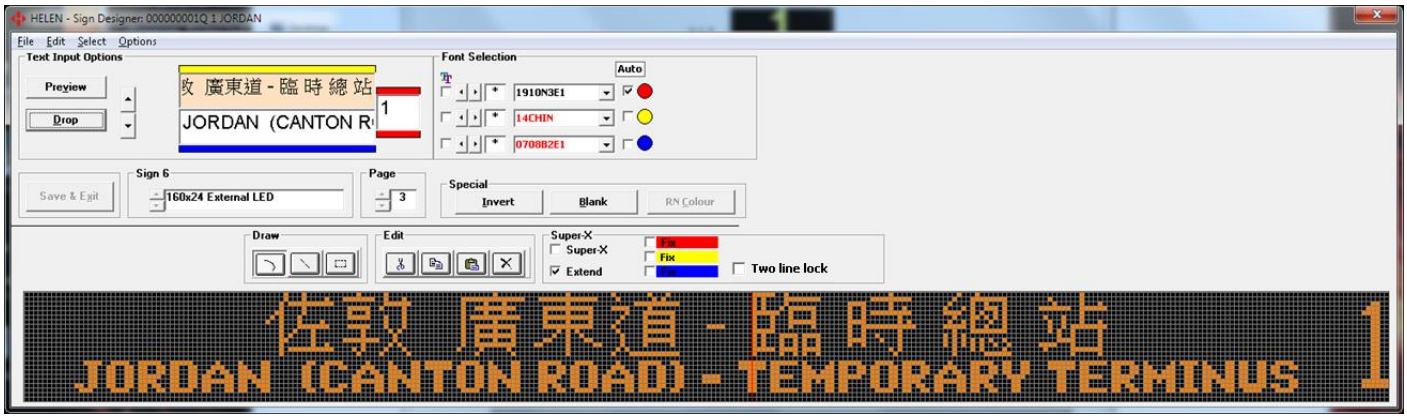
Note that the “Two line lock” feature will become available only if enabled in helen.ini. For more information about helen.ini, refer to Appendix B: HELEN initialisation file (helen.ini).

When you have both a top and bottom line scrolling, it is very likely that the two messages will be of different length and will eventually become unsynchronised when scrolling across the sign.

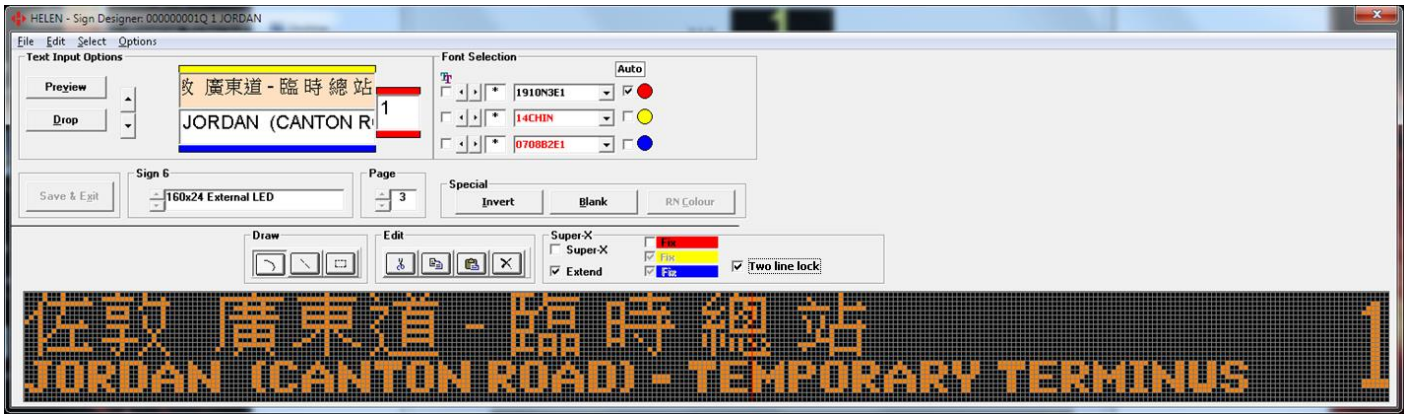
This “Two Line Lock” feature can be used to create a single Super-X graphic for a top and bottom field. This can be useful to keep scrolling multilingual messages synchronised.

For example: a two-line scrolling message.

The top line has a Chinese message of “Jordan (Canton Road) – Temporary Terminus” and the bottom line is in English. As the message is too long, the sign has been ‘extended’ to fit the message by selecting “Extend” as shown below.

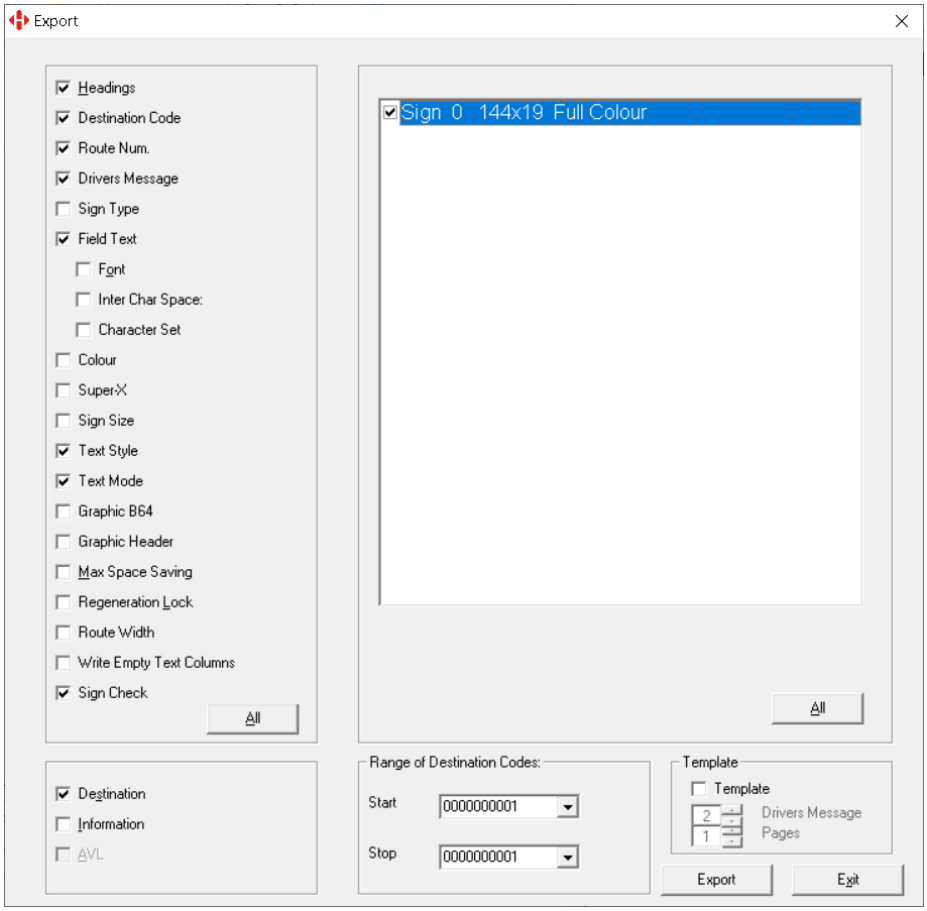


When the “Two Line Lock” is selected, the messages will be left justified and the yellow and blue “Fix” boxes will be selected as shown below.



Appendix N: Export Submenu

By selecting **Export** from the **File** menu, the following window showing a list of sign configurations and available signs will be displayed:



Parameter	Description
Headings	Headings are the way each exported column is identified. Each column heading will be unique and have a set name. It is important that the column heading is written accurately (the program will always do this but errors can occur when creating a list from scratch). Only a brief description of each heading will be given here, as further information about the contents will be found in more detail elsewhere in the manual.
Code	This column will have the destination and/or information codes. Each code will be used as a row identifier. **Code** 0000000001 0000000002 0000000003 0000000004 01 02 A destination code will have ten characters, whereas an information code will have two characters.

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Msg_Type</td><td>
<table>
<tr><th>Code</th><th>Msg_Type</th></tr>
<tr><td>0000000001</td><td>DEST</td></tr>
<tr><td>0000000002</td><td>DEST</td></tr>
<tr><td>0000000003</td><td>DEST</td></tr>
<tr><td>0000000004</td><td>DEST</td></tr>
<tr><td>01</td><td>INFO</td></tr>
<tr><td>02</td><td>INFO</td></tr>
</table>
This column is to avoid ambiguity between Destination and Information messages. This is useful when exporting both items but important when importing both types of messages at the same time, especially if the list has been created from scratch on a spreadsheet.

Note: When exporting, this column will only appear in the CSV file when Destination and Information messages are both selected.
</td></tr>
<tr><td>Route Num.</td><td>This is a display only column. The contents can come from a number of different fields of the display.

<table>
<tr><th>Route_No</th></tr>
<tr><td></td></tr>
<tr><td>29</td></tr>
<tr><td></td></tr>
<tr><td>29</td></tr>
</table>
</td></tr>
<tr><td>Drivers Message</td><td>This will display the contents of the driver’s messages. The program will scan the list for the greatest number of driver’s messages for the selected range and create the appropriate number of columns. In the example below, codes 2 and 4 have two driver message pages but codes 1 and 3 only have one.

<table>
<tr><th>Code</th><th>Route_No</th><th>Dvr_Msg_1</th><th>Dvr_Msg_2</th></tr>
<tr><td>0000000001</td><td></td><td>Brighton</td><td></td></tr>
<tr><td>0000000002</td><td>29</td><td>29 Brighton</td><td></td></tr>
<tr><td>0000000003</td><td></td><td>Brighton</td><td>via Lewes</td></tr>
<tr><td>0000000004</td><td>29</td><td>29 Brighton</td><td>via Lewes</td></tr>
</table>
</td></tr>
<tr><td>Sign Type</td><td>The table below shows the possible sign types for Sign 0 (Sn0):

Sign #0, Sign Type
<table>
<tr><th>Sn0_SnType</th></tr>
<tr><td>EXTERNAL_LED</td></tr>
<tr><td>INTERNAL_LED</td></tr>
<tr><td>MRN</td></tr>
<tr><td>FC</td></tr>
<tr><td>TFT</td></tr>
</table>
In an actual export, the sign type would be the same for each column entry of a particular sign (i.e. the type of sign cannot change between destination codes).
</td></tr>
</table>

<table>
<tr><th>Parameter</th><th colspan="3">Description</th></tr>
<tr><td>Field Text</td><td colspan="3">The table shows the five text styles with the associated fields:

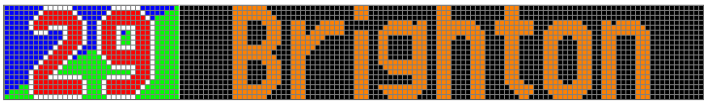
Sign #0, Page #1, Field #1 or Field #2 or Field #3 or Field #4 or Field #5, Text
<table>
<tr><th>Code</th><th>Sn0_Pg1_Fd1_Txt</th><th>Sn0_Pg1_Fd2_Txt</th><th>Sn0_Pg1_Fd3_Txt</th><th>Sn0_Pg1_Fd4_Txt</th><th>Sn0_Pg1_Fd5_Txt</th></tr>
<tr><td>0000000001</td><td></td><td></td><td>Brighton</td><td></td><td></td></tr>
<tr><td>0000000002</td><td>29</td><td></td><td>Brighton</td><td></td><td></td></tr>
<tr><td>0000000003</td><td></td><td>Brighton</td><td></td><td>via Lewes</td><td></td></tr>
<tr><td>0000000004</td><td>29</td><td>Brighton</td><td></td><td>via Lewes</td><td></td></tr>
<tr><td>0000000005</td><td>29</td><td></td><td>Brighton</td><td></td><td>J</td></tr>
<tr><td>0000000006</td><td>29</td><td>Brighton</td><td></td><td>via Lewes</td><td>J</td></tr>
</table>
where:
_Txt = Text information associated with a particular field
Field #1 = Route number field and Field #5 = An additional field available in graphic mode only</td></tr>
<tr><td rowspan="4">Field Text</td><td rowspan="2">Font</td><td>Hanover Bitmap Font</td><td>Example:

Sign #0, Page #1, Field #3, Font
<table>
<tr><th>Sn0_Pg1_Fd3_Font</th></tr>
<tr><td>1912B3E1</td></tr>
</table>
where: _Font = Manually selected font associated with a particular field</td></tr>
<tr><td>Windows font system</td><td>Example of a Windows font system using Auto-fit Arial True Type Font:

<table>
<tr><th>Sn0_Pg1_Fd3_Font</th></tr>
<tr><td>TT;TTautoFit;Arial</td></tr>
</table></td></tr>
<tr><td>Inter Char Space</td><td colspan="2">Example:

Sign #0, Page #1, Field #3, Inter Char Space
<table>
<tr><th>Sn0_Pg1_Fd3_ICS</th></tr>
<tr><td>5</td></tr>
</table>
where: _ICS = Value of a manually selected number of spaces between each character. A default value is not written.</td></tr>
<tr><td>Character Set</td><td colspan="2">Example:

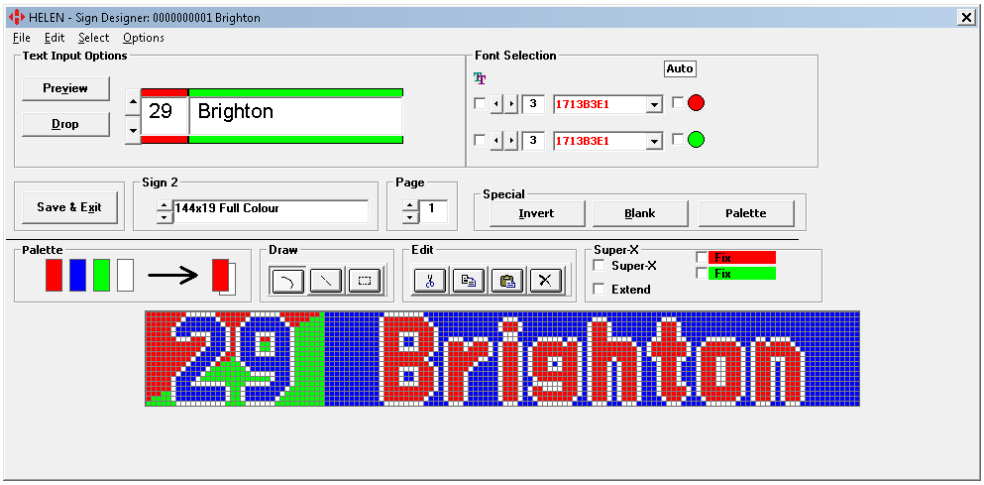
Sign #0, Page #1, Field #3, Character Set
<table>
<tr><th>Sn0_Pg1_Fd3_CharSet</th></tr>
<tr><td>204</td></tr>
</table>
where: _CharSet = Value associated with the type of keyboard that was used to write the text. Refer to Appendix N-1: Character Set.</td></tr>
</table>

<table>
<tr><th colspan="2">Parameter</th><th>Description</th></tr>
<tr><td colspan="2">Colour</td><td>There are two main colour systems:
Colour route number panel (MRN)
Full colour sign (FC)</td></tr>
<tr><td>Colour</td><td>MRN</td><td>Example: 

The above example shows the route number having the following colours:
Foreground = Red
Background = Blue
Stripe = Green
Outline = White
Each colour is stored as a combination of three 8-bit (0-255) values of red, green and blue.

Sign #1, Page #1, Foreground Colour
<table>
<tr><th>Sn1_Pg1_FC_Red</th><th>Sn1_Pg1_FC_Green</th><th>Sn1_Pg1_FC_Blue</th></tr>
<tr><td>255</td><td>0</td><td>0</td></tr>
</table>
Sign #1, Page #1, Background Colour
<table>
<tr><th>Sn1_Pg1_BC_Red</th><th>Sn1_Pg1_BC_Green</th><th>Sn1_Pg1_BC_Blue</th></tr>
<tr><td>0</td><td>0</td><td>255</td></tr>
</table>
Sign #1, Page #1, Image Colour (stripe)
<table>
<tr><th>Sn1_Pg1_IC_Red</th><th>Sn1_Pg1_IC_Green</th><th>Sn1_Pg1_IC_Blue</th></tr>
<tr><td>0</td><td>255</td><td>0</td></tr>
</table>
Sign #1, Page #1, Outline Colour
<table>
<tr><th>Sn1_Pg1_OC_Red</th><th>Sn1_Pg1_OC_Green</th><th>Sn1_Pg1_OC_Blue</th></tr>
<tr><td>255</td><td>255</td><td>255</td></tr>
</table>
Sign #1, Page #1, Image Type
<table>
<tr><th>Sn1_Pg1_IT</th></tr>
<tr><td>5</td></tr>
</table>
For more details about Image Type, refer to 8.3.5 d) Stripe feature.

Sign #1, Page #1, Outline Type
<table>
<tr><th>Sn1_Pg1_OT</th></tr>
<tr><td>1</td></tr>
</table>
Note:
<table>
<tr><th>Outline Type</th><th>Description</th></tr>
<tr><td>0</td><td>No outline</td></tr>
<tr><td>1</td><td>Standard outline</td></tr>
<tr><td>2</td><td>Customer Specific</td></tr>
<tr><td>3</td><td>Customer Specific</td></tr>
</table>
</td></tr>
</table>

Parameter		Description
Colour	FC	

Example:

The above example shows the following palette colours:

- Palette A = Red
- Palette B = Blue
- Palette C = Green
- Palette D = White

Sign #2, Page #1, Palette A

Sn2_Pg1_PltA_Red	Sn2_Pg1_PltA_Green	Sn2_Pg1_PltA_Blue
255	0	0

Sign #2, Page #1, Palette B

Sn2_Pg1_PltB_Red	Sn2_Pg1_PltB_Green	Sn2_Pg1_PltB_Blue
0	0	255

Sign #2, Page #1, Palette C

Sn2_Pg1_PltC_Red	Sn2_Pg1_PltC_Green	Sn2_Pg1_PltC_Blue
0	255	0

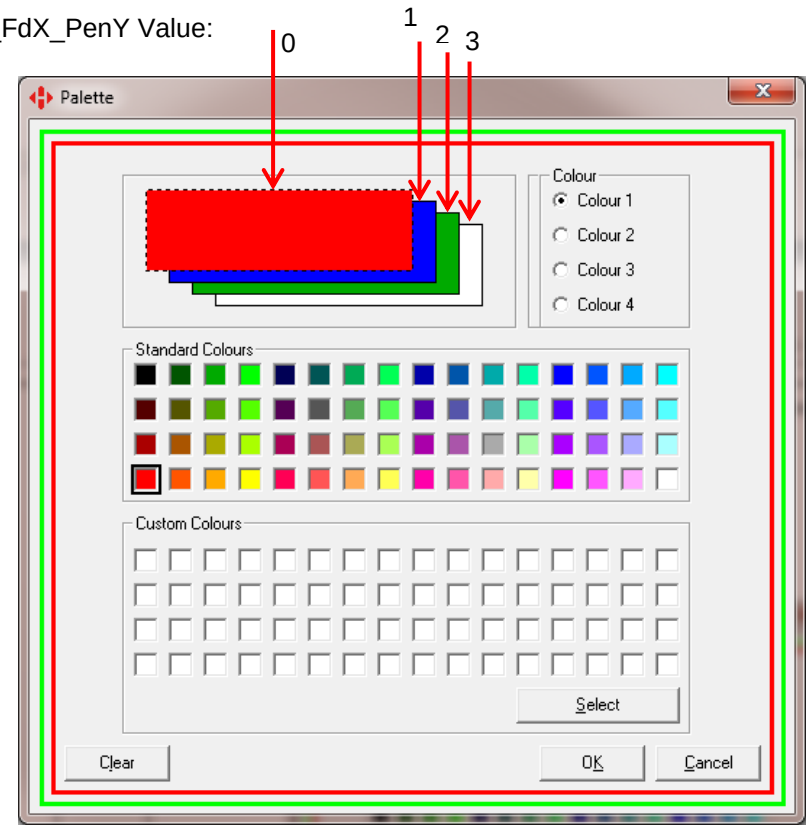
Sign #2, Page #1, Palette D

Sn2_Pg1_PltD_Red	Sn2_Pg1_PltD_Green	Sn2_Pg1_PltD_Blue
255	255	255

<table>
<tr><th colspan="2">Parameter</th><th>Description</th></tr>
<tr><td>Colour</td><td>FC</td><td>
In the full colour sign example, there are two fields (1 & 3). Each field will have a particular ‘Pen’ to draw the foreground, outline, stripe (image) and background colours.

<table>
<tr><th>Pen</th><th>Type</th></tr>
<tr><td>Pen A</td><td>Foreground</td></tr>
<tr><td>Pen B</td><td>Outline</td></tr>
<tr><td>Pen C</td><td>Stripe</td></tr>
<tr><td>Pen D</td><td>Background</td></tr>
</table>

SnX_PgX_FdX_PenY Value:

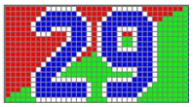


<table>
<tr><th>Colour</th><th>SnX_PgX_FdX_PenY Value</th></tr>
<tr><td>Colour 1 (red)</td><td>0</td></tr>
<tr><td>Colour 2 (blue)</td><td>1</td></tr>
<tr><td>Colour 3 (green)</td><td>2</td></tr>
<tr><td>Colour 4 (white)</td><td>3</td></tr>
</table>

where:

- X can be any combination of 0, 1, 2 etc.
- Y can be A, B, C or D.

Note: By default, a foreground colour will have a SnX_Pg1_FdX_PenA value of 0 and a background colour will have a SnX_Pg1_FdX_PenD value of 3.
</td></tr>
</table>

<table>
<tr><th colspan="2">Parameter</th><th>Description</th></tr>
<tr><td>Colour</td><td>FC</td><td>
Field #1: 

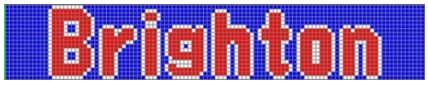
Sign #2, Page #1, Field #1, Pen
<table>
<tr><th>Sn2_Pg1_Fd1_PenA</th><th>Sn2_Pg1_Fd1_PenB</th><th>Sn2_Pg1_Fd1_PenC</th><th>Sn2_Pg1_Fd1_PenD</th></tr>
<tr><td>1</td><td>3</td><td>2</td><td>0</td></tr>
</table>
where:

Sn2_Pg1_Fd1_PenA = 1 as foreground colour is blue which is equal to 1.
Sn2_Pg1_Fd1_PenB = 3 as outline colour is white which is equal to 3.
Sn2_Pg1_Fd1_PenC = 2 as stripe colour is green which is equal to 2.
Sn2_Pg1_Fd1_PenD = 0 as background colour is red which is equal to 0.

Sign #2, Page #1, Image Type
<table>
<tr><th>Sn2_Pg1_IT</th></tr>
<tr><td>5</td></tr>
</table>
For more information about Image Type, refer to 8.3.5 d) Stripe feature.

Note: Image Type is available only for a ‘Route Number’ field.

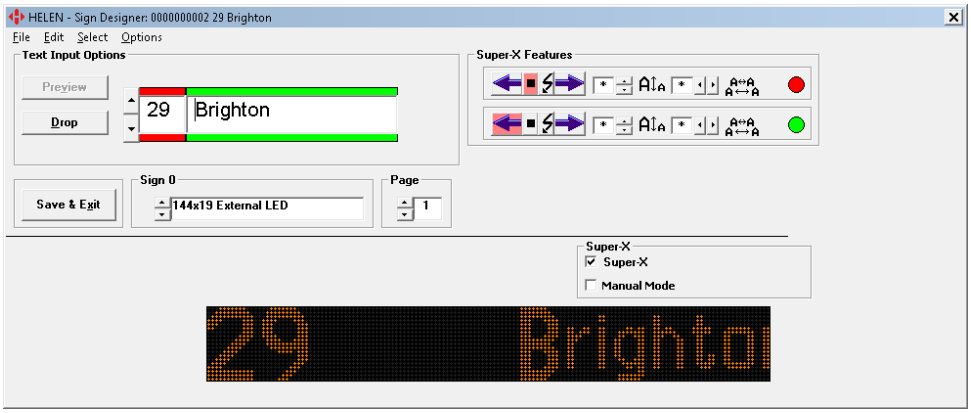
Sign #2, Page #1, Field #1, Outline Type
<table>
<tr><th>Sn2_Pg1_Fd1_OT</th></tr>
<tr><td>1</td></tr>
</table>

Field #3: 

Sign #2, Page #1, Field #3, Pen
<table>
<tr><th>Sn2_Pg1_Fd3_PenA</th><th>Sn2_Pg1_Fd3_PenB</th><th>Sn2_Pg1_Fd3_PenC</th><th>Sn2_Pg1_Fd3_PenD</th></tr>
<tr><td>0</td><td>3</td><td>3</td><td>1</td></tr>
</table>
where:

Sn2_Pg1_Fd3_PenA = 0 as foreground colour is red which is equal to 0.
Sn2_Pg1_Fd3_PenB = 3 as outline colour is white which is equal to 3.
Sn2_Pg1_Fd3_PenC = 3 as there is no stripe.
Sn2_Pg1_Fd3_PenD = 1 as background colour is blue which is equal to 1.

Sign #2, Page #1, Field #3, Outline Type
<table>
<tr><th>Sn2_Pg1_Fd3_OT</th></tr>
<tr><td>1</td></tr>
</table>
Note:
<table>
<tr><th>Outline Type</th><th>Description</th></tr>
<tr><td>0</td><td>No outline</td></tr>
<tr><td>1</td><td>Standard outline</td></tr>
<tr><td>2</td><td>Not applicable for full colour signs.</td></tr>
<tr><td>3</td><td>Not applicable for full colour signs.</td></tr>
</table>
</td></tr>
</table>

Parameter	Description
Super-X	Example:  The example shows a sign in Super-X mode with field #3 set to scroll. For each page, there will be Text section which contains the Super-X code generated from the field text and any Super-X settings. This is the information that will be sent to the sign via the controller. For more information about Super-X, refer to Appendix M: Super-X in more depth. Example: **Sign #0, Page #1, SuperX, Text** | Sn0_Pg1_SuperX_Txt | | {\mode1\afs0\hs1\mss1{29}\fs\fit2\sl{Brighton}} | Each field can have a Super-X feature such as: • SL: **S**croll **L**eft • SR: **S**croll **R**ight • FL: **Fl**ash Example: **Sign #0, Page #1, Field #3, SuperX, Feature** | Sn0_Pg1_Fd3_SuperX_Feature | | SL |
Sign Size	Sign Size is used for display only. The value will be the same for each code for a particular sign and any changes to this value will not be imported. Example: **Sign #0, Sign Size** | Code | Sn0_SnSize | | 0000000001 | 144x19 | | 0000000002 | 144x19 | | 0000000003 | 144x19 | | 0000000004 | 144x19 |

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Text Style</td><td>There are six available fields which can give the following layout options:
<table>
<tr><th>Field</th><th>Layout</th></tr>
<tr><td>SINGLE_NONE</td><td>3</td></tr>
<tr><td>DOUBLE_NONE</td><td>2
4</td></tr>
<tr><td>SINGLE_RN</td><td>1 (RN) | 3</td></tr>
<tr><td>DOUBLE_RN</td><td>1 (RN) | 2
4</td></tr>
<tr><td>SINGLE_DUAL_RN
(Only available in graphic mode)</td><td>1 (RN) | 3 | 5</td></tr>
<tr><td>DUAL_DUAL_RN
(Only available in graphic mode)</td><td>1 (RN) | 2
4 | 5</td></tr>
</table>
Example:

Sign #0, Page #1, Text Style
<table>
<tr><th>Code</th><th>Sn0_Pg1_TxtStyle</th></tr>
<tr><td>0000000001</td><td>SINGLE_NONE</td></tr>
<tr><td>0000000002</td><td>SINGLE_RN</td></tr>
<tr><td>0000000003</td><td>DOUBLE_NONE</td></tr>
<tr><td>0000000004</td><td>DOUBLE_RN</td></tr>
<tr><td>0000000005</td><td>SINGLE_DUAL_RN</td></tr>
<tr><td>0000000006</td><td>DOUBLE_DUAL_RN</td></tr>
</table></td></tr>
<tr><td>Text Mode</td><td>There are three possible entries:
GRAPHIC
SUPERX
TEXT
Example:

Sign #0, Page #1, Text Mode
<table>
<tr><th>Sn0_Pg1_TxtMode</th></tr>
<tr><td>GRAPHIC</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Graphic B64</td><td>Base 64 is the method of writing the graphic appearing on the sign to a text file. This information would not normally be modified but is used to write when exported and read when imported, thus being able to reproduce the information in the route file.

Example:

Sign #0, Page #1, Graphic B64
<table><tr><th>Sn0_Pg1_Graphic_B64</th></tr><tr><td>4A4B8A8B+A+BOA/BHg3BHwzBH4xBH8wBOewB+PwB8HwB4DwBA</td></tr></table></td></tr>
<tr><td>Graphic Header</td><td>Contains data such as colour information which is passed to the sign via graphic data. It is very unlikely that this information would need to be edited but is needed for complete export/import.

Example:

Sign #1, Page #1, Graphic Header
<table><tr><th>Sn1_Pg1_Graphic_Header</th></tr><tr><td>FG3,BG12,SC48,ST5,FC255,BC16711680,IC65280,IT5,OC16777215,OT1,VE19,@RP2/108/0</td></tr></table></td></tr>
<tr><td>Max Space Saving</td><td>This item will define whether Maximum Space Saving is set (TRUE/FALSE).

Example:

Sign #0, Page #1, Max Space Saving
<table><tr><th>Code</th><th>Sn0_Pg1_MaxSpace</th></tr><tr><td>0000000001</td><td>TRUE</td></tr></table></td></tr>
<tr><td>Regeneration Lock</td><td>This item will define whether Regeneration Lock is set (TRUE/FALSE).

Example:

Sign #0, Page #1, Regeneration Lock
<table><tr><th>Code</th><th>Sn0_Pg1_RegenLock</th></tr><tr><td>0000000001</td><td>TRUE</td></tr></table></td></tr>
<tr><td>Route Width</td><td>This item will define the space used by the characters in route number field.

Example:

Sign #0, Page #1, Route Width
<table><tr><th>Code</th><th>Sn0_Pg1_RouteWidth</th></tr><tr><td>0000000002</td><td>25</td></tr></table></td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Write Empty Text Columns</td><td>
Normally, a column containing text information would only be written if there was data for that field. For example: If a front sign has been programmed to have a route number, a destination and via field (DOUBLE_RN). In this case, there will be a column for fields 1, 2 & 4 but no column for field 3. By selecting this option, there will be space for a different configuration, should it be required - say a route number with a single destination field (SINGLE_NONE) for which fields 1 & 3 are required.

Example:

<table>
<tr><th>Code</th><th>Dvr_Msg_1</th><th>Dvr_Msg_2</th><th>Sn0_Pg1_TxtStyle</th><th>Sn0_Pg1_TxtMode</th><th>Sn0_Pg1_Fd1_Txt</th><th>Sn0_Pg1_Fd2_Txt</th><th>Sn0_Pg1_Fd4_Txt</th></tr>
<tr><td>0000000004</td><td>29 Brighton</td><td>via Lewes</td><td>DOUBLE_RN</td><td>GRAPHIC</td><td>29</td><td>Brighton</td><td>via Lewes</td></tr>
</table>
When ‘Write Empty Text columns’ selected:

<table>
<tr><th>Code</th><th>Dvr_Msg_1</th><th>Dvr_Msg_2</th><th>Sn0_Pg1_TxtStyle</th><th>Sn0_Pg1_TxtMode</th><th>Sn0_Pg1_Fd1_Txt</th><th>Sn0_Pg1_Fd2_Txt</th><th>Sn0_Pg1_Fd3_Txt</th><th>Sn0_Pg1_Fd4_Txt</th></tr>
<tr><td>0000000004</td><td>29 Brighton</td><td>via Lewes</td><td>DOUBLE_RN</td><td>GRAPHIC</td><td>29</td><td>Brighton</td><td></td><td>via Lewes</td></tr>
</table>
</td></tr>
<tr><td>Frame Duration</td><td>
A page on a full colour sign can be set to display for a particular duration. If this value is left blank, the frame system will be disabled for that code. The frame system must be consistent i.e. all pages for a code must be all enabled or all disabled. The value stored is in mS e.g. 3000mS = 3 seconds.

Sign #2, Page #1, Frame Duration

<table>
<tr><th>Sn2_Pg1_FraDur</th></tr>
<tr><td>3000</td></tr>
</table>
</td></tr>
<tr><td>Template</td><td>
If a new list is to be built from scratch, it is important that the desired column headings are written exactly. The ’Template’ feature will just export the required headings to allow new data to be added. The selection for the Driver’s Message & Pages will define the number of these columns that will be added.

Note: Ensure ‘Write Empty Columns’ is ticked to add field text columns.
</td></tr>
<tr><td>Sign Check</td><td>
This will check the details of the fitted signs against the values seen in the route files.

Any difference between the two will display an error.
</td></tr>
</table>

Appendix N-1: Character Set

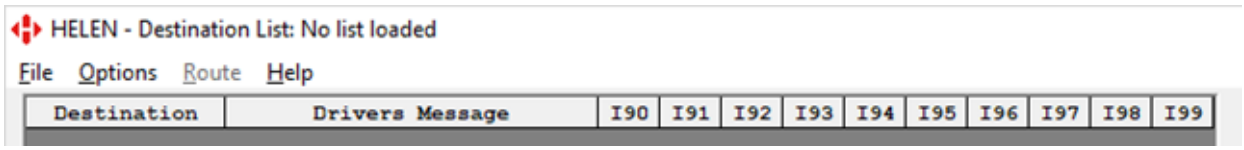
Keyboard	Code
ARABIC	178 (0xB2)
CHINESE	136 (0x88)
GREEK	161 (0xA1)
HEBREW	177 (0xB1)
RUSSIAN	204 (0xCC)
TURKISH	162 (0xA2)
ALBANIAN	238 (0xEE)
CROATIAN	238 (0xEE)
CZECH	238 (0xEE)
HUNGARIAN	238 (0xEE)
POLISH	238 (0xEE)
ROMANIAN	238 (0xEE)
SERBIAN	238 (0xEE)
SLOVAK	238 (0xEE)
SLOVENIAN	238 (0xEE)
ESTONIAN	186 (0xBA)
LATVIAN	186 (0xBA)
LITHUANIAN	186 (0xBA)
All others. (Value not written)	0

Appendix O: Pre-Set Information Messages

The original system of information messages allowed the driver to select 1 message out of a possible 99 (as described in section 7.5.2 Information).

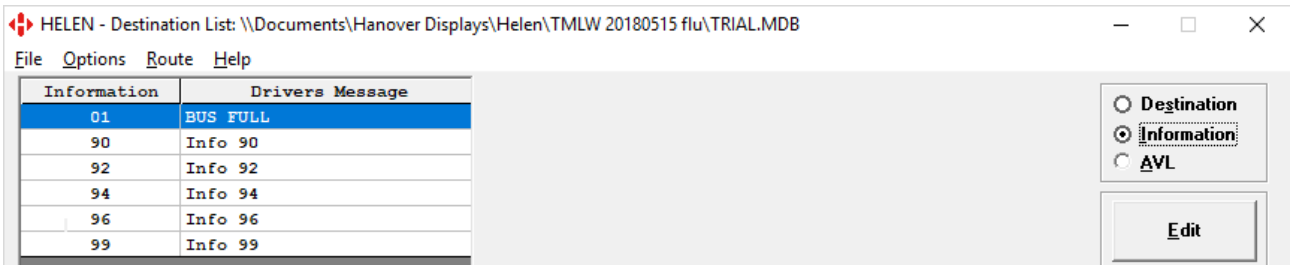
This enhancement will allow multiple information messages to be pre-selected for a specific destination code. The driver is only required to select the destination (as normal) and the system will then show in sequence the pre-selected information messages for that code along with the actual destination message.

This feature will need to be enabled in Helen.ini by setting 'PresetInfoMsg=True' and restarting the program. Once restarted, the opening screen will be as shown below:

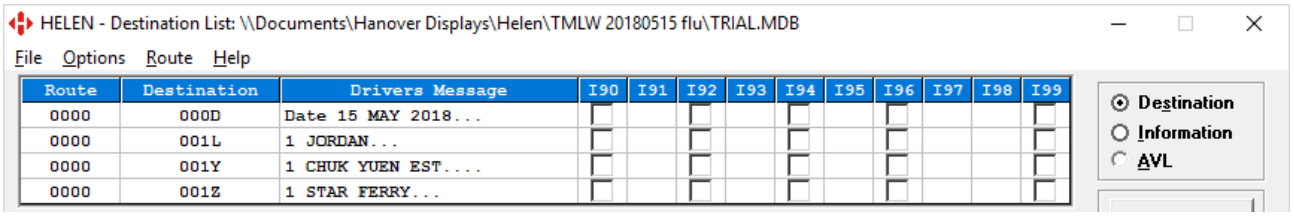


The pre-set info messages need to be in the range of 90-99.

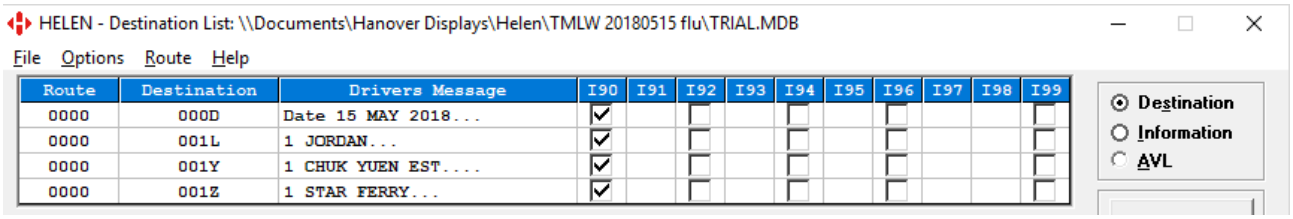
The example below shows six info messages – five in the range of 90-99.



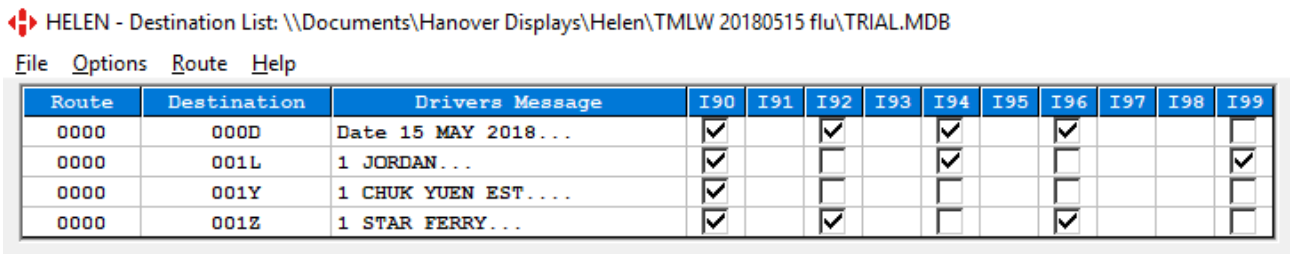
When this list is opened, the column corresponding with an available Info file will be populated with tick boxes.



To select all rows for a particular column, click on the column heading e.g. click on I90.



Individual boxes can be selected up to a maximum of four in any of one row.



Appendix P: Working with Multipage Super-X

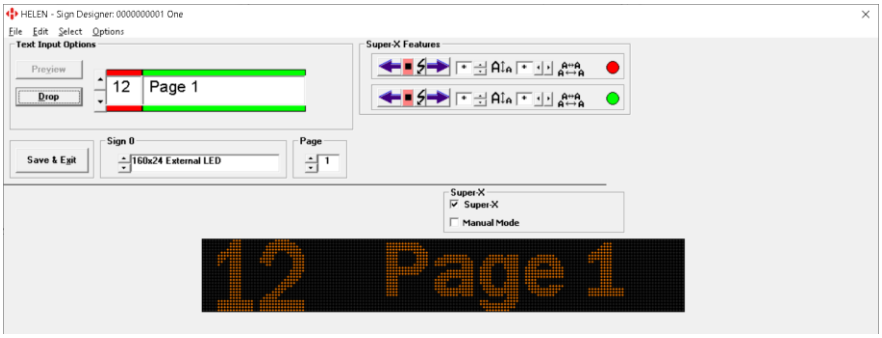
Previous to Multipage Super-X, individual pages would be sent to the controller at a pre-set time interval. This is fine when none of the pages scroll. However, if one or more pages in a sequence has scrolling text, then the complete scrolling message may not be seen before the next page is sent.

Multipage Super-X treats the sequence of pages as one message and the sign itself will perform the sequencing. This has the advantage that once the message has been initially sent by the controller, then there is no lag in updating any of the signs in the system. In addition, each static page in the sequence can be set to display for an individual time.

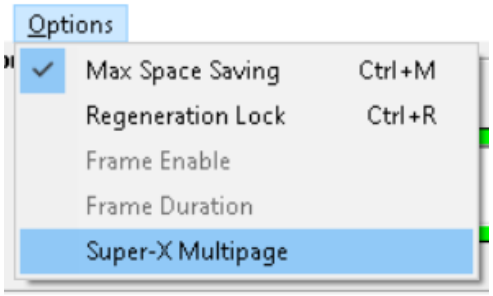
Example:

- Page 1: static text with a display time of 3 seconds
- Page 2: scrolling text
- Page 3: static text with a display time of 2 seconds

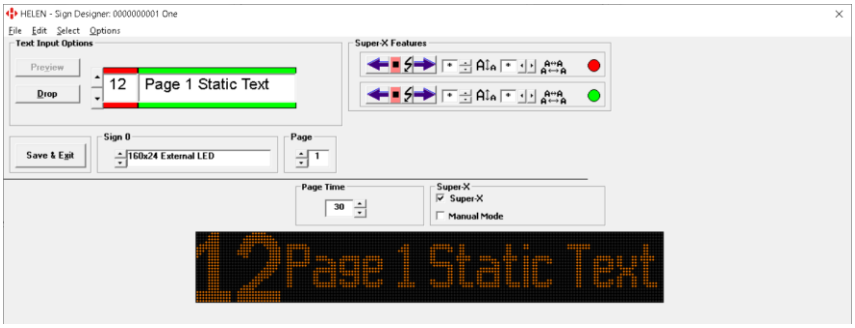
Page 1



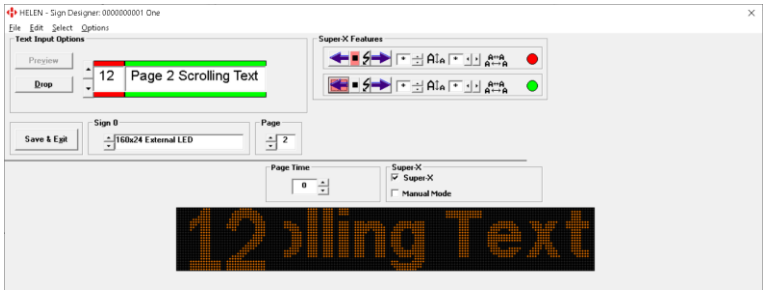
To create a multipage sequence, go to options menu and select Super-X Multipage.



Note the appearance of 'Page Time' which is set to 30 (3 seconds) as shown below:



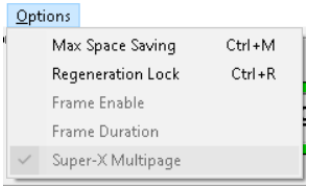
Page 2



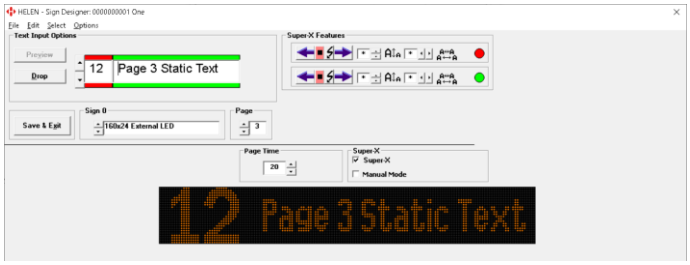
Even though the text is long enough to automatically scroll, the scroll button MUST be explicitly set to scroll (otherwise, the system will fail).

Notes:

- Page Time of '0' – Must always be set to zero when there is a scrolling field.
- The Super-X Multipage will automatically be set (all pages in the sequence must be multipage).

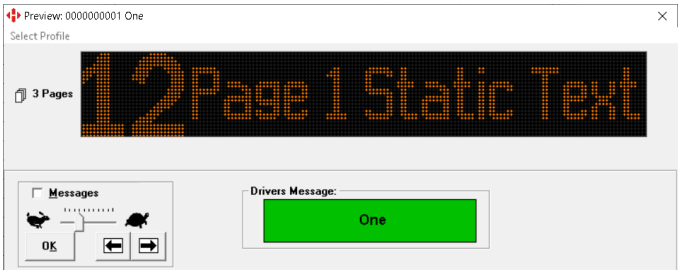


Page 3



Similar to page 1 but with a display time of 2 seconds.

Final result:



When Save & Exit is pressed, Preview will show the Multipage symbol and the number of pages in the sequence.

Historical note: *The previous method to achieve such synchronisation of pages, required the user to manually insert '\rep1' statements into any field which scroll and to adjust the global 'Scroll Page Time' (in Configuration) to '0.0'. Now, the '\rep1' statements will automatically be added and 'Scroll Page Time' can be left to its default setting.*

Appendix Q: Pasting a Route number into an Information page

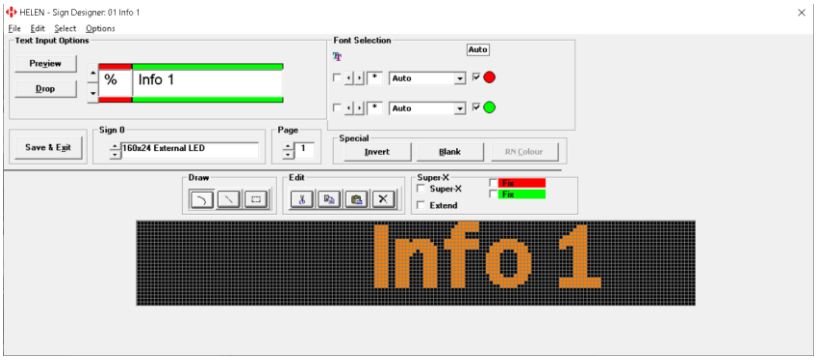
It is often useful to paste the route number into an Information page to maintain its visibility at all times.

There are two ways in which the RN may be generated:

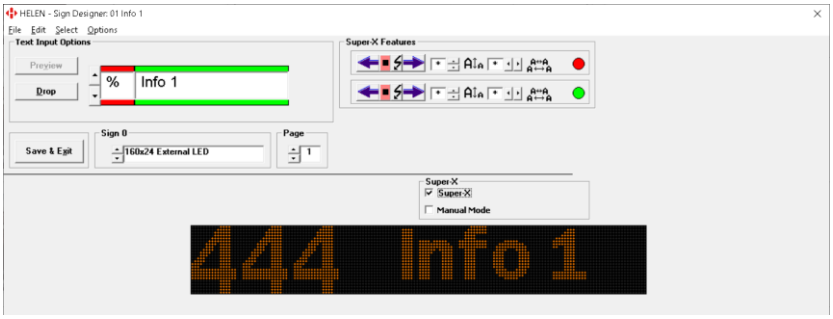
- Directly into the destination message
- As a programmable RN (refer to Appendix K: Programmable route numbers).

Either way, the information page will need to be set up in the same way, with a '%' symbol in the RN field.

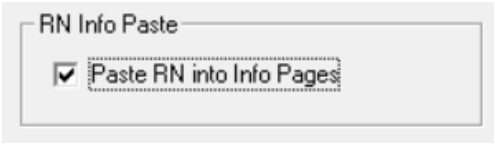
Graphic mode:



Super-X:



To enable the RN paste to take place, ensure the appropriate box is ticked in the 'Configuration' section (as described in 7.2.5 Configuration submenu).

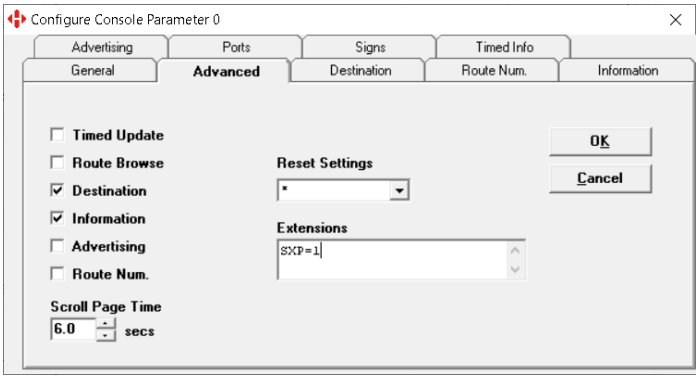


Note: If this box is ticked retrospectively (to an existing list), then the list will have to be regenerated to apply the necessary control codes.

If possible, it is usually best to match the type of source and destination i.e. Graphic to Graphic, Super-X to Super-X but note on the table below that the system works correctly if the destination message is a graphic and the Info message is Super-X – but not the other way round.

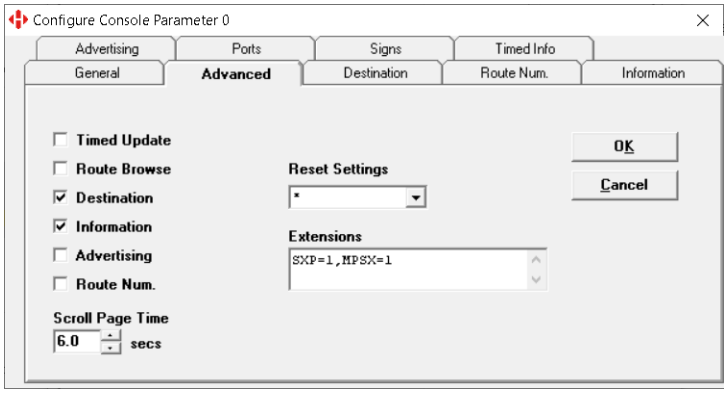
Destination Message	Info Message	Paste into Info RN field
Graphic	Graphic	Yes
Graphic	Super-X	Yes
Super-X	Graphic	No
Super-X	Super-X	Yes

To ensure the RN paste works in Super-X, 'SXP=1' must be inserted into the Configuration Extensions box as shown below:



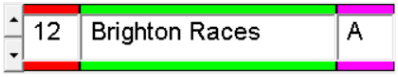
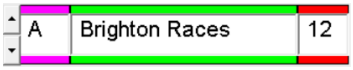
Appendix Q-1: Multipage Super-X and RN paste

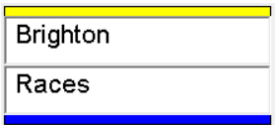
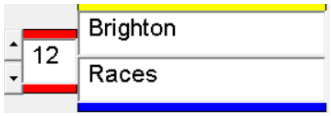
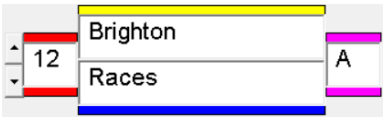
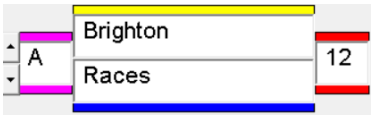
As it would be expected, all pages (source and destination) must be in Super-X and in addition, MPSX=1 must also be set in the Configuration Extensions box as shown below.



Appendix R: Layout Configurations

This appendix shows all the layout configurations available in graphic mode.

Single Line		
No Route Number	**Left Hand Route Number**	**Right Hand Route Number**
		

Two Line		
No Route Number	**Left Hand Route Number**	**Right Hand Route Number**
		
		

Notes:

- The setting of the left hand/right route number is done in Sign Configuration. Refer to 4.3.5 Setting text fields and justification.
- To get the image of the horse, the letter ‘A’ is used in conjunction with LOGO19 font. Refer to Appendix I: Alpha to symbol converter (Hanover fonts).
- Any of the configurations shown with a purple outline are not available in Super-X.
- There is also a three-line mode of operation but this cannot be selected via the up/down control. Refer to Appendix H: Three-line operation.