EasySim

What's New in Version 2

1. Version 2.00 Overview

EasySim **2.00** presents a major enhancement over previous issues of the program with four areas of the software package being targeted for improvement.

These areas, detailed in subsequent chapters, are as follows:

1. The Installation Program.
2. Use of the keyboard.
3. New gates introduced, including a variable speed oscillator.
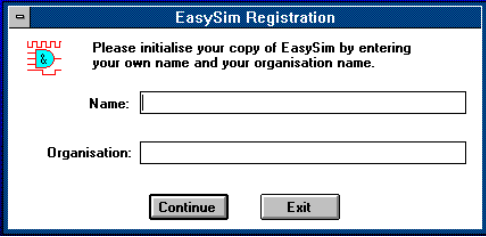4. New fully floating toolbox.

2 Installation

The *EasySim* installation program has altered slightly from that shown in the user manual. Invoking the setup program is still performed in the same way but some of the the setup screens have been changed.

2.1 User Registration

Setup will initially prompt for your name and organistion. This information will become embedded in the program and will personalise your copy of the software.

Use the **TAB** key to switch between fields and click on the **Continue** button when the information has been correctly entered.
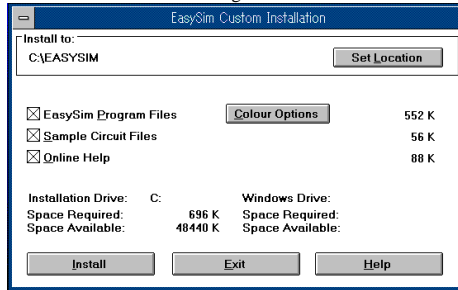
2.2 Installation Options

EasySim now allows selection of which files are to be installed, gives the option of a reduced colour version for monochrome laptops and retains the directory selection option from version 1.

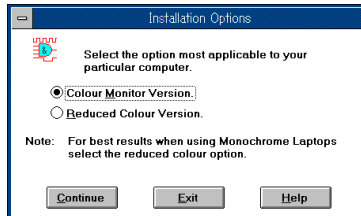The Custom Installation Dialog is shown below.

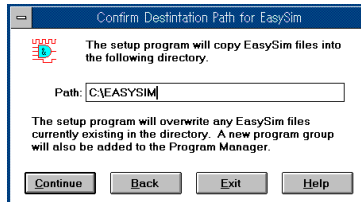To change the default directory click on the **Set Location** button.

To select the reduced colour option click on the **Colour Options** button.

To select which files are required on your system click on the check boxes at the left of the dialog box.

The default installation of *EasySim* is for the full colour version. This default may be overridden by selecting the reduced colour option. Selecting this option provides an installation suitable for monochrome laptop screens. The colour set is cut back to provide contrasting greys on such a screen.

The installation directory selection remains much the same as in the manual. Note, though, the addition of a few more buttons in the dialog box, giving the extra options of backstepping or of help selection.

3 Keyboard Usage

EasySim version 2.00 introduces use of the keyboard to the program. In particular the cursor, escape and enter keys are able to emulate the operation of the mouse. The cursor keys move the *EasySim* cursor up, down, left or right depending on the key pressed. The escape key functions in the same way as the right hand mouse button and the enter key in the same way as the left hand mouse button.

The space key is also now used by *EasySim*. Whilst dragging an item from the toolbox the space key may be used to reverse the objects orientation. Each press of the space key will horizontally flip the item attached to the cursor. Once an item has been placed *EasySim* reverts to its line drawing mode. Whilst in this mode pressing the space key will re-select the last gate selection and attach it to the cursor.

4 Enhanced Chip Library

EasySim version 2.00 introduces another 5 items to the chip library.
These are:

1. A variable speed oscillator.
2. A 2 to 1 line multiplexer.
3. A 1 to 2 line de-multiplexer.
4. A 2 to 4 line decoder.
5. A 4 bit binary up/down counter.

Further information, to that given below, on these additons is available from the *EasySim* online help. Note that, as an enhanced library, these items are not selectable from the toolbox.

4.1 The oscillator

 One of the major additions to the functionallity of *EasySim* is the addition of the variable speed oscillator as a logic source. The output of the oscillator toggles between a logic 1 and a logic 0 at a speed that may be user selected, within the range of one cycle every 100ms to one cycle every 2.5 seconds.

The speed of the oscillator may be selected only whilst the circuit is in *power-on* mode. In this mode, if the mouse left button is clicked with the cursor over the oscillator, a dialog box with a slider will be displayed. Adjusting the slider will change the speed of the oscillator. Note that the oscillator timing is affected by such things as screen redraw time and will not always be accurate.

Note also that only one oscillator may be used at any one time and that selection is only by means of the sources menu.

4.2 The 2 to 1 line multiplexer

The 2 to 1 line multiplexer is an addition to the gates menu. It provides an output selectable from one of two inputs.

4.3 The 1 to 2 line de-multiplexer

The 1 to 2 line de-multiplexer is an addition to the gates menu. It provides 2 outputs of which either one of which may be selected to pass though the logic level appearing at the data input. The non-selected output remains at a logic 0 level.

4.4 The 2 to 4 line decoder

The 2 to 4 line decoder is an addition to the gates menu. It provides a logic 1 level at an output corresponding to the binary level present on its data inputs. This decoder is enabled by a logic 1 level on its E (enable) input. A logic 0 on this input will force all outputs to a logic 0 regardless of the levels present at the A and B inputs.

4.5 The 4 bit binary up/down counter

The 4 bit binary up/down counter provides a binary counter, with asynchronous reset, that may count in either the up or the down direction. The clock input is applied to the C input and the count direction is controlled by the U input, a logic 1 makes the counter count upwards and a logic 0 downwards.

5 The Toolbox

EasySim now has a fully floating toolbox. This toolbox will always remain wherever placed on the screen and will not scroll with the *EasySim* design window. The toolbox visibility may also be toggled by the toolbox option now existing in the options menu.

The toolbox may also be closed by clicking the left mouse button on the button at the left side of the toolbox title bar.