

# **LINCHART USER GUIDE**

**Linear Graphics Limited  
28 Purdeys Way,  
Rochford,  
Essex SS4 1NE.**





## **CONTENTS**

Introduction

Operating instructions

- A. Create a data file
- B. Create a bar chart file
- C. Draw a bar chart
- D. Create a pie chart file
- E. Draw a pie chart
- F. Catalogue files
- G. Re-configure system
- H. Help

# REPORT

## CONTENTS

1. Introduction	1
2. Objectives	2
3. Methodology	3
4. Results	4
5. Discussion	5
6. Conclusion	6
7. References	7
8. Appendix	8

## INTRODUCTION

LINCHART is a disk-based software package that allows the creation, storing and labelling of bar and pie charts.

It is designed for use with:—

- 1) A BBC Model B microcomputer equipped with the Disk Filing System, Basic II and operating system 1.2 or higher, and
- 2) The Linear Graphics Limited (LGL) PLOTMATE pen-plotter.

The user has full control over every aspect of the finished drawing, however, matters may be simplified by choosing to follow the 'default' parameters embedded in the software.

Direct output from keyboard to plotter is not possible; a data file must first be created (this only takes a matter of seconds). Thereafter, specific details of the desired drawing are stored on disk in 'parameter-files'.

Once these parameter-files are established, the software will automatically use them every time a pie or bar chart is drawn. The user may also re-edit the files at any stage.

The default set-up is for 'solid' pie and 'flat' bar diagrams. Once the user is familiar with the system it is strongly recommended that the much more graphic 'solid' drawings are selected. When drawn with a pen, these shapes contribute a most attractive and extremely lucid method of displaying numeric values.

## CAUTION

Before proceeding further write-protect the LINCHART master disk and back it up. It is then advisable to use this back-up copy for working with. To back up the disk, follow these instructions:

### For a Single Disk System

- 1) From the keyboard enter
  - \***ENABLE** (RETURN)
  - \***BACKUP 0 0** (RETURN)

# LINSOFT

Screen prompt

**INSERT SOURCE DISK AND HIT A KEY**

in this case place the LINCHART master disk carefully in the slot and press a key.

Screen prompt

**INSERT DESTINATION DISK AND HIT A KEY**

in which case remove the LINCHART master disk and replace with a blank formatted disk then press a key.

Repeat this procedure until no more prompts appear on the screen.

## **For a Twin Disk System**

Place the LINCHART master disk in drive 0 and a formatted blank disk in drive 1 then enter from the keyboard.

✧**ENABLE** (RETURN)

✧**BACKUP 0 1** (RETURN)

Remove disks when prompt returns on the screen.

The backup disk will be known as the **Program Disk**.

It is a good idea to have a spare blank formatted disk ready on which LINCHART files can be stored. This disk will be known as the **Data Disk**.

## **General information**

Pressing BREAK while the system is up will return the menu at any time. Do not carry out this operation while a disk drive light is on, as a considerable amount of information is written to the disk at unpredictable moments.

Pressing ESCAPE at any time will either have no effect or will return the menu.



## OPERATING INSTRUCTIONS

Insert the LINCHART disk in disk-drive 0. Hold the SHIFT key down, then press and release the BREAK key.

The following menu will appear which offers eight options:

<p>Options:</p> <ul style="list-style-type: none"> <li>A. Create a data file</li> <li>B. Create a bar chart file</li> <li>C. Draw a bar chart</li> <li>D. Create a pie chart file</li> <li>E. Draw a pie chart</li> <li>F. Catalogue files</li> <li>G. Re-configure system</li> <li>H. Help</li> </ul> <p>Which?</p>
--

### Option A: Create a data file

This option must be run before any data can be sent to the plotter.

There are two sub-options:

- 1 The first allows numeric data to be typed directly from the keyboard, ending the list simply by pressing RETURN. Any type of numeric data may be entered provided no variables are used. For example, the expression **LOG(SIN.3)\*2** is acceptable.
- 2 The second allows a standardised LINCHART file to be created from any ASCII disk file already in use with the equipment. The software simply searches the file for numeric data, stores it in a new file, and ignores any other alphabetic strings it may find. It will not understand non-standard or binary files.

In both cases the resultant data files are stored in disk directory 'D,' that is, the full file-name begins with 'D.'

Note: This initial designator is never typed in.

If a single disk system is being used the computer will prompt interchange 'program' and 'data' disks as necessary. It is important to make sure all data disks are formatted before trying to use them.

**Note:** Ensure the drive lights are out before removing disk.

To avoid the time-consuming operation of interchanging disks it is possible to copy across the programme disk to all the data disks. Bear in mind, that the programs themselves take up a considerable amount of space and it may not be possible to store data for many charts.

## **Option B: Create a bar chart file**

To help understand the creation of bar charts it is recommended that the user initially follows through the operations presented on the screen and watches the results, at the same time referring to these notes to clarify any points.

Before a bar chart can be drawn a bar chart file must be created from data stored in a data file.

- B.1 The data-files are first catalogued for inspection on the screen and a file name selected.
- B.2 Next the program looks for a 'parameter' file. If it finds one, options are given to edit the already existing parameters, or edit the 'default' parameters. If no parameter file exists the option to edit 'default' values is offered.

These 'default' values are permanently stored in memory and have been calculated to suit the widest range of data-types.

**Note:** Familiarisation with the system is strongly recommended before starting to change these values.

Certain values are dependent on the nature of the data. Additionally, a change in the value of one parameter may cause a change in another. This is indicated on the display by the term 'linked to'. For example, a change in the total width of the display will result (in most cases) in a change in the width of individual bars and vice versa.



Most of the editing procedures are self-explanatory.

All measurements are in BBC screen units, that is, in the horizontal (X) range from 0 to 1280 and in the vertical (Y) range 0 to 1024.

The default description of all file-types as 'one-dimensional' arrays may be initially confusing.

An indication that a one-dimensional array is NOT required results in the invitation to define the size of one dimension of a two-dimensional array. This results in horizontally 'stacked' bars to represent one of these dimensions.

Notice that more colours are available than there are pens. This is achieved by over-plotting, which is time-consuming.

- B.3 After the parameters have been set, label files can be created or edited. The label editing routine is self-explanatory. Labelling is presented for inspection accompanied by a simplified version of the bar-chart. Label-positioning and choice of character-size are calculated automatically by the software.
- B.4 After the label file has been created the main menu will be re-displayed.

## **Option C: Draw a bar chart**

- C.1 Two options are given; output to a plotter or a 'dummy' run on screen. The latter imitates almost exactly the plotter output. This option enables the user to check the output thoroughly before committing to paper.
- C.2 Bar chart files are first catalogued for inspection on the screen and a file name selected. The created bar chart will then be displayed on the screen or plotted. Messages will be displayed when the pen is to be changed.

## **Option D: Create a pie chart file**

To help understand the creation of pie charts it is recommended that the user initially follows through the operations presented on the screen and watches the results, at the same time referring to these notes to clarify any points.

Many of the points in Option B apply to the pie chart routines as well.

# LINSOFT

It is again strongly advised that a start is made by using the default values provided in the software.

All measurements are in BBC screen units, that is in the horizontal (X) range from 0 to 1280 and in the vertical (Y) range 0 to 1024.

D.1 All the data values in the file have been previously created during operation. To 'separate' one of these items type in the number (NOT the value) of the selected item of data. This will result in the appropriate sector, or slice, of the pie being moved away from the centre. Typing default option 0 leaves the pie complete.

D.2 The meaning of 'axis-ratio' is as follows:

Pressing RETURN or 0 or 1 in response to this item results in a circular pie. Other values will give an ellipse which is longer than it is tall. It does not matter which way round the ratio of height to width is viewed; for example the figures 0.25 and 4.0 will give identical results.

The selection of an ellipse, will result in it being drawn as a two-dimensional representation of three dimensions. This effect is striking, though inevitably time-consuming.

D.3 If hatching option number 1 is selected, the hatching density is made proportional to the size of the sector, and hatching takes place alternately at a right angle and parallel to the bisector of the sector. The higher the hatching number the denser the pattern.

If the meaning is not clear, try it out and watch the results.

D.4 When creating labels a start is made with upper and lower titles. Press RETURN if none is required.

Individual sector labels are orientated to a cross-shaped cursor which appears on screen. The software makes a guess at where the label is wanted, but the four direction ARROW-keys may be used to re-position it.

Note: If the cursor is to the right of the centre of the pie it contains the letter R as a reminder that the label will be aligned to the right of the cursor. Conversely the letter L appears when the label is to the left of centre, as a reminder that it will be aligned with the left of the cursor.

# LINSOFT

Pressing function key f0 before entering a label, results in a line being drawn from the label to a sensible point in the relevant sector.

This is helpful in attaching labels to particularly small sectors.

Pressing function key f2 before entering a label, will display the current character size. To alter the size enter a new value, (the lower the number the smaller the size) or press RETURN to preserve the current value.

All labels are entered at the top of the screen and only appear on the true display and in the LGL plotter character-set when confirmed by RETURN.

Pressing RETURN alone means no label is required.

After each label appears on the true display, it must be confirmed by pressing RETURN, or deleted by pressing SPACE.

As each section is drawn on screen, its original numeric value and its value as a percentage of the total data are displayed so that this information may be included in the labels if required. Notice that the pie chart drawn is a considerably simplified version of the final output.

## **Option E: Draw a pie chart**

- E.1 Two options are given; output to a plotter or a 'dummy' run on screen. The latter imitates almost exactly the plotter output. This option enables the user to check the output thoroughly before committing to paper.
- E.2 Pie chart files are first catalogued for inspection on the screen and a file name selected. The created pie chart will then be displayed on the screen or plotted. Messages will be displayed when the pen is to be changed.

## **Option F: Catalogue files**

Data files and parameter files are displayed, but not program files.

## **Option G: Re-configure the system**

The package comes designed to work with a single disk drive. It works much faster with two drives. This option allows for re-configuration of the system for two drives. A return to single drive configuration later on is carried out through this option. The software always knows how many disks are in use. The option also allows the system to change from the user port to the printer port (and vice versa) for output to the plotter.

Note: This option re-writes the menu to the program disk. To guard against accidental damage to the disk, caused by power failure or pressing the BREAK key during writing, this option should not be selected until a security copy of the program disk has been made.

## **Option H: Help**

This option displays a review of the keyboard codes used in the LINCHART instructions.









