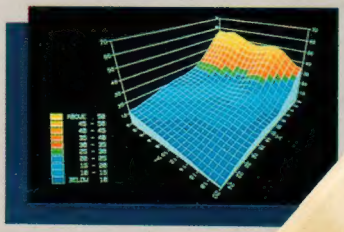
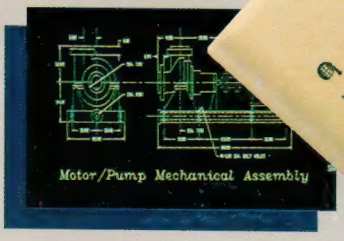
WINNER

M3™





Proportional (Analogue) Mouse
for Commodore ® 64/128

M3 MOUSE

by

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To protect your M3 Mouse during shipping the tracking ball is packed separately from the mouse. Before using your Mouse you will need to do the following:

1. Hold mouse upside down
2. Place the ball in mouse and secure retaining cover in place.

CONNECTING M3 MOUSE

The M3 Mouse connects to the Commodore computer via the joystick (Port 1) at the right hand side of the computer casing.

*Note 1: Warning! If problems occure with keyboard while trying to load programs, disconnect mouse, load program and then re-connect the mouse.

HOW TO SET UP YOUR M3 MOUSE MODES

The M3 mouse have 3 modes

* Proportional Modes: Turn on power without hit any button.
* Joystick Mode: Hold down right button while turnon power (or hold down button when connecting game port while the power is on)
* Paddle Mode: Hold down left button while turn on power
LOAD THE DISK "GRAPHIC & UTILITY"

The main menu is initially
LOAD "* ', 8, 1 (RETURN)

2 PROGRAMS IN SCREEN

(1) UTILITY
(2) GRAPHIC

BY KEY IN: 1 TO RUN UTILITY
2 TO RUN GRAPHIC

To understand some of the things this documentation will encompass, you should be familiar with the following terms:

WINDOW: an area of enclosed text or information that may be manipulated as the user wishes.

PULL-DOWN MENU: A drop-down list of items or choices from which a user may choose a function or activity.

ICON: A small picture that represents a related function or option.

POINTER: An arrow used to manipulate objects or choose options. Its movement is controlled by the mouse.

MOUSE: Small, furry rodent, found in dark, small places, known to make squeeking noises.

With those definitions in mind, you are now ready to learn how to manipulate the windows and menus.

Using screen windows is not difficult. All it requires is that the user keep in mind that each window is independent of the others and in itself operates like a small screen in itself.

The top shaded row of the window is known as a DRAG BAR. If the user holds down the button while on the DRAG BAR, brackets will appear and when the button is released the window will be moved to where the brackets are.

The top-left corner is used to CLOSE, or erase, a window. If you press the button while on the corner, the window will erase.

The top-right corner is used to EXPAND the window. Pressing the button while on it will result in the window expanding to fill the whole screen.

Pressing the button once more while on this corner will cause the window to revert to its previous location and position.

The bottom-right corner is used to change the size of the window. A set of brackets will appear and when the button is released, the window will expand or contract to the size indicated by the brackets.

The Up/Down Arrows are used to scroll the contents of the screen window up or down.

If you have more than one window on the screen and wish to work with a different one, all you need to do is press the button while the pointer is on any portion of the new window you wish to manipulate.

Up at the top of the screen is the word OPTIONS. If you press the button while on it, you are given a PULL-DOWN MENU of options. To choose an option from a pull-down menu, move the pointer to that option until it lights up. Then press the button. You will then be forwarded to that option or activity.

Here is a desription of the various options available from the OPTION pull-down menu.

WASTEBASKET

Allows you to CLOSE the current window. You are given the chance to abort.

DISK

Gives you several options:

Browse Directory: Displays the directory into a window.

Load Directory: Loads the complete contents of the directory into a window.

Format Disk: Allows you to format a disk with a given name and ID.

Initialize Drive: Allows you to reset the drive.

Validate Disk: Allows you to "clean up" a disk. More information is given in your disk drive manual.

Enter other DOS Command: Allows you to send any DOS command as specified in your disk drive manual.

Quit to Options: Exits to the OPTION pull-down menu.

FILE

Also gives you several options:

Scratch File. Erases a chosen file from a disk.

Rename File: Changes the name of a given file.

Browse a File: Displays a chosen file in a window.

Load File into Window: Loads the entire contents of a file into a window.

Save Window into File: Save the complete contents of a window into a file.

Copy a File: Will copy a file from one disk drive to another.

Quit to Options: Exits to the OPTION pull-down menu.

CALCULATOR

Shows a calculator, It operates just like a real one, To "press" a button, move the pointer to the one you want and press the button. You may also use the keyboard. Hit "off" to exit.

TERMINAL

Allows you to use a terminal emulator. Communcations are done within the borders of a chosen window.

NOTEPAD OPTIONS

Gives you several options:

Open/Edit a Window: Allows you to open a new window and enter text, or edit the contents of a already exisiting window. The editor works much like the standard commodore screen editor.

Close a Window: Allows you to close the current screen window.

Close all Windows: Allows you to erase all of the windows.

Quit to Options: Exits to the OPTION pull-down menu.

To exit from OPTIONS, go to the top until the word OPTIONS lights up again. Then press the button.

There is another pull-down menu available to you. It is called PREFERENCES.

This allows you to custom-tailor the way things look an operate

You are given the following options.

COLOR ADJUSTMENT

Allows you to go to any of the color items and change them. Just go to the desired item and press the button until the square holds the color you wish to change it to. To exit choose the item "EXIT" at the bottom.

MOUSE ADJUSTMENT

Allows you to adjust 3 of the characteristics of mouse control. You may edit the Maximum Speed, Minimum Speed, and Acceleration of the mouse. To exit select "EXIT" at the bootom. This function for M-I mouse (JOYSTICK) mode only.

MISC. ADJUSTMENT

Gives you five options.

Adjust Screen Fill, 1-3: Allows you to change the screen fill to either the backround color, a mixture of the text color and backround or the text color.

Change Font: Allows you to choose from any one of th 4 provided character fonts.

Exit: Leaves the PREFERENCES pull-down menu.

M3 MOUSE GRAPHICS

The M3 Mouse graphic package adds a new dimension to your Commodore 64/128 enabling fast, enjoyable interaction with your P.C.

The utilities provided enable the advanced graphic facilities of the Commodore 64/128 to be used to their full potential. They allow the owner to easily create stand alone computer art or graphic data files which can be used in other programs either in machine code or basic.

A mouse controller utility is provided which allows the mouse to be easily integrated into the users own basic and machine code programs. Two control buttons will be available to the user. An ICON generator is also provided for the user to create ICON control designs using user defined graphics. The mouse pointer provided by the mouse controller unit is a sprite graphic character which can be changed using techniques documented in the user quide.

A Sprite designer utility is provided which can be used to produce mouse pointers or for animation/graphic effects in the users own programs.

MAIN MENU

When main menu appears, position mouse over selection you wish to use and then press the left button to load the selection.

The following four utilities are available from the main menu screen:

1. HI-RES GRAPHIC DESIGNER.
2. SPRITE DESIGNER.

3. ICON DESIGNER.
4. MOUSE CONTROLLER.

HI-RES GRAPHIC DESIGNER

The Hi-Res Graphic Designer enables the creation of 16 colour pictures on a bit mapped screen. The pictures created can be used in the users own program or for display purposes only The pictures are displayed in the Commodore 64/128 multi-colour mode with a resolution of 160 x 200 pixels.

No keyboard inputs are required except for the Text mode and Fine work. Pictures can be saved to Disk and reloaded at a later date.

A choice of nine drawing brushes are available which can be used with most graphic functions. The complete Commodore graphic characters are also available as brushes and are gained using the text mode. The background colour is also selectable and can be changed after a picture has be started.

The text mode enables two sizes of text to be printed on the graphic screen and cursor and delete facilities are provided.

A fine pen facility is also included which enables pixel movement using keyboard control. This enables the creation of detailed figures and operates with any of the nine brushes or any commodore graphics character selected during the text mode.

A text window is provided for entering file names and for display of disk error messages. The window also displays the currently selected graphic function.

The graphic functions include: draw, line; rays; fill; text, frame; box; circle; aerospray; rubber; horizontal lines; vertical lines and fine pen.

INSTRUCTIONS FOR HI-RES GRAPHICS DESIGNER

After selecting the Hi-Res Graphic Designer from the main menu the menu page will be displayed. The menu page consists of an Icon selection table, Colour selection for both foreground and background, a brush selection window and a text window for transmitting messages to and from the computer.

The Hi-Res drawing page is gained by pressing the right mouse button and the menu page is regained by expressing the same button. The mouse pointer on the menu page is displayed as a hand finger while the pointer on the drawing screen will be the brush that has been selected. In draw mode the mouse pointer will switch between black and white so that it can be seen in all backgrounds.

The left button is used to select drawing functions, brushes and colours.

A function is selected by positioning the finger of the mouse pointer on the Icon and pressing the left button. The function in operation is always displayed in the Text Window. The default condition is the draw function.

Brushes are selected by positioning the tip of the mouse finger on the required brush shape in the brush window and pressing the left button. The default brush is the smallest a choice of 9 brushes being available. All graphic functions will be carried out with the brush that is selected.

The drawing colour is selected by positioning the tip of the mouse pointer on a colour on the left column. The drawing colour in operation will be displayed on the screen border. The background colour is selected in a similar manner from the right hand column. The colour selected will be displayed on the screen border. Note that before a picture is saved the correct border colour should be chosen as this will be shown when the picture is displayed on its own.

The operation of each function available from the ICON selection table are as follows:

DRAW

On entering the drawing screen the drawing will commence when the right button is pressed. If the mouse is held still and the left button pressed then an exact copy of the brush will be left on the page.

LINE

Select the start position and press the left button. A marker will be left on the page at that position. The user should then select the other end of the line and press the left button again for the line to be drawn.

LINES

The operation for drawing the first line is the same as for LINE. Subsequent lines as connected to the end of the last line whenever the left button is pressed. To start another sequence the menu page must be re-entered.

FILL

First select the colour to be used. Position the mouse pointer on the inside of the area to be filled and press the left button. The operation can be stopped by pressing the left button again. This is extremely useful if a mistake is made and complete screen is being covered. Complicated priority logic is used to prevent colour distortion at colour distortion at colour boundaries. This is due to the fact that only three colours plus background can exist in any one character square Lines have a lower priority than filled area so they will be replaced first. In a few cases a re-organisation of the drawing will be required.

TEXT

Two text modes are available:

a) Small text; displayed in text window as TEXT 1
b) Large text; displayed in text window as TEXT 2

Small text is selected by positioning the mouse pointer to the left of the text ICON and the large text to the right hand side. The small text is the same size as the normal Commodore graphics, but alterations have been made to their shape to compensate for the loss of resolution in multi-colour mode. The large text is twice the size of the normal character set in the x direction, but the same shape.

To print text on the drawing screen position the mouse pointer at the required start location and press the left button. The utility will now be under the control of the keyboard until the left button is pressed again. The Commodore cursor keys will move the printing position round the screen in character steps highlighted by a flashing marker. The delete key will rub out the character above the flashing marker. If a mistake is made therefore, a step back should be taken and the delete pressed.

Once the left button is pressed again to release the keyboard control the mouse pointer can be moved again to another position and the process repeated or the menu can be regained by pressing the right button.

If the right button is pressed after control is returned to the mouse then the menu will be regained with the original brush in situ. If the right button is pressed whilst under keyboard control then the menu will be regained with the last character pressed as a new brush. This enables the complete upper case Commodore graphic set including graphic characters to be used as drawing brushes.

FRAME

Enter the Drawing Screen. Position the mouse pointer in one corner of the frame and press the left button. A flashing marker will be left. then position the mouse pointer in the opposite corner of the frame and press the left button again. The frame will then be drawn in with whatever brush is selected.

BOX

Same as frame except that this time the frame will be filled in with the drawing colour.

CIRCLE (CIRC)

Enter the Drawing screen. Position the pointer to the centre of the circle and press the left button. Then move to a point on the radius and press the left button again. The circle will then be drawn in.

The circle will start at the point on the radius where the left button is pressed and continue in a clockwise direction. The drawing of the circle will stop when the left button is pressed again. Arcs can therefore be drawn.

RAYS

Enter the Drawing screen. Select the centre position of the ray and press the left button. A flashing marker will be left. From then on until the menu page is re-entered, every time the left button is pressed a line will be drawn to the centre position of the ray.

AERO SPRAY (AERO)

First of all the coverage of the aero spray must be chosen.Enter the Drawing screen, position the pointer near the centre of the screen and press the left button. A marker will be left, Move the mouse

pointer away from the marker to the radius of the spray required and press the left button. The aero spray is now ready for action. Position the pointer where the spray is required and press the left button.

The spray can then be moved around the screen using the mouse. The spray is stopped by again pressing the left button.

CLEAR

This function clears the Drawing screen completely. To effect the clearing of the screen the right button must be pressed to ensure no mistake is made. After the screen is cleared the DRAW function will be in operation.

RUBBER (RUB)

The "rubber" function enables parts of the screen to be cleared. The size of rubber should first be selected from the brush window. The drawing screen should then be entered and the pointer position at the area to be cleared. Erasing is carried out when the left button is depressed.

To clear parts of the screen, use the fill command will a drawing colour which is the same as the background colour.

HORIZONTAL (HORZ)

This command allows horizontal lines to be easily drawn by disabling the pointer movement in the vertical direction. Enter the Drawing screen select the start position and press the left button. Then move to the end position and press the left button once more to complete the line. Again a marker will be left at the first position.

VERTICAL (VERT)

This command is the same as the horizontal except that the move-

ment of the mouse pointer in the horizontal direction is disabled.

FINE

This command enables detailed sketching to be carried out with pixel controlled accuracy. Enter the Drawing mode, move the pointer to the position in the screen when the fine work is to commence and press the left button. A flashing marker will be displayed which is now under control of the keyboard. The controls are as follows:

Q	D
W	Z
E	X
A	C

Note that they form a key pad on the left of keyboard.

Any brush including Commodore graphics character (see Text mode) can be used with the command. To plot the brush press P and to clear press O.

LOAD

This command enables new HI-RES data files created by the save command to be reloaded into the utility. The files will be stored on Disk.

After the load option has been selected using the left button, right button should be pressed for the file name prompt to be displayed. The fild name should be entered in the Text Window using the keyboard and the return key pressed. The file name muse be less than 13 characters as a "PIC" subscript is added to the start of the name for identification purposes.

After loading, an okay message or and error message will be displayed

in the text window. Control of the mouse is regained by pressing the left button. The load can be aborted before the return key is pressed by also pressing the left button.

SAVE

This command is the same as load except that the current HI-RES screen is saved to the name file specified. The pictures can be reloaded and changed at a later date or displayed on their own (See "display of stand alone hi-res graphics" at the end of the user guide).

The border and background colours displayed will be the same as those last used by the graphic utility.

N.B. Formatted disks must be used (see disk drive handbook)

PRINT (CO)

This option enables screen dumps of the pictures created to be sent to the printer via the serial port. Select the print (PR) command using the left button. Printing commences when the right button is pressed.

USER PORT PRINT (CE, S1, S2)

If you have an interface that connects to the user port, select CE, S1 or S2 for different types of screen dumps using the left button, printing commences when the right button is pressed.

EXIT

This command will return computer control to the main menu selection page. After positioning the pointer on the exit Icon EXIT will appear in the lower window. To avoid exiting by mistake you now have to press the right button to exit.

M3 MOUSE – SPRITE DESIGNER

The M3 Mouse Sprite Designer enables the user to easily create Sprite (MOB) characters in either normal or multi colour mode. These Sprite characters can subsequently be used in the users own programs

The main screen consists of a design grid, a pull down ICON key pad and an actual Sprite size viewing area with its own background and character colours.

The design grid consists of 24 x 21 characters which can either be a ball character representing a sprite pixel on or a dot repressenting the off state.

A ball character is selected by positioning the Mouse pointer over the dot and pressing the left button. A dot is selected by positioning the Mouse pointer over the ball character and pressing the right button.

The actual Sprite definition is shown in the top right hand corner of the screen and has its own background colour. The Sprite can be displayed in its expanded X or Y form and also as a multi-colour Sprite.

The Sprite number is shown above the actual Sprite definition. The number represents the actual Sprite pointer value. See Commodore 64 User Manual pages (69-76). Sprite pointers can have values between 13 and 15 (tape buffer) and between 128-255 (memory location 8192 to 14336).

The ICON menu is pulled down by positioning the Mouse pointer to the right of the design grid. The options included are as follows:

B – Backgroung Colour of actual Sprite definition (cycles through 16 colours)
C – Colour of actual Sprite definition (cycles through 16 colours)

0 – Sprite multi-colour 0 (multi-colour mode only)
1 – Sprite multi-colour 1 (multi-colour only)
U – Move up Sprite pointers by 10 positions
D – Move down Sprite pointer by 10 positions
+ – Select next Sprite in sequence
– – Select previous Sprite in sequence
M – Multi-colour mode (on and off)
E – Erase current Sprite
L – Load new sprite data from Disk
S – Save Sprite data to Disk
X – Expand in X direction (on and off)
Y – Expand in Y direction (on and off)
R – Reverse all pixel states (ie on to off and vice versa)
Q – Return to main menu

The options are selected by positioning the mouse pointer on the ICON key and pressing the left button. The Mouse pointer can be positioned anywhere on the key.

Consecutive blocks of Sprites can be saved together. The blocks are saved to and loaded from the actual addresses as used by the Sprite designer. On selecting the Save option from the ICON menu the Disk input/output screen will be displayed. When prompted, type in the start Sprite pointer required followed by pressing the return key. The lowest Sprite pointer must be selected first and Sprites in the tape buffer must be saved separately. The end sprite pointer must then be entered the same way.

After the start and end pointer of the block have been entered the file name will be asked for. This should be entered as a 16 or less character string followed by pressing the return key. In the case of the load option a file name only will be aksed for.

Disk error messages are displayed if they occur and the main screen can be regained by pressing the left button on the Mouse. The main screen can also be re-entered during insertion of keyboard data by

pressing the right button on the Mouse.

If Sprites with pointers between 128 and 255 are used in a basic program then they must be protected by lowering the basic memory before the sprites are loaded. This is accomplished by the following four pokes:

```
POKE 51, 0
POKE 55, 0
POKE 52, 32
POKE 56, 32
```

When multi-colour mode is selected the dots on the design grid must be trated in pairs, each combination producing a differect colour which will be shown on the actual Sprite definition. The colour representing each combination are as follows:

00 – background
01 – Sprite multi-colour 2
10 – Sprite colour
11 – Sprite multi-colour 1

A sample program using the sprite designer to produce new mouse pointers is given at the end of the mouse controller section

M3 MOUSE – ICON DESIGNER

The M3 Mouse icon designer enables the user to easily create 3 x 2 blocks of user defined characters. These blocks can be kept together as an ICON or the individual user defined characters can be used separately.

The main screen consists of a design grid, a pull down icon key pad and an actual representation of the ICON user defined graphic block. The actual size ICON picture has its own background and character

colour.

The design grid consists of 24 x 21 characters which can either be a ball character representing a pixel on and a dot representing the off state. A dot is changed to a ball character by positioning the mouse pointer over the dot and pressing the left button. A ball character is changed to a dot by positioning the mouse pointer over the ball and pressing the right button.

The actual size iconis displayed in the top right hand corner of the screen and has its own background colour. Both the background and character colour can be selected using the icon key pad. In multi-colour mode the two extra background colours can also be selected.

The ICON number is shown above the actual size display. The start address for each ICON is given by the equation ICON START ADDRESS = (ICON NO-1) x 48 + 8192.

The address of the individual characters within the ICON block are given by the equation.

CHARACTER START ADDRESS = ICON START ADDRESS + X pos x 16 + Y pos x 8
Where X pos = 0, 1, 2
Y pos = 0, 1

The icon key pad is pulled down by positioning the mouse pointer to the right of the design grid. The options included are as follows:

B – Background colour of actual size display (cycles through 16 colour)
C – Character colour of actual size display (cycles through 16 colour)
1 – Background colour #1 for actual size display (multi-colour mode only)
2 – Background colour #2 for actual size display (multi-colour

mode only)

U – Increase ICON number by 10 positions.
D – Decrease ICON number by 10 positions.
+ – Select next ICON in sequence
– – Select previous ICON.
M – Multi-colour mode (on and off)
E – Erase current ICON
L – Load ICON data blocks from Disk.
S – Save ICON data blocks to Disk.
G – Deposit the complete upper case character set into the first 86 ICON positions (6 per position) NB This may take several seconds.
X – Expand in X and Y directions.
R – Reverse all pixel states (on to off and vice versa)
Q – Return to main menu.

Consecutive ICON blocks can be saved together. The blocks are saved to and loaded from the actual addresses as used by the ICON designer program. On selecting the save option from the ICON key pad the disk input/output screen will be displayed. When prompted, type in the start ICON number followed by pressing the return key. Then type in the end ICON Number followed by RETURN The lowest ICON number must be entered first. A total number of 170 ICONS can be created and saved. After the start and end ICON numbers have been input the file name will be asked for This should be entered as a 16 or less character string followed by a return. When the load option is selected only the name file will be asked for.

For both load and save options, disk error messages will be displayed if eror occur. The main screen can also be re-entered by pressing the right button the Mouse.

To enable the Commodore character set to be easily re-defined the complete upper case character set is deposited into the first 86 ICON position when the G option is selected. Six characters are contained in each ICON. These can be changed and resaved as an alternative

character set.

The deposit option should also be called in order for Commodore graphics to be used along with ICON blocks and user defined graphics. The G option should first be selected to deposit the commodore graphic characters. The user should then step through the ICON blocks until a display is reached which is free of required Commodore graphics.

When multi-colour mode is selected the dots on the design grid must be treated in pairs, each combination producing a different colour which will be shown on the actual size display. The colours representing each combination are as follows:

00 – .Background #0
01 – Background #1
10 – Background #2
11 – Colour memory

INCORPORATION OF ICON BLOCKS AND UDGS INTO BASIC PROGRAMS

The ICONs and UDGs produced by the ICON designer must first of all be protected by lowering the top of basic to below the UDG data area. This is accomplished by the following pokes:

```
POKE 51, 0
POKE 55, 0
POKE 52, 32
POKE 56, 32
```

The character date produced by the ICON designer should then be loaded as follows:

```
LOAD "File Name", 8, 1
```

Note that since the load is called from within a basic program the program will return from the start. To prevent the data from being repeatedly loaded it is necessary to set a flag to tell the program that the data is already loaded. (See sample program)

The character pointer in the computer hardware must now be redirected to the start of thenew character data. Note that only 255 different characters can be displayed at once on the screen. To display the first 255 characters corresponding to ICON numbers 1 to 42 the following POKE must be carried out:

POKE 53272, (PEEK (53272) NAD 240) + 8

The character sequence of each ICON block is as follows:

0	2	4
1	3	5

The character number which should be poked onto the screen is given by the following algorithm:

Character No. + (ICON NO-1)* 6+ character sequence no.
Where the character sequence number is defined as above.

At the same time as the character number is POKE to the screen location the required colour must be set in the colour memory using the colour codes given in the user manual.

The screen memory defaults to address 1024 and can be relocated if required. The colour memory is always located at 55296. To display a character at position X (0-40) and Y (0-25) the following POKE should be carried out:

POKE 1024 Y*40 + X, CHARACTER NO.

To display the character colour the following POKE should be carried

out:

POKE 55296 + Y*40 + X, colour code:

To use Multi-colour mode first set up the other two background colours as follows:

POKE 53282, colour code: REM Background #1
POKE 53283, colour code: REM Background #2

The multi-colour mode is then set by the following POKES:

POKE 53270, PEEK (53270) OR 16

and turmed off by the POKE

POKE 53270, PEEK (53270) AND 239

The character colour and character number are set as in the normal mode.

In multi-colour mode the bit patterns must be treated in pairs losing half the normal resolution. The bit pairs correspond to the following colours:

00 — Background #0
01 — Background #1
10 — Background #2
11 — Colour specified in colour memory

SAMPLE PROGRAM FOR USER DEFINED CHARACTERS

A program for displaying user defined characters generated by the ICON designer is as follows:

```
10 POKE 51, 0: POKE 55, 0: POKE 52, 32: REM reserve memory
20 IF A=0 THEN A=1: LOAD "FILE NAME", 8, 1. REM load
   character data
30 POKE 532772, (PEEK (532772) AND 240) + 8. REM redirect
   character pointer to new data
40 FOR Y=0 TO 25: X=Y: POKE 1024 + 40*Y +X, O:
   POKE 55296 + Y*40 + X, 6: NEXT
50 REM display the first user defined character using the colour
   BLUE
60 END
```

MOUSE CONTROLLER

The mouse controller enables the user to interface with the interrupt driven mouse control rountines. This allows the mouse to be controlled by the users own basic or machine code programs. The mouse poiter initially shown will be a hand with a pointing finger, but this can be changed later using the sprites produced by the Sprite Designer. The mouse co-ordinates are store in memory along with the state of the three mouse buttons. The contents of these locations can be obtained from basic using the PEEK function.

The sprite pointer movement can be inhibited in either the vertical or the horizontal direction by setting a software switch using the basic POKE command. The controller routine resides in the address space 52736 to 53247 ($CE00-$CFFF). This area does not restrict basic, but must not be interfered with by machine code programs. The sprite pointer is stored in the tape buffer in locations 896-959 (0380-03BF). This area of memory must also be preserved by machine code programs unless the complete sprite definition is changed. (i.e. another pointer is created.)

The mouse controller routine is loaded into memory and initlised from the main menu page. Otherwide the file must be loaded from tape or disk using the command:


```
LOAD "CONTROL", 8, 1, (DISK)
```

The routine is switched on by a machine code sub routine call to the address 52800 ($CE40). This is carried out in basic by the command:

```
SYS 52800
```

The routine is switched out by a machine code sub routine call to the address 53216 ($CEFO). This will return the interrupt system to normal.

The interrupt routine will always display sprite 0 as the mouse pointer. The sprite will initially be a hand with a pointed finger, but this can be altered by the users program using the sprite hardware registers. This is accomplished using the sprites produced by the M3 Mouse Sprite Designer as follows:

1. Select the sprite designer from the main menu and create the definition (shape) required. If only a small number of sprites are required then use the tape buffer as this does not require the top of basic memory to be lowered.
2. Load the mouse controller into memory and initialise with SYS 52800.
3. Load the sprite data into memory.
4. Then change the sprite pointer to the new sprite definition as follows:

   POKE 2040, sprite No, where sprite number is the number shown by the Sprite Designer.

Note that sprite number 14 is the sprite number used when the mouse controller is initialised. Sprite data loaded at this address after the controller has been initialised will automatically change the mouse pointer. Conversely if the controller is initialised after the sprite date is loaded this sprite 14 will revert back to the pointed finger.

A basic program is given out at the end of this section to carry out the

above instructions.

After initialisation the mouse pointer will flash between black and white. This will enable the sprite to be seen over any colour background. The following can be turned off using the POKE command:

POKE 600, 0

and turned on using the command

POKE 600, 1

Once the flashing is turned off, a colour for the pointer can be selected using the command: POKE 53287, Colour code

Where colour code is number between 0 and 15 as definded in the user or reference guide.

The position of the mouse pointer can be obtained by examing the X and Y sprite registers as follows:

X 1sb = PEEK (53248)
X msb = PEEK (53264) AND 254
Y = PEEK (53249)

Half the total X value is tored in location 593 and the Y value is also stored in 594 which can be obtained as follows.

X (half) = PEEK (593)
Y = PEEK (594)

The actual X value is then given by:

X = 2*PEEK (593)

This position of a sprite is given as the top left hand corner of the

Sprite definition. A scale conversion is therefore necessary to obtain a correct correlation between the sprite position and the mouse pointer. Finally the horizontal or vertical sprie pointer movement can be frozen as follows:

POKE 576, 0 freedon in X and Y direction.
POKE 576, 1 freedom in vertical plane only.
POKE 576, 2 freedom in horizontal plane only.
PEEK (596) = left button/PEEK (595) = right button
UP = 1; DOWN = 0

BASIC PROGRAM TO INITIALISE MOUSE CONTROLLER AND CHANGE THE MOUSE POINTER

```
10 IF A=0 THEN A=1: LOAD "CONTROL", 8, 1: SYS 52800:
   REM LOAD AND INITIALISE MOUSE CONTROLLER
20 IF A=1 THEN A=2: LOAD "SPRITE DATE", 8, 1: REM LOAD
   SPRITE DATA CHEATED BY THE SPRITE DESIGNER
30 POKE 2040, 13: REM SET SPRITE POINTER TO THE DATA
   AT SPRITE POSITION 13
40 POKE 600, 0: REM SWITCH OFF FLASHING BETWEEN
   BLACK AND WHITE
50 POKE 53287, 6: REM CHANGE THE MOUSE POINTER
   COLOUR TO BLUE.
```

CARE OF YOUR MOUSE

The M3 Mouse requires minimum maintenance, but over a period of time the tracking ball may pick up dirt, to clean your mouse:

1 Turn your mouse over. On the underside you will see a ball retaining cover with a ball held in
2. Remove the cover of the ball and have the ball out.

3. Wipe the ball clean. If it is greasy, wash it with warm, soapy water and dry thoroughly with a line free cloth.
4. Inspect the ball housing, if there is any dirt in it gently pick or shake it out. Do not try to blow it out as this may drive the material further inside. Do not use any liquid or solvents.
5. Replace the ball in the ball housing.

DISPLAY OF STAND ALONE HI-RES GRAPHICS

The following section gives instructions on how to display pictures produced by the HiRes graphic designer from your own programme, or by themselves.

All pictures are loaded using a secondary address of 1.

Remember that all files prodcued by the HiRes graphics designer are prefixed by the three characters PIC.

In the stand alone mode the pictures are displayed using the basic command SYS 28656. Computer control is regained by pressing any key on the keyboard.

To display HiRes graphic screens from within a basic programme the following basic command should be used: SYS 28663.

In this mode control is returned immediately to the programme at this point the programme can test for input signal from the keyboard or mouse etc. The text screen is regained by the following basic command: SYS 28597.

After using this command the text screen will be cleared.

The mouse controller can be used with the HiRes screen display as

demontrated by the following programme. The programme will initially display a graphic screen but will revert to text when the left mouse button is pressed with pointer in buttom right hand quadrant of the screen. The graphic screen will then be regained if the left button is pressed with the pointer in the top left hand quadrant of the screen.

```
10 IF A=0 THEN A=1: LOAD "CONTROL", 8, 1,: REM LOAD
   MOUSE CONTROLLER ROUTINE
20 IF A=1 THEN A=2: LOAD "PICTURE", 8, 1,: REM LOAD
   GRAPHIC DATA
30 SYS 28663: REM DISPLAY GRAPHIC SCREEN
40 SYS 52800: REM INITIALIZE MOUSE CONTROLLER
50 IF PEEK (596) [ ]0 THEN 50: REM wait till left button is
   pressed
60 IF PEEK (593) ]80 AND PEEK (594) ]100 THEN GOSUB 200
70 IF PEEK (593) [80 AND PEEK (594) [100 THEN GOSUB 300
80 GOTO 50 REM: end of loop
200 SYS 28597: REM switch to text screen
300 SYS 28663: REM switch to graphics screen
```

The M3 Mouse when used with your own software or the software provided can provide hours of enjoyment for you. The M3 Mouse is also compatible with any software that uses, C1351, toystick paddles to eontrol it's cursor movement. Please enjoy it!

CONGRATURATION!

You have just purchased the finest product from contriver tech. inc. We take pleasure to recommand other items.

1. M-2 Mouse: Mouse for IBM PC XT/AT & Compatibles both microsoft & mouse sys compatibles.
2. Winner 770: 360° Free movement joystick for C 64/128.
3. Winner 909: Joystick for IBM PC, Apple.

4. M-I Mouse: C1350 Compatible, for C 64/128 Includes software "Graphic Uitility"

Commodore, IBM, Microsoft, Mouse system are registered trademark.

Another Contriver Technology Products Winner 770 Joystick

FEATURING:

* 360 Degree Directional Movement Feeling
* Spring Center Return.
* Free to Locate Precise Position.
* Steel Shaft Handel
* Stainess Steel Ball As Main Pivot

**No More Tight, Sloppy Feeling From Your Commodore Joystick. Feel exactly where you are, Here is the one.

YOU CAN'T MISS IT !!