

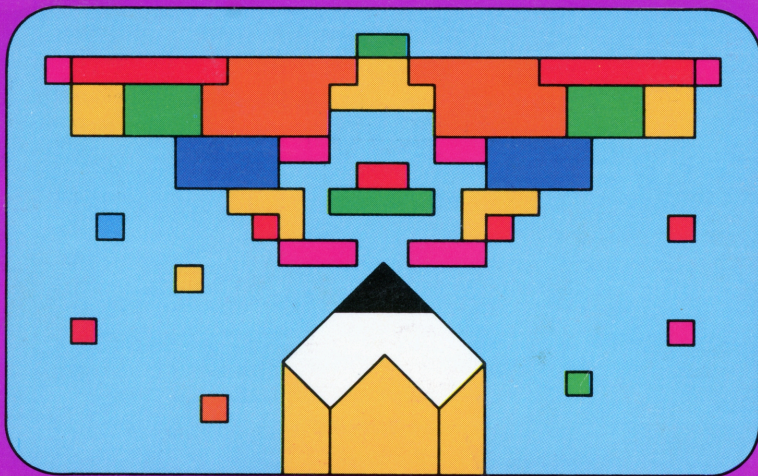


# Video-Graphs

SOLID STATE  
SOFTWARE™

## COMMAND MODULE

*Interact with preprogrammed graphics — or create your own designs to explore the unique color and graphics capabilities of your computer.*



---

## ***Quick Reference Guide***

---

To take full advantage of the features and benefits of this Command Module, please read this manual completely. Important keystroke sequences are summarized here for your "quick reference."

### *Press*

### *Action*

#### **COLOR**

Used to tell the computer what colors you want to use in the activities.

#### **PEN**

Used to choose the "drawing mode" of the cursor (write, move, or erase).

#### **CHG**

Used in sequence with two color keys to change a color presently on the screen to a desired new color.

#### **ENTER**

Returns screen to the activity selection lists.

#### **TAPE**

Used to elect to save or load a design.

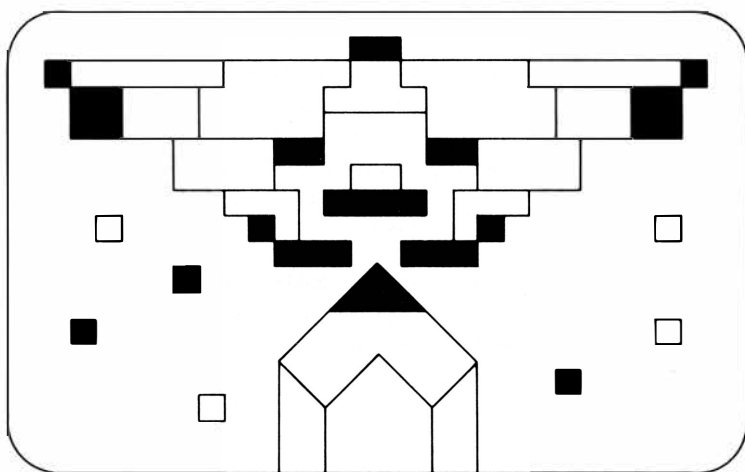
---



TEXAS INSTRUMENTS  
HOME COMPUTER

---

# ***Video-Graphs***



This *Solid State Software*™ Command Module is designed to be used with the Texas Instruments Home Computer. Its preprogrammed solid-state memory expands the power, versatility, and capability of your Home Computer.

Copyright ©1979 Texas Instruments Incorporated  
Command Module program and data base contents  
copyright ©1979 Texas Instruments Incorporated.  
See important warranty information at back of book.

---

---

# TEXAS INSTRUMENTS

## HOME COMPUTER

---

### INTRODUCTION

In recent years, the new medium of computer graphics has captured the imagination of millions of people. Most of us are fascinated by the interesting and creative designs that the computer can generate. The VIDEO-GRAPHS Command Module gives you the opportunity to experience the unique color and graphic capabilities of your computer and to explore your own creative abilities at the same time.

People of all ages will enjoy VIDEO-GRAPHS. Children are delighted by expressing their own creativity with the computer, while teens and adults are intrigued by the intricate designs and pictures they can create. Thus the entire family can derive pleasure from this module.

This module consists of two different types of graphic activities. In PATTERNS, you can observe and interact with the graphics preprogrammed into this module. In PICTURES, you can easily interact with the computer to create your own graphic designs. In the PICTURES section, you have the choice of using either the computer console keyboard or the optional Wired Remote Controllers which give you added flexibility in drawing curved lines. An added feature of this module allows you to save (or record) any pattern or picture on a cassette tape. You can then load (or re-enter) that pattern or picture into the computer whenever you desire while working with this module.



Before you start using this module, you need to become familiar with the special functions assigned to the various keys. A key overlay is included with this module to help you identify these special function keys. Below is a picture of the keyboard with the overlay in place.



You'll notice that most of the keys on the right side of the keyboard are designated for colors. You use these keys to tell the computer what colors you want to use in the patterns and pictures. (We'll explain more about this as we go along.)

## Cursor Movement Keys

In this module, the cursor is used as a "pen" for drawing lines or constructing pictures in the activities. You can use either the directional keys on the console keyboard or the optional Wired Remote Controllers handheld unit to move the cursor.

---

## TEXAS INSTRUMENTS

### HOME COMPUTER

---

#### *Using the Console*

On the console keyboard the following eight keys tell the computer the direction in which you want to move your "pen":

- \ (W) ■ moves the cursor diagonally to the upper left
- ↑ (E) ■ moves the cursor up on the screen
- / (R) ■ moves the cursor diagonally to the upper right
- ← (S) ■ moves the cursor to the left
- (D) ■ moves the cursor to the right
- ↙ (Z) ■ moves the cursor to the lower left
- ↓ (X) ■ moves the cursor down on the screen
- ↘ (C) ■ moves the cursor to the lower right

#### *Using the Wired Remote Controllers*

To move the cursor with the Wired Remote Controllers handheld unit, push the lever in the direction you want the cursor to move. You can move the cursor in the same eight directions that are possible with the console keys. In addition you can draw curved lines by moving the Wired Remote Controllers in a circular direction.

#### **PEN key (or button on the wired handheld units)**

This key is used to choose the "drawing mode" of the cursor. You can have your pen (cursor) in the "write" (or "pen down") mode to draw a line, in the "move" (or "pen up") mode to move it without drawing a line, or in the "erase" mode. The symbol looks different for each position. To change the mode of the pen, simply press the **PEN** key until you see the symbol for the mode you want. These symbols look like this:

- ◇ "Write" mode – You can draw a line (Sketchpad), place a design in the desired position (Building Blocks), or color a square (Mosaic).
- "Move" mode – you can move the cursor to another point on the screen without making a line.



+ "Erase" mode – You can erase a line, character, or color square in the activities.

The button on the handheld unit has the same function as the **PEN** key. Just press the button until the symbol shows that the pen is in the desired mode.

### **CHG (change) key**

This key is used to change colors on the different activities. You press this key to change a color presently used on the screen to a desired new color. For example, if the background color is L.BLU (light blue) and you want it to be D.RED (dark red), follow this sequence:

First press	<b>CHG</b>
then press	<b>L.BLU</b> (present color)
then press	<b>D.RED</b> (desired color)

Everything on the screen that is light blue will immediately change to dark red.

### **ENTER key**

Press **ENTER** to return to the activity selection lists. Each time you press **ENTER**, the screen backs up to the previous selection list. (If you are looking at one of the activity selection lists and want to return to the main selection list for the module, press either **0** (zero) or **ENTER**. If you press **ENTER** and hold it down, the screens back up to the first selection list.)

### **TAPE key**

The **TAPE** key is used when you want to save a pattern or picture on a cassette tape and when you want to load the pattern or picture into the computer. When you press the **TAPE** key you see a screen that asks if you want to SAVE or LOAD. See the section to SAVE OR LOAD DATA (page 24 ) for a complete explanation of the use of the **TAPE** key.

---

## TEXAS INSTRUMENTS HOME COMPUTER

---

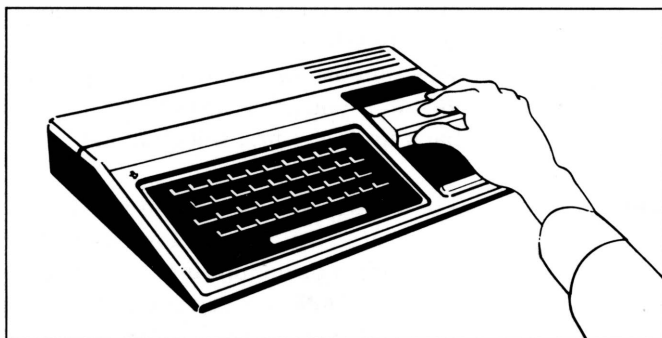
### **STOP and START keys**

These keys have several functions.

- In the **PATTERNS** sections, pressing **STOP** allows you to stop the pattern so you can look at it. Press **START** to start the pattern movement again.
- In the **PICTURES** sections, pressing **STOP** clears the screen so you can begin a new picture in the same activity.
- In "Color Life" pressing the **STOP** key enables you to stop the cell development at the end of the generation in progress. The cursor reappears, and you can then add to the design or erase part of the design on the screen. Press **START** to start the pattern development once more. (See "Color Life" on page 12 for a further explanation.)

Now that you are familiar with these special key functions, let's insert the module for VIDEO-GRAPHS.

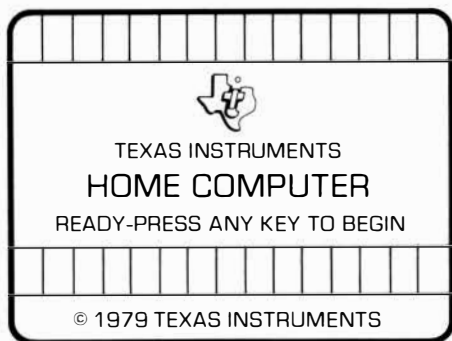
### USING THE *SOLID STATE SOFTWARE™* COMMAND MODULE





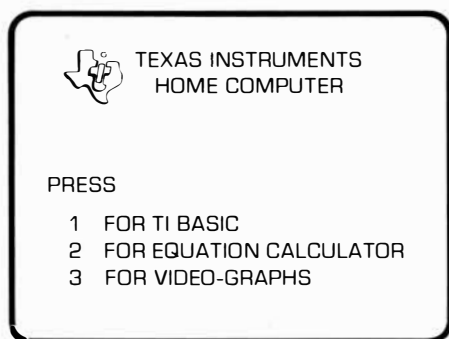


1. If the computer is *OFF*, slide the module into the slot on the console, and turn the computer on. The master title screen should then appear.



If the computer is *ON*, hold down the **SHIFT** key and press **Q** to make the master title screen appear. Then slide the module into the slot on the console.

2. Press any key to make the master selection list appear. The title of the module will be third on the list.



---

# TEXAS INSTRUMENTS

## HOME COMPUTER

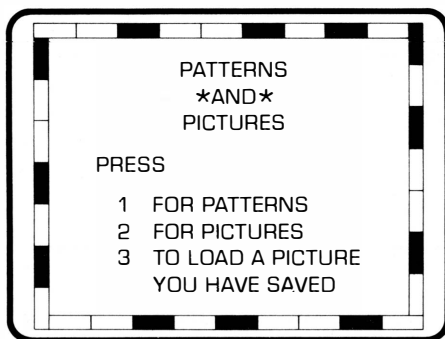
---

3. Press the **3** key to select the module.

(*Note:* To remove the module, *first* return the computer to the master title screen by pressing **SHIFT Q**. Then remove the module from the slot. If you have any problem putting in the module, or if it is accidentally removed from the slot while in use, please see "In Case of Difficulty" on page 30.)

### GETTING STARTED

When you press the **3** key, the title sequence for VIDEO-GRAPHS begins. (If you ever want to bypass the title sequence, press **ENTER**.) The next screen that appears is the main selection list.

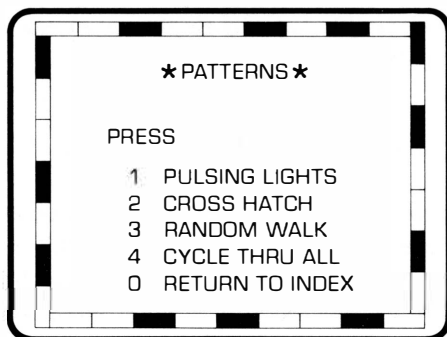


You have three choices on this selection list. Press key **1** to see and interact with the PATTERNS generated by this module and the computer. Press **2** for PICTURES. In this section you can interact with the computer to design your own graphics. Press **3** to get instructions for the SAVE OR LOAD feature.



### PATTERNS

Let's press the **1** key and look at the colorful graphics in this activity. The screen you see next is the selection list for the PATTERNS section.



All of these patterns are pleasing to watch, and each can serve as a conversation piece or as a background for parties or relaxation. Sound patterns accompany each program. It's also fun to get more involved with the patterns yourself. You can press the **STOP** key to make the pattern movement freeze at any point. Press **START** to continue again. Also you can create different and interesting effects by changing the colors in the patterns.

### **“Pulsing Lights”**

Press **1** to watch “Pulsing Lights.” The screen is composed of multi-colored squares that continuously change color. You hear random notes that change as the colors flash.

---

## TEXAS INSTRUMENTS

### HOME COMPUTER

---

Try stopping and starting "Pulsing Lights" by pressing the **STOP** and **START** keys. Also try playing with the color combinations. Use the **CHG** key in sequence with the present color key and the desired color key. (See **CHG** key, page 5.) For example, change all of the D.RED (dark red) to L.GRN (light green), using the **CHG** key sequence.

Press **CHG** key  
then Press **D.RED**  
then Press **L.GRN**

You can change colors as often as you want to. Experiment with various color combinations and see how different the pattern appears to be. You might even want to select color combinations to reflect your moods!

To go back to the PATTERNS selection list to choose a new pattern, press **ENTER**.

#### **"Cross Hatch"**

Press **2** for "Cross Hatch." In this activity, the screen is covered with color bars. The color of the bars and the length of the bars change continuously. Random notes accompany the changing color bars. (*Note:* In all activities in this module, a solid border appears at the top and bottom of the screen.)

As in "Pulsing Lights," you can interact with the computer pattern by using the **STOP** and **START** keys and by changing the color combinations on the screen.

To go back to the PATTERNS selection list to choose a different pattern, press **ENTER**.



### **“Random Walk”**

Press **3** for “Random Walk.” The cursor moves across the screen developing a graphic design as it travels. The direction of the cursor and the length of each line are selected by the computer at random. You hear tones that are determined by the direction in which the cursor is moving. The design generated in this activity develops on the “canvas” formed by the borders at the top and bottom of the screen.

The computer will continue to move the cursor at random until it has utilized all of the special memory space available. At that point, a blank screen appears, and a new “Random Walk” begins. In this activity, you can easily visualize the “wrap-around” nature of the screen. Notice that when a line is drawn to the edge of the drawing area it comes back on the screen on the opposite side. Thus if a line is drawn to the top edge, it reappears from the bottom of the screen. This occurs in all of the activities.

Throughout this activity, you can change the colors you see on the screen. To change the color of the pen or the background, use the **CHG** (change) key sequence:

Press	<b>CHG</b>
then press	present color key
then press	desired color key

When you are ready to see a new pattern, press **ENTER** to return to the PATTERNS selection screen.

### **“Cycle Thru All”**

Press **4** if you want the computer to go through all of the patterns one after another. The patterns will continue to cycle at random until you press **ENTER** to return to the PATTERNS selection list.

If you are looking at the PATTERNS selection list and want to return to the module’s main selection list, press **0** or **ENTER**.

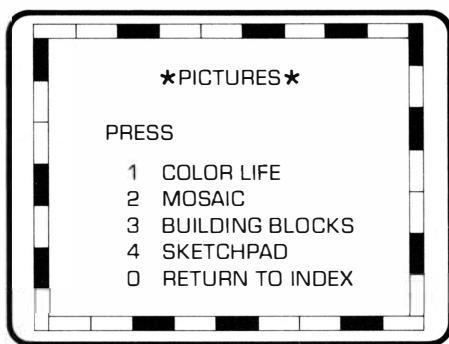
---

## TEXAS INSTRUMENTS HOME COMPUTER

---

### PICTURES

When you are ready to create some designs yourself, return to the main selection list by pressing **ENTER** (or **0** if you are looking at the PATTERNS selection list). Then press **2** for PICTURES. Next you see the selection list for this activity.



In each of these sections, you interact with the computer to create interesting and colorful pictures. Think of the video display as an electronic artist's canvas. The cursor acts as your pen, paintbrush, or artist's tool as you develop your own unique pictures. Give free rein to your imagination as you and the computer explore this section of VIDEO-GRAPHS.

### **“Color Life”**

“Color Life” is a computer activity based on a game developed by John Horton Conway, a British mathematician at the University of Cambridge. It graphically portrays how, within certain rules, living organisms can grow, move, and die. Your Texas Instruments module adds the dimension of color to this classic computer game. Thus, you can observe how the color of a new cell is determined by the colors of its “parents.”



Before starting to play with "Color Life," let's briefly discuss the concept of the game and the rules under which the patterns change and develop. Imagine that your screen is a large piece of graph paper or a colorless checkerboard.

Each square is called a "cell," and it is either "alive" (colored in) or "not alive" (vacant). The cells change at certain specific intervals – called "generations" – according to set rules. Each cell reacts to the eight cells that surround it in the following manner:

- A cell that's alive in this generation and has either two or three of its eight neighboring cells alive will continue to live in the next generation.
- A cell that's alive in this generation, but has only one surrounding cell also alive, will die in the next generation from isolation.
- A living cell which has four or more of its surrounding cells which are also alive will die in the next generation from overcrowding.
- A cell that is not alive in the present generation, but has exactly three neighboring alive cells, will be born in the next generation.

In addition to the rules that determine whether a cell is alive or vacant, other factors specify the color of each living cell in TI "Color Life." The color of each new cell that's born is an average of the colors of its three parent cells. Thus this activity simulates the laws of genetic inheritance. Watch how the colors merge and change from generation to generation.

---

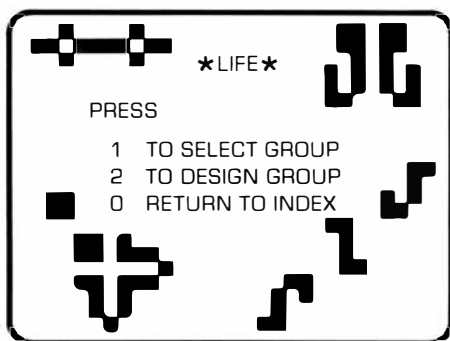
## TEXAS INSTRUMENTS HOME COMPUTER

---

The computer tests every cell on the screen each generation according to these rules. It then changes the pattern you see on the screen — all in only four seconds! It's fascinating (and rather addictive!) to watch the patterns develop on the screen. (*Note:* You may be interested in reading more about this game and its characteristics. A selected bibliography is included at the end of this manual for your convenience.)

### *To Select A Group*

Now that you're familiar with the rules, press **1**, and let's start playing "Color Life." The next screen you see is the selection screen for this activity.



You have the choice of allowing the computer to generate a starting pattern or of designing your own initial pattern. (The patterns on this selection screen are examples of some patterns you may want to try when designing your own patterns.) Let's press **1** and see some of the patterns you can select from the computer's list. The screen you see lists five types of patterns. We'll briefly explain each of these.





1. **Oscillators** – When you press **1** for "oscillators," you see a screen with four different designs on it. Each design is an oscillator. Oscillators change (in place) and return to the initial design over two or more generations. See if you can tell how many generations it takes for each object to return to its starting pattern. (Press **ENTER** when you are ready to return to the "Color Life" selection list.)
2. **Shuttle** – Press **2** to see the "shuttle." In this pattern the center design moves back and forth between two side blocks. The blocks remain static and do not move. Blocks and certain other objects are "still lifes," remaining the same from generation to generation. (Press **ENTER** when you are ready to return to the "Color Life" selection list.)
3. **Aircraft** – When you press **3** you see a screen with two examples of "aircraft" designs. The small design at the top is called a "glider." It travels across the screen on a diagonal path. The larger design is known as a "heavy spaceship" and moves horizontally across the screen. These patterns travel across the screen several times before they intersect and break into new patterns. (Press **ENTER** to return to the "Color Life" selection list.)
4. **R-Pentomino** – Press **4** for the design called "R-Pentomino." This interesting formation grows at random for hundreds of generations without forming a repeating pattern. See if you can trace its development! (Press **ENTER** to return to the "Color Life" selection list.)
5. **Seedling** – Press **5** for the "seedling" design. This pattern evolves over twenty-six generations into an oscillator pattern that oscillates every three generations. (Press **ENTER** to return to the "Color Life" selection list.)

---

## TEXAS INSTRUMENTS

### HOME COMPUTER

---

The module helps you recognize and follow the changing generations by sounding a "beep" tone at the end of each generation. In this way you can keep track of the generations more easily. You also know the program is working even when a pattern becomes static and ceases to change or dies out.

Even though the computer starts these patterns, you can interact with the module in this section. At any point in the development of the patterns, you can press **STOP**. Hold the **STOP** key down until you hear the generation "beep." At the end of the generation in progress, the pattern stops, and the cursor symbol appears. You can then add to or erase from the pattern on the screen to change the development of the design.

To add to or erase, you use the **PEN** key and the directional keys. The cursor (pen) has three modes in this activity: write, move, and erase. (See page 4.) When the cursor appears, it is in the write mode, but the color does not show. Press the color key for the color you want to use. Then press the directional (cursor movement) keys to make your design. You can change the pen color by pressing the key for the new color you want to use.

To erase part of the pattern on the screen, press the **PEN** key until it shows the symbol for the erase mode (+). Then use the appropriate cursor movement keys to erase squares on the screen. When you have finished any additions or changes to the design and want to see its continued development, press **START**.

When you are ready to leave any of the activities, press **ENTER**. This will return you to the "Color Life" selection screen. From that screen you can again choose **1** to SELECT GROUP or **2** to DESIGN GROUP.



### *To Design A Group*

Let's go to the section where you design your pattern. From the "Color Life" selection list, press **2**. A screen appears with the cursor symbol in the center. The cursor (pen) is in the "write" mode, but shows no color. If you want to start your design at another point on the screen, press the **PEN** key until you see the symbol for the "move" mode ( $\square$ ). Move the pen to the desired spot (using the cursor movement keys). Then press the **PEN** key until the cursor is in the "write" mode again ( $\diamond$ ). Press the color key for the first color you want to use. (The pen will not change color unless the cursor is in the "write" mode.) Then use the directional (cursor movement) keys to draw your pattern on the screen. You can change the color of the pen by pressing the color key for the new color (when the cursor is in the "write" mode).

If you place a small design on one side of the screen and want to place another design at a different place, simply press the **PEN** key until the cursor is in the "move" mode ( $\square$ ). Then use the directional keys to move the cursor. Press **PEN** until you see the "write" symbol ( $\diamond$ ), and continue as described above. You can also erase squares you have placed on the screen. Press the **PEN** key until you see the "erase" symbol ( $+$ ). Then move the cursor (with the directional keys) over the squares you want to erase.

After you have completed designing your pattern, press **START**. Watch your design grow and develop. See what interesting patterns you can make. As you gain more and more experience, you will probably develop patterns from which you can predict the outcome. It's exciting to see the designs and colors grow and change.

---

## TEXAS INSTRUMENTS

### HOME COMPUTER

---

As in the Select Group section, you can stop the pattern at the end of any generation by pressing **STOP** and holding the key until you hear the "beep." The pattern will stop at the end of the generation in progress, and you can alter the pattern on the screen by adding to it or erasing squares. When you are ready to start again, press **START**. (Note: Although you can add colors to the design or erase colors from the screen as described above, the **CHG** key is not available for use in "Color Life." Therefore, you cannot change all cells of one color to another color by using the **CHG** key.)

To leave this "Color Life" activity, press **ENTER**. This returns you to the "Color Life" selection list. From this screen press **0** (zero), or press **ENTER** again to see the selection list for the PICTURES activities. For now, let's press **ENTER** and try some of the other activities in PICTURES.

#### **"Mosaic"**

From the PICTURES selection list press **2** for "Mosaic." In this activity, you can create your own mosaic pictures. Your pen (cursor) has three modes in "Mosaic:"

- "Write" mode. When you see this symbol, the pen is "down" on the canvas. A colored square appears where the cursor is positioned.
- ◇ "Move" mode. In this mode, you can move the cursor to another position on the canvas without placing a color on the canvas.
- + "Erase" mode. When you see this symbol, the cursor will erase the colored square in that position.

To change the mode of the cursor, simply press the **PEN** key until you see the symbol that represents the mode you want.



Creating mosaic pictures is quite easy. You can make the designs as simple or intricate as you want them to be. Use the directional (cursor movement) keys or the Wired Remote Controllers to move the cursor on the screen. If you press a cursor movement key one time, the cursor (in the "write" mode) colors one square whatever color is currently assigned to the cursor. If you hold the directional key down, the cursor will color a line of squares in the given direction. The cursor will stop moving when you stop holding down the key.

To change the color assigned to the cursor, simply press the color key for the color you want to use. Continue designing your mosaic until you want to use a different color. Then press the color key for the new color. You can color as many or as few squares at one time as you want to. You can move the cursor over many squares before changing the color assigned to the pen, or you can change colors one square at a time.

You can also change the color of the background canvas. To change the color of the background, you must use the **CHG** (change) key in combination with the present color key and the desired color key.

Press     **CHG**  
then Press     present color key  
then Press     desired color key

You also use the **CHG** key in sequence with two color keys if you want to change all of the squares of a certain color to a different color. For instance if you want to change all of the D.YLW (dark yellow) squares you have put on the screen to a L.BLU (light blue),

Press     **CHG**  
then Press     **D.YLW** (present color)  
then Press     **L.BLU** (desired color)

---

## TEXAS INSTRUMENTS HOME COMPUTER

---

Notice the "paintbrush" effect as the computer changes the colors for you.

(*Note:* If you try to change colors that are not presently on the screen, the computer spends several seconds checking every square before letting you proceed.)

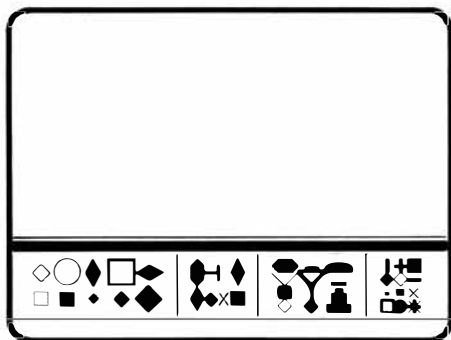
You may decide you want to save the mosaic design you are working on, or you may want to stop working in the middle of creating a design and come back to work on it later. Or you may want to save a complete design to show to friends or change at a later time. The special SAVE/LOAD feature of this module allows you to save designs in all of the activities on a cassette tape. See the SAVE/LOAD data section on page 24 for complete details.

At times when you are working in "Mosaic" you may want to erase your present design from the screen and begin a new mosaic picture. If so, press **STOP**, and the screen will clear.

When you are ready to leave "Mosaic" and return to the PICTURES selection screen, press **ENTER**.

### **"Building Blocks"**

After pressing **ENTER**, press **3** and create a picture with "Building Blocks." In this activity, the computer provides you with many graphic characters (located along the bottom of the screen). Using the cursor, you can move copies of these characters onto the canvas and arrange them to create a picture or design. Let's look at the screen for "Building Blocks" and at the groups of characters.



You are able to move copies of some of the design characters onto the screen as a whole piece. For greater variety and flexibility, you can pick up and move other characters section by section. For your convenience and ease of use, the characters are divided into four groups. Let's look at the four groups from left to right.

■ Blue background:

Cursor will pick up one-fourth of a character at one time.

■ Yellow background:

Cursor will pick up the top half of a character or the bottom half of a character at one time.

■ Gray background:

The cursor picks up the right side or the left side of a character with one move.

■ Green background:

The cursor picks up an entire character in one move.

---

## TEXAS INSTRUMENTS

### HOME COMPUTER

---

It's simple to construct imaginative designs or pictures in the "Building Blocks" activity. When the screen first appears, a square cursor symbol will be in the middle of the canvas area. You then follow these steps to work with "Building Blocks":

1. Using the directional (cursor movement) keys or the Wired Remote Controllers, move the cursor over the character or section of the character you want to pick up and place on the screen.
2. Press the **PEN** key and you will hear a "beep" tone which indicates the cursor has picked up the character.
3. Move the square cursor symbol to the desired place on the canvas.
4. Press the **PEN** key, and you will hear a "beep" tone that indicates the character is transferred to the canvas.

At this point you have four choices:

- You can move the cursor (using directional keys) to another point on the canvas. Press the **PEN** key and place the same character in that new spot.
- You can press the **PEN** key until it is in the "write" (or "repeat") mode. In this mode the cursor changes to the shape of the selected character. By holding down directional (cursor movement) keys, you can make rows of this character design.
- You can move the square cursor symbol to a new character (or section of a character) at the bottom of the screen, and then follow the four steps listed above.
- You can press the **PEN** key until it is in the "erase" mode (+) and erase the character you placed on the screen.





Changing colors in "Building Blocks" is similar to changing colors in the other activities. To change the color of the design, simply press the key for the new color. To change the background color of the canvas or the block at the bottom of the screen, use the **CHG** key in sequence with the present color of the canvas and the new color you want it to be.

Press **CHG**  
then Press present color key  
then Press desired color key

(Note: If you change the design color to the same color as the background or vice versa, your design will disappear.)

Try changing the colors several times and see the various effects you achieve.

If you start on a design in "Building Blocks" and decide you want to clear the screen and start again, press **STOP**. When you are ready to return to the PICTURES selection list and choose a new activity, press **ENTER**.

### **"Sketchpad"**

Try sketching a picture on your canvas. Press **4** for "Sketchpad," and begin. You see a blank screen with the cursor in the middle. The cursor is in the "write" mode and ready to go! Using the directional (cursor movement) keys or the Wired Remote Controllers, you can sketch designs or pictures. The cursor has three modes in this activity: "write," "move," and "erase" (see page 5). You'll find you can sketch fairly detailed drawings in this activity. You can continue to sketch until you have utilized all of the "characters" available. At that point, you hear a "beep" tone. This tone indicates that no new lines will appear on the screen except where they are drawn next to lines already on the canvas. To clear the screen and start over again, press the **STOP** key.

---

## TEXAS INSTRUMENTS

### HOME COMPUTER

---

In "Sketchpad" you can choose the dominant color of the lines and the color of the background canvas. To change the color of the lines, just press the color key for the new color. To change the color of the canvas, use the **CHG** key in sequence with the color key of the present color and the color key of the desired color (see page 5). Experiment with changing the color of both the lines and the background canvas. It's quite interesting to see different color combinations for the same sketch.

If you start a sketch, then decide to erase it and start over again, press **STOP**. The screen will clear, and you can begin a new sketch. To return to the PICTURES selection screen to choose a different activity, press **ENTER**. If you are looking at the PICTURES selection list and want to return to the main selection list of the module, press **0** or **ENTER**.

#### TO SAVE AND LOAD DATA

From time to time you may wish to save a pattern or picture to see again later. You may just want to save a design to show a friend, or you may want to come back to a design and do additional work at another time. The SAVE/LOAD feature of your computer allows you to save (record) patterns or pictures on a cassette tape and then load (read) them back into the computer. Let's see exactly how to do this.

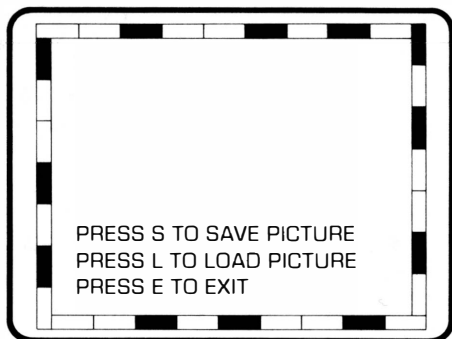
#### **To Save a Picture:**

It's rather simple to save (record) a picture on a cassette tape. Just follow these instructions:

1. Connect a cassette recorder to your computer following the directions on pages 15-16 of the *User's Reference Guide*. Connect your cassette recorder to the plug end labelled 1 for CS1.
2. When you have a design on the screen that you want to SAVE, press the **TAPE** key.



3. When you press the **TAPE** key, the computer stores your design temporarily and shows you the following screen:



4. Press **S** for **SAVE**.
5. Instructions for recording begin to scroll upward on the screen. Follow these instructions (see page 16-18 of the *User's Reference Guide* for a complete explanation of the instruction screens).
6. After your design has been saved on the cassette tape, you again see your design on the screen.

(When you remove the tape from the recorder, be sure to label your tape with the date and a name so you can identify it at a later time. If for any reason you did not begin recording at the beginning of the cassette tape, note the point where you began.)

Your design is now on tape. You can continue working in any activity of VIDEO-GRAPHS as usual.

---

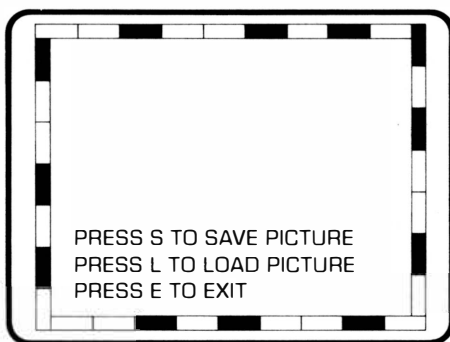
## TEXAS INSTRUMENTS HOME COMPUTER

---

### **To Load a Picture:**

To **LOAD** a picture back into the VIDEO-GRAPHS module, follow these directions:

1. Insert the VIDEO-GRAPHS module into the computer (if it is not already in place).
2. Connect a cassette recorder to your computer as described on pages 15-16 of the *User's Reference Guide*.
3. Put the tape on which you saved the picture earlier into the cassette recorder.
4. Indicate you want to **LOAD** a picture by
  - Pressing the **3** key when looking at the main selection list (**3** "TO LOAD A PICTURE YOU HAVE SAVED")
  - OR
  - Pressing the **TAPE** key.
5. When you press **3** (from the main selection list) or press the **TAPE** key, you see this screen:



6. Press **L** to **LOAD**.
7. Instructions for loading begin to scroll upward on the screen. Follow these instructions (see page 18 of the *User's Reference Guide* for a complete explanation of the instruction screens).



When the loading is complete, the picture appears on the screen. You are automatically back in the original activity. For example, if you are loading a picture you drew and saved from "Sketchpad," the module returns you to "Sketchpad" and shows you the picture you loaded. You can continue working on the design in the usual manner. (*Note:* Your design is also still recorded on the cassette tape. It will remain on the tape until you erase it.)

### OTHER SPECIAL FEATURES

There are several other special features of this module. These include:

#### **SHIFT Q**

Use this key to leave the Module and return to the Home Computer title screen.

#### **Tones**

You hear special tones:

- To let you know you have picked up or placed a character in "Building Blocks."
- To let you know you've utilized all characters in "Sketchpad."
- To indicate you have pressed a key that is unavailable for use in a certain activity.

#### **Time Out**

If you do not press any key for fifteen minutes, the screen goes blank. To re-activate the module, press the **SHIFT** key. (TIME OUT does not occur in the PATTERNS sections unless you press the **STOP** key and do *not* press the **START** key before fifteen minutes elapses.)

---

## TEXAS INSTRUMENTS

### HOME COMPUTER

---

#### OTHER ACTIVITIES

You can use your own imagination to make the activities in VIDEO-GRAPHS even more fun. At times, you may want to play these activities with your family or friends. Here are some variations you may want to try:

- In "Sketchpad," "Mosaic," or "Building Blocks," each person takes a turn drawing a line or putting a design on the screen. See what type of crazy picture develops as you all combine your secret ideas!
- In the "Mosaic" activity, begin by filling the screen with colored squares. Then press the **PEN** key until the cursor is in the "erase" mode. Each person takes a turn erasing certain squares. See what type of pattern you can design in this mode.
- You and a friend can have a contest in "Color Life." Take turns designing initial patterns. Then see how many generations it takes before each pattern dies out, becomes static, becomes a repeating pattern, etc. Make your own rules about what outcome determines the winners!

With the built-in activities and the variations you can develop, the VIDEO-GRAPHS module can provide you with many hours of creative enjoyment. Each time you plug in this module you can develop new designs, explore new color effects, and express your creativity in as many activities as you desire. This module remains new and exciting even when you work with it time after time.



### **CARING FOR THE MODULE**

These modules are durable devices, but they should be handled with the same care you would give any other piece of electronic equipment. Keep the module clean and dry, and don't touch the recessed contacts.

#### **CAUTION**

The contents of a Command Module can be damaged by static electricity discharges.

Static electricity build-ups are more likely to happen during the cold winter months (or in areas with very dry climates) when the natural moisture in the air is low. Have you ever walked across a carpet, reached for a metal doorknob, and had a quick, painful spark jump from your fingertips to the metal surface? This spark is static electricity. To avoid damaging the module, just touch any metal object (a doorknob, a desk lamp, etc.) before handling the module. If static electricity is a problem where you live, you may want to buy a special carpet treatment that reduces static build-up. These commercial preparations are usually available from local hardware and office supply stores.

---

## TEXAS INSTRUMENTS

### HOME COMPUTER

---

#### IN CASE OF DIFFICULTY

If the module activities do not appear to be operating properly, return to the master title screen by pressing **SHIFT Q**. Withdraw the module, align it with the module opening, and reinsert it carefully. Then press any key to make the master selection list appear. The title of the module should show up in the third position. Press **3** to select the module. (*Note:* In some instances, it may be necessary to turn the computer off, wait several seconds, and then turn it on again.)

An automatic reset feature is built into the computer. Anytime a module is inserted into the console, the computer should return to the master title screen. (*Note:* All data or program material you have entered will be erased.) In rare instances if the module is accidentally removed from the slot while the module contents are being used, the computer may behave erratically. To restore the computer to normal operation, turn the computer console off, wait a few seconds, reinsert the module, and turn it on again.

If you have any difficulty with your computer or the VIDEO-GRAPHS module, please contact the dealer from whom you purchased the unit and/or module for service directions.

Additional information concerning use and service can be found in your *User's Reference Guide*.



---

## **THREE-MONTH LIMITED WARRANTY HOME COMPUTER SOFTWARE MODULE**

---

Texas Instruments Incorporated extends this consumer warranty only to the original consumer purchaser.

### **WARRANTY COVERAGE**

This warranty covers the electronic and case components of the software module. These components include all semiconductor chips and devices, plastics, boards, wiring and all other hardware contained in this module ("the Hardware"). This limited warranty does not extend to the programs contained in the software module and in the accompanying book materials ("the Programs").

The Hardware is warranted against malfunction due to defective materials or construction. **THIS WARRANTY IS VOID IF THE HARDWARE HAS BEEN DAMAGED BY ACCIDENT OR UNREASONABLE USE, NEGLIGENCE, IMPROPER SERVICE OR OTHER CAUSES NOT ARISING OUT OF DEFECTS IN MATERIAL OR CONSTRUCTION.**

### **WARRANTY DURATION**

The Hardware is warranted for a period of three months from the date of the original purchase by the consumer.

### **WARRANTY DISCLAIMERS**

**ANY IMPLIED WARRANTIES ARISING OUT OF THIS SALE, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE ABOVE THREE MONTH PERIOD. TEXAS INSTRUMENTS SHALL NOT BE LIABLE FOR LOSS OF USE OF THE HARDWARE OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS, EXPENSES, OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS, EXPENSES, OR DAMAGES INCURRED BY THE CONSUMER OR ANY OTHER USER.**

Some states do not allow the exclusion or limitation of implied warranties or consequential damages, so the above limitations or exclusions may not apply to you in those states.

### **LEGAL REMEDIES**

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

### **PERFORMANCE BY TI UNDER WARRANTY**

During the three month warranty period, defective Hardware will be replaced when it is returned postage prepaid to a Texas Instruments Service Facility listed below. The replacement Hardware will be warranted for a period of three months from date of replacement. Other than the postage requirement, no charge will be made for replacement.

---



---

TI strongly recommends that you insure the Hardware for value prior to mailing.

#### **TEXAS INSTRUMENTS CONSUMER SERVICE FACILITIES**

Texas Instruments Service Facility  
P.O. Box 2500  
Lubbock, Texas 79408

Texas Instruments Service Facility  
41 Shelley Road  
Richmond Hill, Ontario, Canada

Consumers in California and Oregon may contact the following Texas Instruments offices for additional assistance or information.

Texas Instruments Exchange Center  
831 South Douglas Street  
El Segundo, California 90245  
(213) 973-1803

Texas Instruments Consumer Service  
10700 Southwest Beaverton Highway  
Park Plaza West  
Beaverton, Oregon 97005  
(503) 643-6758

#### **IMPORTANT NOTICE OF DISCLAIMER REGARDING THE PROGRAMS**

The following should be read and understood *before* purchasing and/or using the software module.

TI does not warrant the Programs will be free from error or will meet the specific requirements of the consumer. The consumer assumes complete responsibility for any decisions made or actions taken based on information obtained using the Programs. Any statements made concerning the utility of the Programs are not to be construed as express or implied warranties.

**TEXAS INSTRUMENTS MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDING THE PROGRAMS AND MAKES ALL PROGRAMS AVAILABLE SOLELY ON AN "AS IS" BASIS.**

**IN NO EVENT SHALL TEXAS INSTRUMENTS BE LIABLE TO ANYONE FOR SPECIAL, COLLATERAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH OR ARISING OUT OF THE PURCHASE OR USE OF THE PROGRAMS AND THE SOLE AND EXCLUSIVE LIABILITY OF TEXAS INSTRUMENTS, REGARDLESS OF THE FORM OF ACTION, SHALL NOT EXCEED THE PURCHASE PRICE OF THE SOFTWARE MODULE. MOREOVER, TEXAS INSTRUMENTS SHALL NOT BE LIABLE FOR ANY CLAIM OF ANY KIND WHATSOEVER BY ANY OTHER PARTY AGAINST THE USER OF THE PROGRAMS.**

Some states do not allow the exclusion or limitation of implied warranties or consequential damages, so the above limitations or exclusions may not apply to you in those states.

---

Today's personal computers are bringing the exciting new medium of computer graphics into the home. The Video-Graphs Command Module puts a responsive, easy-to-use graphics system with 14-color capability at your disposal. Now, every family member can explore his or her creative abilities and enjoy building dynamic, colorful patterns and pictures on the screen.

**Video-Graphs** module activities let you draw in color on the screen with a whole new "electronic paintbrush" concept — or command the computer to create graphic images under your direction.

Module features include:

- Pattern creation activities
  - Pulsing Lights
  - Random Walk
  - Cross Hatch
- Interactive picture development activities
  - Color Life
  - Building Blocks
  - Mosaic
  - Sketchpad
- Drawing modes that allow you to write, draw, and erase.
- Save/Load option for saving your favorite pictures of designs and reentering them for later use.
- A special keyboard overlay that allows you to use your computer keyboard as an "electronic paintbrush."

Activities in this module are also designed to work with the optional Remote Controls available for your computer providing added flexibility in drawing patterns and pictures. Children and adults can have fun creating spectacular effects, watching dynamic on-screen designs, exploring the new world of computer art!

***Adds 6K bytes of active memory with stored program to your TI Home Computer.***

Command Module program and data base contents  
copyright © 1979 Texas Instruments Incorporated.



TEXAS INSTRUMENTS  
INCORPORATED