

PERSONAL COMPUTER

HOW TO USE THE VIDEO UTILITY

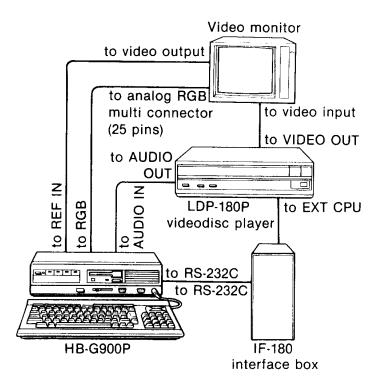
Original supplied by Manuel Bilderbeek Scanned and converted to PDF by HansO, 2001 Video Utility is a software already built into the HB-G900P personal computer in the form of ROM. It provides extended commands of MSX2-BASIC to enable the control of Sony LDP-180P videodisc player. It also provides extended commands for displaying four types of characters, which may be useful for creating titles or adding information to the picture from the videodisc player.

This manual explains the commands which are contained in the Video Utility. The sample program at the end of the manual will help you to get a general idea on how to control a videodisc player with a computer. The supplied disk which contains the font data is used along with the Video Utility commands for character display. Please read this manual thoroughly and retain it for future reference. For additional information on the HB-G900P, LDP-180P or other hardware items, refer to respective manuals.

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# SYSTEM CONFIGURATION



\* Refer to the instruction manual of each hardware item for information on requirements and the connecting procedure.

#### Notes on the monitor

- If you are using a monitor or a TV with an analog RGB multi connector of 21 pins, connect the VIDEO OUTPUT of the LDP-180P with the REF IN of the HB-G900P and set the monitor select switch of the HB-G900P to PERI-TV.
- If you are using a monitor with an analog RGB multi connector of 25 pins, set the monitor select switch of the HB-G900P to PVM.

#### Notes on RS-232C cable

 If you are using a Sony's RS-232C cable (for example, SMK-0031) or other straight RS-232C cable, set the signal direction select switch of the HB-G900P to TO MODEM.

If you are using a cross RS-232C cable, set the signal direction select switch to TO TERM.

If you do not know which type your RS-232C cable is, set the signal direction switch to either TO MODEM or TO TERM and send the \_\_LDPINIT command. If the computer does not return "Ok", set the switch to the opposite.

#### Notes on IF-180

- The AUTO REPEAT switch of the IF-180 must be set to ON.
- The BAUD RATE selector on the IF-180 must be set to 1200.

#### Notes on the disc

• Use only the CAV discs. The LDP-180P cannot be controlled by the HB-G900P when a CLV disc is used.

### **BACKUP PROCEDURE**

As a precaution against accidental erasure of the supplied disk, you should make a backup copy using a double-sided  $3^{1/2}$ -inch micro floppydisk. Work with the backup copy and keep the original disk in a safe place.

To make a backup copy, you must first format the disk.

#### FORMATTING PROCEDURE

- 1 Turn on the power or press the RESET button of the computer to activate MSX-Disk BASIC.
- 2 Type in CALL FORMAT (or \_\_FORMAT) and hit
- 3 The following message appears:

Drive name? (A,B)

Press A or B to specify the drive into which the disk to be formatted is to be inserted. The following message appears:

Single sided, 9 sectors
 Double sided, 9 sectors

4 Select 2 since a double-sided disk is being used. The following message appears:

Strike a key when ready

5 Insert the disk to be formatted in the specified drive and press any key on the keyboard to start the formatting operation.

When formatting is completed, the following message appears:

```
Format complete Ok
```

This message indicates the computer is ready for the next command.

Now that the disk is formatted, you are going to copy what is on the original disk to the newly formatted disk.

#### COPYING PROCEDURE

#### When there is only one disk drive

1 Insert the original disk in the disk drive and execute the following command:

COPY "A:\*.\*" TO "B:"

The following message appears:

Insert diskette for drive B: and strike a key when ready  $\left.\right\} - (a)$ 

2 Remove the original disk from the disk drive, insert the disk which you have just formatted, and strike a key.

The following message appears:

Insert diskette for drive A: and strike a key when ready  $\left\{-\mathbf{b}\right\}$ 

- 3 Remove the new disk, insert the original disk and strike a key.
- 4 When the message (a) appears again, insert the new disk and when the message (b) appears, insert the original disk. Repeat this process until "Ok" appears on the screeen, which indicates that the copying has been completed.

#### When there are two or more disk dirves

Insert the original disk into drive A and the new disk which you have just formatted into drive B and execute.

COPY "A:\*.\*" TO "B:"

When "Ok" appears, the copying has been completed.

You can specify other drive names instead of drive A and drive B. In this case specify the drive name for the original disk in place of drive A and the drive name for the new disk in place of drive B.

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## LIST OF COMMANDS IN THE VIDEO UTILITY

When the power of the HB-G900P is turned on, MSX-Disk BASIC and the extended commands of the Video Utility are automatically activated. All of the extended commands can be executed with the CALL command.

The CALL command (as in CALL LDPINIT) can be abbreviated by using an underline "\_\_" (as in \_\_LDPINIT). In the following pages, the abbreviated form (\_\_) will be used.

When executing the commands for character display, the backup copy of the supplied disk containing the font data must be inserted beforehand.

Here is the list of commands contained in the Video Utility:

#### Commands for controlling the LDP-180P

- \_INDEXON: Displays the frame number or chapter number on the screen.
  \_INDEXOFF: Erases the frame number or chapter number dis-
- played from the screen.
- \_\_LDPEND: Suspends the execution of a program.
- \_LDPFRM: Obtains the current frame number.
- \_\_LDPINIT: Initializes the communication line.
- \_LDPOUT: Sends one-byte data to the videodisc player.
- \_LDPSRCH: Searches for the specified frame.
- \_LDPSTART: Plays back the specified scene.
- \_LDPSTAT: Reads the status of the videodisc player.
- \_LDPWAIT: Suspends the execution of a program.

#### Commands for displaying characters on the screen

\_\_SLFONT: Selects the type face of the alphanumeric characters. \_\_TEXT: Displays the alphanumeric character string on the screen.

## **TEST OPERATION**

Let's try some of the commands in the Video Utility. If you wish to superimpose the picture of the HB-G900P over the picture from the videodisc player, you must first execute SET VIDEO command of MSX2-BASIC. See the Programming Reference Manual for details.

Here, you are going to superimpose the picture of the HB-G900P over the picture from the videodisc player. Execute

SET VIDEO 2,,,1,3,1

Then execute

LDPINIT

This command must be executed first to initialize the communication line between the HB-G900P and the LDP-180P.

Then execute

INDEXON

The \_\_INDEXON is a command for displaying the index on the screen.

After the index is displayed on the screen, execute

LDPSTART(1000,3000)

You can see that the playback starts in the normal speed mode from frame number 1000 and ends at frame number 3000.

All the Video Utility commands will be explained in detail in the following section.

If any error message appears, turn to page 33 for explanation on the error messages and make the necessary correction. Here are some of the check points:

- Is the signal direction select switch of the HB-G900P properly set?
- Is the RS-32C cable properly connected?
- Has the \_\_LDPINIT command been executed?
- Is the BAUD RATE selector on the IF-180 properly set?
- Is there a disc on the disc table of the videodisc player?
- Is the disc on the disc table labeled CAV?

# **EXPLANATION OF COMMANDS**

This section explains in detail each of the commands included in the Video Utility.

The commands are arranged in alphabetical order and are explained as shown below.

#### Command name

Function

#### Format

Explains the format and proper syntax of the command. Parameters in () are required operands.

Parameters in [] may be omitted. When writing these, brackets are not required.

#### Application

Explains how to write and use the commands and how they function.

# \_\_INDEXON

.....

"call index on"

Displays the index on the screen.

Format \_\_INDEXON

#### Application

This command displays the present frame number, the playback mode, etc.

# \_INDEXOFF

"call index off"

Erases the index from the screen.

#### Format

\_INDEXOFF

#### Application

This command erases the index which has been displayed with the \_\_INDEXON command.

### LDPEND

"call LDP end"

Suspends the execution of a program until playback of the scene specified by \_\_LDPSTART command ends.

#### Format

\_\_LDPEND

#### Application

This command suspends the program execution until the playback of the LDP-180P which has been started by a \_\_LDPSTART command completes.

When the playback ends, the program execution will then be tranferred to the next statement.

#### Example

- 10 \_LDPSTART(2000,1000)
- 20 LDPEND
- 30 PRINT "PLAY END"

When this program is executed, the playback starts at normal speed in reverse direction starting from frame 2000 to frame 1000. The execution of the program is suspended until frame 1000 is accessed, and then "PLAY END" is displayed on the screen.

If line 20 is omitted, "PLAY END" will appear right after the playback starts.

# \_\_\_LDPFRM "call LDP frame"

Obtains the current frame number and assigns it to a single or double precision variable.

#### Format

\_LDPFRM(frame)

Frame: Single or double precision variable.

#### Application

Any single or double precision variable can be specified in this command.

When this command is executed, the frame number accessed at that time is assigned to the specified variable.

#### Example

If execution of

\_LDPFRM(F) PRINT F

displays 30000 on the screen, it means that frame 30000 is now being played back.

# LDPINIT

"call LDP initialize"

Initializes the communication line between the computer and the videodisc player.

#### Format

\_\_LDPINIT

### Application

This command initializes the communication line between the HB-G900P and the videodisc player.

This command must be executed first when controlling the videodisc player with the HB-G900P.

This command must be executed again if the power of either the computer or the videodisc player or both is turned off.

### Notes

- In order to transfer control of the videodisc player from the HB-G900P to the player itself, turn off the power of the videodisc player and turn it on again.
- This command must be executed again every time the execution of a program is interrupted by pressing the ESC key.

\_LDPOUT

"call LDP commands out"

Sends one-byte data to the LDP-180P.

#### Format

\_LDPOUT(command code)

**Command code** Cond. Numeric constant, variables, array variables or their expressions,  $48(\&H30) \leq \text{command code} \leq 99(\&H63).$ 

#### Application

This command sends an RS-232C command to the LDP-180P by specifying the corresponding code.

The RS-232C command codes are listed in the table below.

The codes are in the hexadecimal notation. "H" indicates the upper four bits and "L" indicates the lower four bits.

Using this table, you can find, for example, the RS-232C command "FWD-PLAY" has the code of "&H3A".

H	3	4	5	6
0	0	ENTER	INDEX ON	
1	1	C.E.	INDEX OFF	
2	2	MENU		MOTOR ON
3	3	SEARCH		MOTOR OFF
4	4	REPEAT		
5	5		FRAME MODE	
6	6	CH-1 ON	C.L.	
7	7	CH-1 OFF		
8	8	CH-2 ON		
9	9	CH-2 OFF		
Α	FWD-PLAY	REV-PLAY		
В	FWD-FAST	REV-FAST		
С	FWD-SLOW	REV-SLOW		
D	FWD-STEP	REV-STEP		
E				
F	STOP	STILL		

The function of the RS-232C commands are basically the same as the functions of keys on the LDP-180P remote control unit. For details about the key function, refer to the instruction manual of the LDP-180P.

#### Example

Execution of

\_LDPOUT(&H3A)

sets the LDP-180P in the normal forward playback mode.

#### Notes

- After sending the MOTOR OFF (&H63) command, do not send any other command except the MOTOR ON (&H62) or MOTOR OFF (&H63) command.
- The \_\_\_LDPOUT command is used for executing the commands which are not included in the Video Utility. For example, the following shows a program that repeats the playback from the current frame to frame 1000 in the fast forward mode twice.

## LDPSRCH

"call LDP search"

Searches for the specified frame.

#### Format

\_LDPSRCH (frame number)

Frame number Cond. Numeric constant, variables, array variables or their expressions,  $1 \leq \text{frame number} \leq 54000$ .

#### Application

This command searches for the frame specified by the frame number and displays a still picture of that frame.

#### Example

When

\_LDPSRCH(5000)

is executed, frame 5000 is searched for and its still picture is displayed.

Note The execution of the \_LDPSRCH command when the HB-G900P is connected to the LDP-180P may cause a slight lateral movement of the picture when the LDP-180P enters and exits the search mode.

LDPSTART

"call LDP start"

Plays back the specified scene.

#### Format

\_\_LDPSTART (frame number 1, frame number 2 [,speed mode])

Frame number	Cond.	Numeric constant, variable, array variables or their expressions,
Speed mode	Cond.	$0 \leq \text{frame number} \leq 54000.$ Numeric constant, variables, array varia- bles, or their expressions,
	Omit	0≦speed mode≦2. 0 is specified.

#### Application

When this command is executed, the playback is performed in the specified speed mode from the frame specified by frame number 1 up to the frame specified by frame number 2.

When the playback starts, the control is transferred to the next statement.

When the playback ends, the still picture of the frame specified by frame number 2 is displayed.

#### Specification of the speed mode

The speed mode determines the playback speed. The speeds which can be selected are as follows.

Speed mode	Playback speed
0	normal
1	fast (×3)
2	slow (×1/5)

#### The direction of the playback

The direction of the playback is set by the frame numbers 1 and 2. Forward play: When frame number 1 < frame number 2 Reverse play: When frame number 1 > frame number 2

Note The execution of the \_\_LDPSTART command when the HB-G900P is connected to the LDP-180P may cause a slight lateral movement of the picture when the LDP-180P starts and stops the playback of the specified scene.

#### Example

When

\_LDPSTART(2000,2500,2)

is executed, frame number 2000 is searched for. Then, the playback from frame 2000 to frame 2500 is performed at slow speed ( $\times$  1/5 of normal speed). The playback stops and the still picture of frame 2500 is displayed.

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# LDPSTAT

"call LDP status"

Reads the status of the LDP-180P.

#### Format

\_\_LDPSTAT (array variable) Array variable Integer type.

#### Application

The \_\_LDPSTAT command reads the status of the LDP-180P and stores the status information into the specified array variable.

The status information is given by five integers.

The array must be declared in advance in a DIM statement with the size of 5 or more.

Note The lid of the LDP-180P opens when the playback of a whole disc finishes. If this happens while the \_\_LDPSTAT command is being executed, the computer will hang up. In this case, press the ESC key.

#### Example

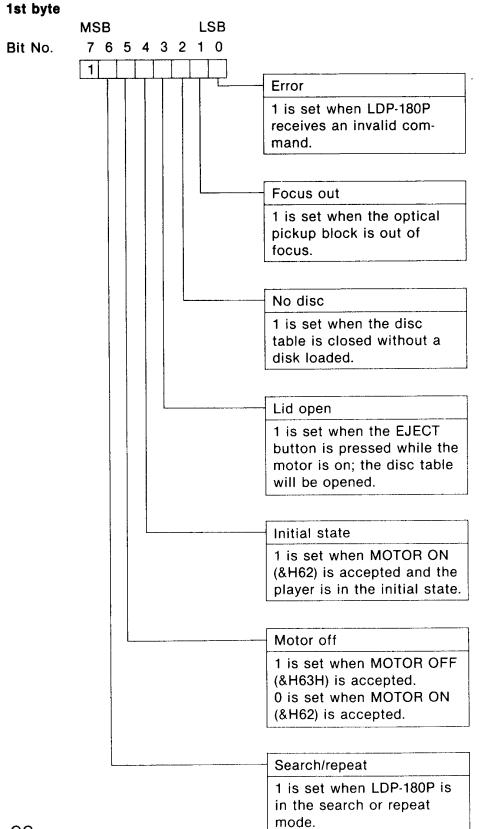
When

DIM S%(4) LDPSTAT(S%)

is executed, five integers indicating the status information of the LDP-180P are assigned to S%(0) to S%(4).

#### LDP-180P status information

The LDP-180P status information is given by five integers. The integer type variables consist of two bytes. The upper byte of each of the five integers given here is always 0. The lower byte indicates the following information and is given in the order shown in the following page.



### 2nd byte

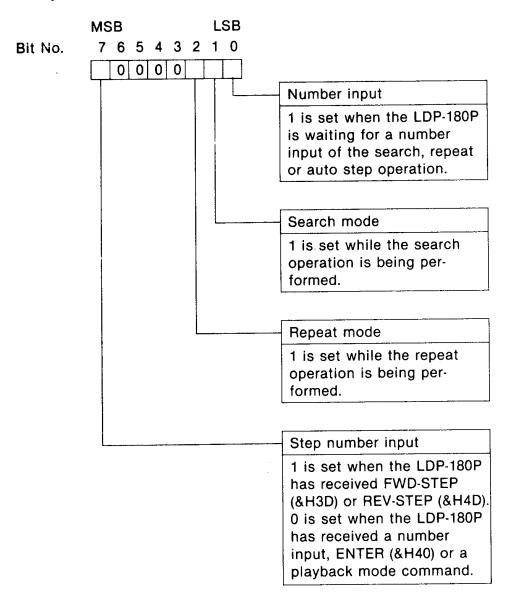
	MSB					L	SB	
Bit No.		•	~	•	-	2	•	-
	0	0	0	0	0	0	0	0

### 3rd byte

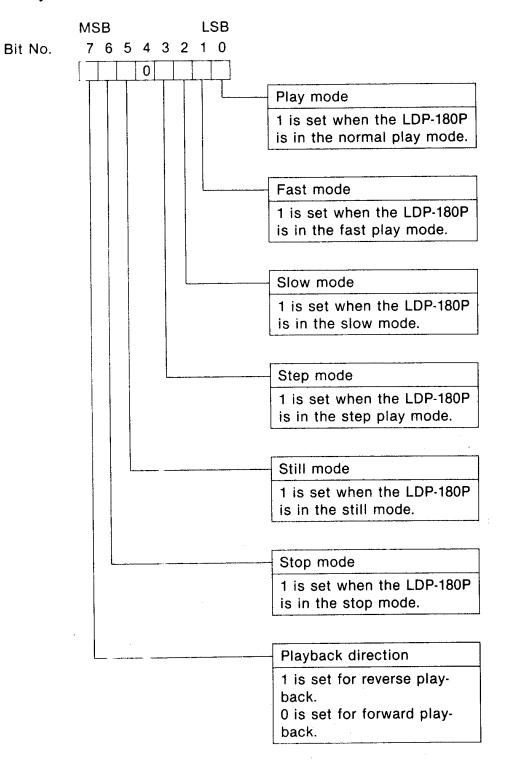
	MSB	LSB	
Bit No.	7 6 5 4 3 2 0 0 0 0	1 0 0 0	
			CAV/CLV disc
			1 is set when a CLV disc is loaded. 0 is set when a CAV disc is loaded.
			Native mode
			1 is set when the LDP-180P is ready to accept a com- mand of FWD/REV-PLAY, -FAST or -SLOW. 0 is set when the LDP-180P is in the search or repeat command input mode.

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5th byte



# LDPWAIT

"call LDP wait"

Suspends the execution of a program until the LDP-180P accesses a frame whose number is greater than or equal to the specified frame number.

### Format

LDPWAIT (frame number[,wait mode])Frame numberCond.Numeric constant, variables, array variables or their<br/>expressions, 1≦ frame number ≤54000.Wait modeCond.Numeric constant, variables, array variables or their<br/>expressions, wait mode = 1 or 0.Omit0 is specified.

### Application

When this command is executed, the program execution is suspended until the LDP-180P accesses a frame whose number is greater than or equal to the specified frame number. The execution is then transferred to the next statement in the program.

This command is used in conjunction with \_\_LDPSTART.

#### Specification of the wait mode

The wait mode determines whether HB-G900P accepts the determines whether HB-G900P accepts the determines while the program is being suspended by this command.

Mode 1 When 1 is specified and the program is being suspended by the \_LDPWAIT command, the suspension of the program execution is terminated. The still picture of the frame accessed at the time when the key is pressed is obtained and the control is transferred to the next statement.

Mode 0 When 0 is specified, the [] key does not function.

### Example

- 10 LDPSTART(2000,3000)
- 20 LDPWAIT(2500,0)
- 30 PRINT "Frame 2500 is accessed."

When this program is executed, playback in normal speed starts from frame 2000. In line 20, the HB-G900P waits until frame 2500 is accessed by the LDP-180P. When frame 2500 is accessed, the control is transferred to line 30 and "Frame 2500 is accessed" is displayed. The playback will continue up to frame 3000.

In this program, pressing the key while the HB-G900P is waiting for frame 2500 will do nothing.

When line 20 is changed as follows.

20 \_LDPWAIT(2500,1)

and the program is executed, the LDP-180P will perform playback in the same way as in the above program. However, when the j key is pressed while the HB-G900P is waiting for frame 2500 to be accessed, the still picture of the frame accessed at the time when the key is pressed is obtained and the control is transferred to the next statement, in this case line 30.

Note When

10 LDPSTART(2500,1500) 20 LDPWAIT(2000,0) 30 PRINT "PLAY END"

is executed, "PLAY END" will be displayed right after the playback started from frame 2500. This is because the number of the frame currently accessed (frame 2500) is greater than the specified frame number in \_\_LDPWAIT command.

## \_\_SLFONT

"call select font"

Selects the type face of the alphanumeric characters displayed with a \_\_TEXT command.

#### Format

SLFFONT ("type face name", array variable)				
Type face name	Cond.	String constant, variables, array variables or their		
		expressions indicating a type face.		
Array variable		Integer type.		

#### Application

The \_\_SLFONT command loads a file for the specified type face and assigns the data into the specified array variables so that the characters of the specified type are displayed with the \_\_TEXT command.

The array must be declared in advance in a DIM statement in order to set up the necessary area in the memory for the font data. The size of the area must be 3000 or larger.

The type face is specified by the following names.

Type face name	Type face	Example
DECO16	Deco 16	Sony
POST16	Poster 16	
CLAS16	Classic 16	SONY
EURO16	European 16	

#### Notes

- The backup copy of the supplied disk containing the font data must be inserted into the disk drive before executing the \_\_\_SLFONT command.
- Load the file for the desired font data in the form of a program. The file which has been loaded clears after the program is executed. If you are going to use the same file or other file in a different program, the file must again be loaded in that new program.

#### Example

When classic characters are to be displayed when \_\_\_TEXT command is executed, execute.

```
10 DIM F%(3000)
20 _SLFONT("CLAS16",F%)
```

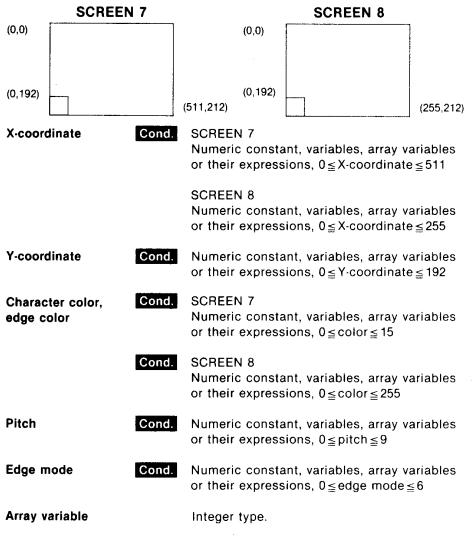
Please note that this program only loads the file for the specified type face. In order to display the characters, you must specify the character strings, the location to be displayed, etc. with the \_\_TEXT command.

TEXT "call text"

Displays an alphanumeric character string.

#### Format

\_\_TEXT ("character string", array variable, x-coordinate, y-coordinate, character color, edge color, pitch, edge mode)



#### Notes

- The screen display mode must be set to 7 or 8 with the SCREEN command in advance of the \_\_TEXT command.
- When a number greater than 192 is specified for the Y-coordinate, the characters will not be wholly displayed.

#### Application

This command displays the specified character string with its upper left-hand corner placed at the position specified by X and Y coordinates on the screen.

The array variable must be the same array variable used with the \_\_SLFONT command.

The edge mode specifies how many dots are to be displayed as the edge of each character.

When 0 is specified, the characters will not be edged.

The numbers 1 through 3 specify how many dots are to be displayed as the edge width. When one of these numbers are specified, the characters are edged equally on all edges by the specified number of dots.



The numbers 4 through 6 specify how many dots are to be displayed as the shadow. When one of these numbers are specified, the characters are displayed as if they are lighted from upper left-hand corner.



The pitch specifies the number of dots between the adjacent characters.

The character and edge colors can be selected as follows. In case of SCREEN 7, 16 colors can be selected out of 512 colors using the color palette function. The following is the list of preset color codes.

Code	Color	Code	Color
0	transparent	8	medium red
1	black	9	light red
2	medium green	10	dark yellow
3	light green	11	light yellow
4	dark blue	12	dark green
5	light blue	13	magenta
6	dark red	14	gray
7	sky blue	15	white

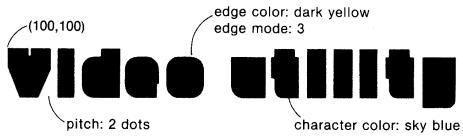
In case of SCREEN 8, colors can be selected from 256 colors. For details, refer to the MSX2 BASIC Programming Reference Manual.

### Example

When

```
10 DIM F%(3000)
20 _SLFONT("DEC016",F%)
30 SCREEN 7
40 _TEXT("Video utility",F%,100,100,7,10,2,3)
```

are executed, a character string "Video utility" is displayed as shown below:



# ERROR MESSAGES

When the extended commands are used, the following message will appear on the display if any error occurs.

#### \*\*\* COMMUNICATION NOT READY \*\*\*

This message appears when

- an extended command is executed without having the \_\_LDPINIT command executed.
- a command is sent to the videodisc player after the Device I/O error message has appeared.

When this message appears, send the \_\_LDPINIT command.

#### **Device I/O error**

This message appears when

- the \_\_LDPINIT command is sent but the RS-232C cable is improperly connected.
- commands are sent when a CLV disc is loaded or when there is no disc.
- the BAUD RATE selector of the IF-180 is improperly set.

When this message appears, make the necessary correction and send the \_\_LDPINIT command again.

#### \*\*\* LDP OUTPUT ERROR \*\*\*

This message appears when a code sent by the \_\_LDPOUT command is not in the range of &H30 to &H63 or invalid at the time it is sent. When this message appears, send the \_\_LDPOUT command again with an appropriate code.

#### \*\*\* FRAME NO ERROR \*\*\*

This message appears when a number not in the range of 1 to 54000 is sent as a frame number.

When this message appears, send the command again with an appropriate frame number.

#### \*\*\* LDP SPEED MODE ERROR! \*\*\*

This message appears when a number not in the range of 0 to 2 is sent as a speed mode.

When this message appears, send the command again with an appropriate speed mode.

#### \*\*\* OUT OF SCREEN \*\*\*

This message appears when

- the \_\_\_TEXT command is executed but the screen display mode has not been set to 7 or 8. In this case, add the SCREEN command in your program for displaying the character string with the line number smaller than that of the \_\_TEXT command.
- the character string specified by the \_\_TEXT command occupies more than 512 dots (SCREEN 7) or 256 dots (SCREEN 8) in the Xcoordinate direction. In this case, change the values of parametes in the \_\_TEXT command so that the specified character string would fit into the range of whichever screen display mode you are using.

### SAMPLE PROGRAM

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10 ' VIDEO UTILITY DEMO PROGRAM '85.10.28 20 DIM A%(3000) 30 \_SLFONT("CLÁS16", A%) 40 SCREEN 7, 3 50 LUDPINIT 60 SETVIDEO 0 70 COLOR 15, 4, 4 80 CLS 90 \_TEXT("VIDEO UTILITY DEMO", A%, 110, 0, 10, 1, 3, 1) 100 \_TEXT("1. EXAMPLE1", A%, 130, 70, 15, 1, 3, 1) 110 \_TEXT("2. EXAMPLE2", A%, 130, 120, 15, 1, 3, 1) 120 \_TEXT("SELECT NUMBER", A%, 130, 180, 3, 1, 3, 1) 130 K\$=INKEY\$ 140 IF K\$="" THEN 130 150 IF K\$="1" THEN GOSUB 170 160 IF K\$="2" THEN GOSUB 260 ELSE 130 170' ' \*\*\* EXAMPLE1 \*\*\* 180 SET VIDEO 2,,,1,3,1 190 \_LDPSTART(1000, 2000, 0) 200 COLOR 15,0,0 210 CLS 220 \_INDEXON 230 \_TEXT("1. EXAMPLE1", A%, 150, 180, 15, 1, 3, 1) 240 \_LDPEND 250 RETURN 60 260 ' \*\*\* EXAMPLE2 \*\*\* 270 SET VIDEO 2.,.1.3.1 280 \_LDPSTART(3000,4000,0) 290 COLOR 15.0,0 300 CLS 310 \_INDEXON 320 \_TEXT("2. EXAMPLE2", A%, 150, 180, 15, 1, 3, 1) 330 \_LDPEND 340 RETURN 60

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