



Tenma Test Equipment

# HDTV + PC Video Pattern Generator

DVI, VGA, and Component Video (Y, Pb, Pr) Output

## Model 72-7985



---

Tenma Test Equipment  
Exclusively Distributed by MCM, an InOne company  
Phone: 800-543-4330  
Fax: 800-765-6960  
[www.mcminone.com](http://www.mcminone.com)

## TRADEMARKS USED IN THIS MANUAL

Tenma Test Equipment, Tenma, and  (logo) are trademarks of MCM, an InOne company.

Apple and Macintosh are registered trademarks of Apple Computer, Inc.

IBM is a registered trademark of International Business Machines Corporation.

SGI is a registered trademark of Silicon Graphics, Inc.

Sun and Sun Microsystems are registered trademarks of Sun Microsystems, Inc. in the United States and other countries.

*Any other trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.*

FEDERAL COMMUNICATIONS COMMISSION  
AND CANADIAN DEPARTMENT OF COMMUNICATIONS  
RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been designed to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are intended to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at their own expense, will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

*This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.*

EUROPEAN UNION DECLARATION OF CONFORMITY

This product has been tested and shown to comply with the requirements of the European EMC directive 89/336/EEC



# Contents

1. Introduction .....	page 4
1.1 General .....	page 4
1.2 Features .....	page 4
2. Installation .....	page 5
3. Operation .....	page 5
4. Troubleshooting .....	page 9
5. Specifications.....	page 10

# 1. Introduction

## 1.1 General

Thank you for purchasing the Tenma Model 72-7985 Pattern Generator, for high-resolution display devices.

The unit provides DVI, PC (VGA through SXGA), and HDTV Component Video (Y,Pb,Pr) outputs. The Model 72-7985 features 28 static and dynamic video test patterns specially designed for testing, calibrating, and troubleshooting high end video gear and A/V installations.

In addition to all of standard PC resolutions and refresh rates (up to SXGA at 85 Hz), it is capable of providing HDTV outputs from 480p to 1080i both in DVI digital and in YPbPr formats. The On Screen Display (OSD) indicates output resolution and refresh rate settings. Among the available 28 test patterns are: color bar, multi-bust, circle, and crosshatch.

The Model 72-7985 comes in a sturdy metal case and it includes DVI, VGA, and VGA-to-Component cables to handle most high-end testing and installation requirements. It is ideal to use with LCD, plasma, CRT monitors, and projectors that are equipped with PC, Component, or DVI inputs. The addition of MCM Model 24-9316 adaptor cable (available separately) also allows testing of monitors with HDMI inputs.

## 1.2 Features

- VGA, Component, and DVI/ video test pattern generator in one compact, rugged housing.
- Programmable PC output resolutions from 640x480 to 1280x1024 (VGA/SVGA/XGA/SXGA)
- Programmable HDTV output resolutions from 480p to 1080i (480i 576i 480p 567p 720p 1080i)
- 28 typical and custom video test patterns (both static and dynamic)
- Easy-to-use push-button OSD menu control
- Includes all cables required
- Packaged in highly portable EMI shielded enclosure

## 2. Installation

1. Plug the supplied AC adapter to the POWER input connector located on the rear of the unit. To avoid risk of possible damage, use the supplied adapter only. The green LED indicator will light, indicating the unit is powered.
2. Included in the package are all necessary cables: DVI cable, VGA cable, and HD15 to component Cable (shown below). For testing HDMI connections, an optional cable (MCM #24-9316) may be purchased separately.



## 3. Operation

- The front panel of the unit is pictured below:



- The two output connectors, DVI OUT and VGA/YPbPr, are simultaneously active when the unit is on.
- The VGA output serves two purposes: •Standard RGBHV VESA signals, similar to that of most personal computers •YPbPr output, similar to the Red/Blue/Green component video High Definition Television (HTVD) signals. The output mode is determined by the slide switch immediately left of this connector.
- The red LED indicator, next to the slide switch, illuminates when the output is one of the standard HDTV resolutions AND the slide switch is in YPbPr mode.

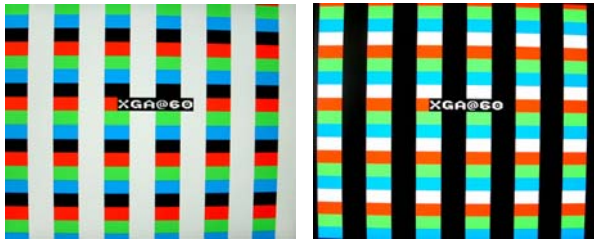
- Operate requires simple selection from three push-button switches. One button scrolls through all available resolutions and refresh rates (labeled **OUTPUT MODE**). The other 2 buttons (labeled + and -) are used to select the 28 available test patterns.
- As an alternative to scrolling through all resolutions, you may quickly “jump” to known resolution/refresh rates by simultaneously pressing two buttons. Pressing the left two jumps directly to XGA at 60 Hz. Pressing the right two jumps directly to 480p (a standard HDTV mode).
- Note that in HDTV modes, the DVI OUT will always provide the proper signal. The VGA (HD15 pin) connector will provide Component Video (with sync on Y) if the slide switch is in the YPbPr position. In the RGB position, this connector provides standard PC format VGA output.
- The following chart lists the output resolutions in the order that the Mode button scrolls. The on screen display will indicate this mode.

PC Resolutions		
VGA	640 X 480 @ 50/60/72/75/85 Hz	
SVGA	800 X 600 @ 50/56/60/72/75/85 Hz	
XGA	1024 X 768 @ 50/60/70/75/85 Hz	---- (Quick Select)
WXGA	1280 X 768 @ 50/60 Hz	
SXGA	1280 X 1024 @ 50/60 Hz	
HDTV Resolutions		
480P	720 X 480 @ 50/60 Hz	---- (Quick Select)
576P	720 X 576 @ 50/60 Hz	
720P	1280 X 720 @ 50/60 Hz	
1080i	1920 X 1080 @ 50/60 Hz	

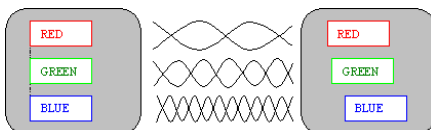
- The (+) and (-) buttons select from 28 different video test patterns.
  - Standard patterns:**
    - Color bars
    - Color bar and Multi-burst on same screen
    - Grey-scale
    - Checkerboard
    - Circle
    - Crosshatch
  - Dynamic patterns:**
    - Full screen smooth fade from black to full white
    - Checkerboard which alternates white and black squares approximately once per second (this pattern may be good to test compression artifacts if the video is going to be compressed for lower bandwidth transmission in some future product).



- There are 2 patterns with red, green and blue horizontal bars over white and black background. This is ideal for video distribution testing, especially over long cable runs. The high frequency loss in the long cable runs will cause the color of the horizontal bars to smear to the right. MCM Electronics offers several models of high quality video amplifiers and extenders which have provisions for compensating for these losses.



The same 2 patterns are also useful when sending video over UTP cable, such as Cat5, Cat5E or Cat6, both for the high-frequency loss and skew compensation. The right and left edges of the RGB bars should line up vertically. This pattern provides convenient means for making this adjustment.



## Operation Summary

- ❑ Repeatedly pressing the OUTPUT MODE button changes the resolution. The on screen display will indicate the resolution and refresh rate settings

**NOTE:** It is possible to set the output resolution to one that is not supported by the connected monitor. In this case you may not get a readable screen. Continue pressing the OUTPUT MODE button until a compatible format is obtained, or use the two-button “QuickSelect” combination to immediately jump to a known resolution.

- ❑ To change the test pattern press the + or – keys.
- ❑ To get analog high resolution component video output, at the HD15 connector (instead of VGA), slide the switch to YPbPr and press the 480p “QuickSelect”. The LED will turn on to indicate that there is a valid component output signal present.

**NOTE:** If the LED is not on, this indicates improper analog component output! Either the output MODE is not at one of the HDTV settings, or the slide switch is not in correct position.

**NOTE:** The DVI connector outputs all available resolutions (both PC and HDTV)

- ❑ Once output resolution and pattern have been selected, for a period of eight seconds, the unit will remember the setting when powered off. The next time the unit is used, it will power on to the same setting.

# 4. Troubleshooting

## **If your monitor goes blank or says “mode not supported”**

It is possible to set the output resolution to one not supported by the connected monitor. In this case you may not get a screen. Either continue pressing the OUTPUT MODE button, as it eventually scrolls through all the available outputs in a circular fashion, or use the two-button “QuickSelect” combination to immediately jump to a known output.

## **If you are certain the unit is malfunctioning**

Do not open or try to repair the unit yourself. There are no customer repairable items in the unit and you will void your warranty by doing so. Contact MCM Customer Service at 1-877-626-3532.

## **Shipping and Packaging**

If you need to transport or ship your converter:

- Package it carefully. We recommend that you use the original container.
- Before you ship the unit back to MCM, contact us to get a Return Material Authorization (RMA) number.

# 5. Specifications

<b>Compliance</b>	CE; FCC Part 15 Subpart B Class A, IC Class
<b>Standards</b>	PC (RGBHV): VGA, SVGA, XGA, SXGA video. HDTV (YPbPr): 480P, 576P, 720P, 1080i DVI: All of the above
<b>Interfaces Supported</b>	Analog Video: VGA, and YPbPr Digital Video: DVI-I Single link
<b>Video Level</b>	0.7 volts peak-to-peak, on RGB, 3 v on H & V 1vp-p on Y signal, 0.7 vp-p on Pb&Pr in YPbPr mode
<b>Connectors</b>	HD15 for VGA and Y/Pb/Pr output 29 pin female DVI connector
<b>Temperature Tolerance</b>	Operating: 32 ~122°F (0 ~ 50°C); Storage: -40 ~ +185°F (-40 ~ +85°C)
<b>Enclosure</b>	Steel
<b>Power Requirements</b>	5VDC, 1.5A max (center tip positive) AC adaptor included
<b>Dimensions</b>	1.2" (H) x 7" (W) x 7" (D)